



## MANAGEMENT OF THE AGRICULTURAL SECTOR SYSTEM BASED ON INNOVATIVE TECHNOLOGIES

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### Abstract:

*The article describes the achievements and disadvantages in the process of managing the agricultural sector based on innovative technologies and foreign experience in this area*

**Keywords:** *agro-industrial complex, innovative development, innovative news, competitiveness in the world market, agricultural innovation complex, modern agro-innovative complex, modern agro-innovative complex, innovation minijack.*

**INTRODUCTION.** Today, the wide use of the achievements of world science and innovation activities is becoming an important factor of consistent and stable development of all spheres of society and state life, building a worthy future of the country. That is why Uzbekistan's economy and business entities are currently in the process of reorientation to the innovative path of development. This process is modernization associated with innovative innovations in social and economic life, as well as fundamental changes in the consciousness of society, in turn, reaching a certain level of competitiveness, achieving socio-economic development rates that ensure a high standard of living, an increase in the quality of human capital, in the mentality of the people of the country aims for positive changes.

In this regard, world experience shows that the continuous implementation of innovations that ensure quality growth in all areas has become the driving force of society and economic development.

Today, countries where innovative models of development and "smart" technologies are implemented are the most successful and stable. The sustainable development of such countries, their competitiveness in world markets is based not on the export of natural resources and the use of physical labor, but on innovative ideas and developments.

The main task of innovative development is to ensure the country's economic growth and competitiveness in world markets due to the wide introduction of innovation and scientific achievements, as well as the increase of the intellectual share in the economy.

The President signed the decree "On the further development of the system of knowledge and innovations in agriculture and the provision of modern services". The decree approved the concept of priority

development of the system of knowledge and innovations in agriculture in 2021-2025.<sup>1</sup> According to it, the National Center of Knowledge and Innovation in Agriculture operates under the Ministry of Agriculture, which connects the integrated system of education, science, production and provision of modern agricultural services to agricultural subjects. The national center is planned to be established on the basis of the Scientific and Production Center of Agriculture and Food Supply, DUK "Agroinnovation", Cotton Seed Center.

In addition, the fact that the President of the Republic of Uzbekistan Sh.M. Mirziyoyev named 2018 as "The year of support of active entrepreneurship, innovative ideas and technologies"[1] shows the basis of innovative development in the Republic of Uzbekistan. Because, according to the President, "...by active entrepreneur, we mean business people who are able to produce competitive products, and most importantly, create new jobs, feed not only themselves and their families, but also benefit the entire society. ... Today we are moving on the path of innovative development aimed at radically renewing all spheres of state and social life. It's not for nothing, of course. Because in today's fast-paced world, who wins? The state that relies on a new idea, a new idea, and innovation will win.

In the implementation and implementation of innovative activities, first of all, it is necessary to clarify the main terms and concepts. As a result of studying the scientific research of scientists dealing with the problem of innovation, we observed that there are different approaches to the content and essence of innovation, innovative process and innovative activity.

For example, we can find terms such as "innovation", "innovation", "scientific and technical innovation" in the

<sup>1</sup> <https://kun.uz/news/2021/02/08/qishloq-xojaligida-bilim-va-innovatsiyalar-tizimini-rivojlantirish-konsepsiysi-tasdiqlandi>.



research works of scientists such as M. Porter, J. Bright, B. Twiss [8].

At the same time, several economists expressed their opinion on the innovation. For example, B. Santo defined innovation as follows: "Innovation is a socio-technical-economic process, which leads to the creation of products and technologies that are better in their characteristics through the practical use of ideas and discoveries, if it is aimed at obtaining economic benefits, its market when it appears, there will be an opportunity to earn additional income" [9].

R.A. Fatkhuddinov defines it as follows: "Innovation is the final result of an innovation introduced in order to change the object of management and obtain an economic, social, ecological, scientific-technical or other effect" [3].

Summarizing the opinions of a number of other scientists, usually they expressed the meaning of "innovation" and "innovation", "introduction of innovation" [5].

According to R.V. Abdullaev and K.A. Khasanjanov, "Innovation is a form of manifestation of scientific and technical progress, it is a special type of knowledge, the result of highly developed work, and it is becoming a leading field in people's life in the post-industrial society" [4].

Regarding the work carried out in this field, the following can be mentioned, that is, based on the report given by the Agricultural Research and Production Center of Uzbekistan on the work carried out during the 9 months of 2017, "this year, by scientific institutions of the ministerial system, by the Coordination Committee for the Development of Science and Technology of the Republic of Uzbekistan A total of 295 projects, including 21 fundamental, 156 practical, 17 fundamental and practical projects of young scientists, 93 innovative grant projects and 8 unique objects, are being conducted on the basis of the approved State scientific and technical programs.

Researches are aimed at the further development of cotton, grain, fruit and viticulture, vegetable and policing, animal husbandry, veterinary and other sectors of agriculture, development of methods of effective use of land, water, mineral fertilizers and other material and technical resources, preservation and increase of soil fertility, in the agricultural sector aimed at solving important issues such as deepening reforms, improving production and economic indicators of farms.

On the basis of the report of the meeting of the Cabinet of Ministers of the Republic of Uzbekistan No. 1 on March 5, 2017, 95 developments created by scientists of institutions of the system were presented at the "Innovative ideas, technologies and projects X Republican Fair" held on May 10-12, 2017 at "Uzbekspomarkaz" and More than 250 between 15 research and higher education institutions and farms

and other customers, totaling 3.7 billion. mutually beneficial contracts worth soms were signed.

During the reporting period, scientific articles were published in 30 international and more than 600 domestic journals, as well as 250 international and 580 republic-level conferences on scientific research conducted by the scientists of the system's institutions. Also, 3 international and 135 local monographs, textbooks, educational and methodological manuals were published" [6].

Also, according to the Decree of the President of the Republic of Uzbekistan "On the establishment of the Ministry of Innovative Development of the Republic of Uzbekistan" dated November 29, 2017 No. PF-5264 in the field of introducing innovations in agriculture [3]:

- ✓ *first of all, to introduce proposals for the introduction of modern tested forms of agricultural production based on the concept of "Smart Agriculture" that allows rational use of available land, water and other natural resources;*
- ✓ *to support the introduction of innovative ideas, developments and technologies that allow maximum automation of agricultural production in the agrarian sector, a significant increase in productivity and improvement of financial indicators, as well as ensuring the country's food security;*
- ✓ *issues such as helping to expand trade markets and their direct supply by ensuring the competitiveness of agricultural products in the world market, including with the help of large retailers.*

In other words, we should turn Uzbekistan into a stable market economy with a high share of innovation and intellectual contribution in production, a modern and competitive industry in the global market, as well as a rapidly developing country with a favorable investment and business environment.

It is impossible to achieve the set goals without fully transitioning Uzbekistan to the innovative model of development, which requires the creation of an effective system of state support for innovative activities in the country and the promotion of the practical implementation of innovative ideas, developments and technologies in public administration, priority sectors of the economy, and the social sphere. State regulation of innovative processes is aimed at improving the mechanism of introducing innovations in agriculture.

The innovative development of the agro-industrial complex envisages such a type of economic development that innovation becomes the main factor as the final result of innovative activity. Innovative activity is interpreted as bringing a new product or service to the market, adopting a new production process (technology) or business model, creating new market segments [7].

The innovative process in the agro-industrial complex has a specific feature related to the specific aspects of



agro-industrial production and, first of all, its main component - agriculture.

Applying innovations to the agricultural sector, new approaches to social services used to increase production efficiency, new ways of organizing and managing various sectors of the economy, new methods of treatment and prevention of livestock and poultry, plant and animal protection products, new technologies in agriculture, livestock and processing industries, material, new or quality food products, species and breeds of livestock and poultry, represents economic practice in the development and research of new types of plants.

In the agro-industrial complex, the organization of the main types and directions of innovations is carried out, which is related to their diversity, form, and methods of application. Therefore, the management of innovation processes includes the classification of innovations for different reasons and is carried out according to the important aspects that describe the most important features of innovations.

According to the sources of scientific literature in agriculture, four types of innovations are selected: selection-genetic; technical and technological production; organizational and management; important in solving social and environmental problems. This is important for the successful management of innovative processes in the agricultural sector.

In our opinion, in order to increase the efficiency of agricultural production, it is necessary to transfer to innovative ways of industrial development. In order to create an effective mechanism for managing

innovations in agriculture, we suggest creating regional specialized agrotechnical centers in each region of Uzbekistan.

Rapid innovative development in agriculture can be achieved mainly on the basis of turning scientific, educational, production and financial potentials of the region into a single agrarian-innovative complex and creating economic conditions for stimulating innovations in the region.

The main functions of this regional specialized agro-industrial center are:

development of the main principles of regional innovation policy formation in the agro-industrial complex and improvement of its implementation methods:

- ✚ to determine the main directions of innovative development of the region's agriculture;
- ✚ coordination of innovative activities of agricultural enterprises;
- ✚ monitoring of the market of agrarian innovations;
- ✚ information and communication support of agricultural enterprises in the field of innovative activity;
- ✚ selection and preliminary assessment of the possibility of using innovations in agro-industry production;
- ✚ preparation of proposals for the development of innovations and provision of consulting services for their implementation;
- ✚ controlling the implementation of agrarian innovations and investment projects receiving state benefits.

Table 1<sup>2</sup>

During the research, we identify the following main directions of innovative development of regional agriculture

Innovations	Expected results
<b>In the field of agriculture</b>	
1. Using cellular technology, molecular genetics and traditional breeding to introduce new disease-resistant high-yielding varieties of crops.	1. Increase crop yield, improve grain quality.
2. Adaptation of fertile types of high agricultural crops of foreign countries to the soil and climatic conditions of the region.	2. Reducing costs due to the introduction of new high-yielding crops.
3. Development and introduction of new systems of land use and water saving technologies.	3. Maintaining soil fertility, increasing the yield of agricultural crops.
4. Development and implementation of machine-saving systems for complex mechanization of agricultural technological processes.	4. Increasing labor productivity, reducing costs for mechanized work.

<sup>2</sup> Based on the Decision of the President of the Republic of Uzbekistan dated December 29, 2015 No. PQ-2460 "On measures

for the further reform and development of agriculture in 2016-2020" [1].



5. Development and use of highly effective biopreparations to combat plant diseases and pests.	5. Increase productivity and quality of products.
<b>In the field of animal husbandry</b>	
1. Breeding of high-breeding species of livestock in agriculture.	1. Increase the productivity of livestock. 2. Improvement of the breed composition of the herd.
2. Adaptation of foreign bred agricultural livestock in the region.	1. To reduce the cost of improving the breeding composition of the herd. 2. Increasing the productivity of livestock.
3. Development and implementation of waste-free technologies for processing livestock products.	1. Improving the type of food products. 2. Reduction of production costs.
4. Creation of new resource-saving information systems for complex mechanization of technological processes in animal husbandry.	1. Increase labor productivity. 2. Reducing the cost of the product.
5. Production of technical means of water supply based on the use of renewable natural energy sources.	1. Reducing production costs of livestock products. 2. Increasing environmental safety.
6. Improvement of livestock feeding and feeding systems.	1. Increasing the productivity of livestock. 2. Improvement of product quality.
7. Creation of new diagnostic, preventive and treatment methods for livestock.	1. Improving the quality of livestock products. 2. Improvement of the ecological condition of the region.

**\* including replanting and drylands.**

Measures to optimize the composition of cultivated areas and increase productivity will lead to a significant increase in the volume of agricultural production in our country. In particular, as shown in Table 3, during the years 2016-2020, the volume of 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, and our country creates a basis for ensuring food safety [8].

In the Republic of Uzbekistan in 2017 alone, due to the reduction of cotton cultivation areas by 49 thousand hectares and grain areas by 10 thousand hectares, 8.1 thousand hectares of cultivated areas were reduced to potatoes, 27.2 thousand hectares to vegetables, 5.9 thousand hectares to intensive gardens, 2.9 thousand hectares to vineyard, - 10.9 thousand hectares of fodder crops and 4 thousand hectares of oil crops are planned to be planted. As a result of these measures, the loss of cotton and grain cultivation in low-yielding arable fields is estimated at 80 billion. reduction to soums, an additional 1 mln. as a result of the production of about tons of fruit and vegetable products, the creation of more than 48,500 new jobs in the regions, it will be possible to increase the number of people employed in these fields to 75,600, and to

double the volume of export of fruit and vegetable products.

One of the most important tasks is to develop intensive gardening and viticulture by planting small and semi-small trees with high productivity, early ripening and sweet taste based on modern agro-technologies, and to increase the volume of exportable fruit and vegetable products in the world markets.

Seed-selection and variety selection are of great importance in increasing the productivity of agricultural crops. According to the information of the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan, in the years of independence, the scientists of our country created new varieties of fruit, berry, nut, subtropical, citrus plants and grapes, studied local and introduced varieties, developed and introduced maintenance technologies on a large scale. studies were conducted. As a result, for the first time in Central Asia, selection of seed, leguminous, berry, nut fruit crops was started, and the basis for creating new varieties was laid. Thanks to many years of scientific research, more than 170 fruit and grape varieties have been created, and about eighty of them have been included in the State Register. Currently, 709 types of fruit, vegetable, potato and potato varieties are included in the State Register, of which 189 are local varieties and 520 are foreign varieties [8].

**Table 2**  
**Entered into the State Register of the Republic of Uzbekistan**



**fruits, vegetables, potatoes and varieties of potatoes.<sup>3</sup>**

<b>Indicator</b>	<b>Result</b>	<b>Including:</b>	
		<b>local varieties</b>	<b>foreign varieties</b>
Type of crop varieties	709	189	520

Also, expansion of research and development works on the creation of varieties of agricultural crops and animal species suitable for the soil-climatic conditions of the republic, resistant to drought, salinity, heat and diseases;

One of the most urgent tasks of today is to create early-season and high-yielding agricultural crop varieties suitable for different soil and climate zones based on gene knockout biotechnologies, proving their negative impact on consumer health.

Modernization and rapid development of the livestock sector is an important part of the development

of the entire agrarian sector. In the Resolution of the President of the Republic of Uzbekistan dated December 29, 2015 No. PQ-2460 "On measures to deepen and develop the agricultural reform in the period of 2016-2020" [2] in 2016-2020, the number of large horned cattle is set at 3,165,000 sheep and the tasks of increasing the number of goats to 4,281,000 and poultry to 31,200,000 are set. As a result, during these years, the volume of meat production (in live weight) increased to 519,000 tons, milk to 4,177,000 tons, fish to 90,000 tons, honey to 13,700 tons, and eggs to 4,100,000 tons. increases to pieces.

<sup>3</sup> Source: Ministry of Agriculture and Water Management of the Republic of Uzbekistan.

**Table 3****Forecast indicators of increasing the production volume of livestock products in the republic in 2016-2020.<sup>4</sup>**

<b>Indicator</b>	<b>2015</b>	<b>Forecast indicators</b>					<b>Change from 2020 to 2015</b>		
		<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>+, -</b>	<b>%</b>	
<b>Livestock head count, a thousand heads</b>									
Large horned 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	
In poultry	60 800	64 600	69 500	75 500	83 000	92 000	+ 31 200	151,3	
<b>Production of livestock products, thousand tons</b>									
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, mln. piece	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	

Improvement of reclamation of irrigated lands is one of the decisive factors in the development of agriculture. Because almost 50% of the irrigated arable land in our republic is saline to one degree or another. In the following years, large state programs to improve the reclamation of irrigated lands are being implemented.

In general, in order to further improve the reclamation of irrigated lands in our republic, to develop irrigation and reclamation facilities, to ensure their safe and stable operation, to use water resources rationally and economically, and on this basis to achieve the stability of production of agricultural products, it is planned to implement the following:

Construction and reconstruction of 734.9 km of highway, inter-district, inter-farm collectors, 348.3 km of closed-bed drainage systems, 6 reclamation pumping stations, 79 reclamation vertical wells, 131 reclamation facilities in hydrotechnical facilities;

Repair and restoration of 14,537.2 km of open collectors, 1,330,5 km of closed-bed drainage networks, 15 reclamation pumping stations, 791 reclamation vertical wells, 2,277 hydrotechnical facilities in reclamation objects;

500 km of canals, 74 km of irrigation system, 106 hydrotechnical structures, 10 km of pressurized water pipelines with a capacity of 625 mln. construction and reconstruction of reservoirs equal to cubic meters and protection of 0.5 km of coastal area;

Delivery of 142 pieces of reclamation machinery and equipment to contracting organizations specializing in water management through leasing;

On the basis of a critical study of the effectiveness of the work carried out within the framework of the "2013-2017 State Program for Improving the Reclamation of Irrigated Lands and the Rational Use of Water Resources", the development of the "2018-2022 State Program for the Improvement of the Reclamation of Irrigated Lands and the Rational Use of Water Resources" project [10].

In recent years, new crop irrigation technologies are being tested and recommended for use in a number of regions of our republic. In accordance with the State program of the Republic of Uzbekistan "Improving the melioration of irrigated lands and rational use of water resources in 2013-2017", it is planned to introduce modern innovative methods of irrigation on a total of 104,600 hectares in 2013-2017. According to the information of the Ministry of Agriculture and Water Management of the Republic of Uzbekistan, in 2011-2015, drip irrigation was introduced on 47356.0 hectares of cultivated land, polyethylene film irrigation on 19214.0 hectares, and irrigation technologies through portable flexible pipes were introduced on 18418.0 hectares.

Construction of new processing plants equipped with the most modern high-tech equipment, reconstruction and modernization of existing ones for the production of semi-finished and ready-made food and packaging products based on deep processing of

<sup>4</sup> Source: Compiled on the basis of annexes to the Decision of the President of the Republic of Uzbekistan No. PQ-2460 of December 29, 2015 "On measures for further reform and development of agriculture in 2016-2020" [1].



agricultural products is one of the promising directions of the development of our republic.

PQ-2505 of the President of the Republic of Uzbekistan of March 5, 2016 "On measures to further develop the raw material base of fruit, vegetables and meat and dairy products in 2016-2020, to deepen their processing, and to increase the production and export

of food products" - based on the decision no., it is planned to implement a total of 180 investment projects with a total value of 595,886.3 thousand dollars equivalent to the construction of new enterprises for deep processing of agricultural products, reconstruction and modernization of existing ones.

**Table 4****The cost of investment projects for the construction of new enterprises for deep processing of agricultural products, reconstruction and modernization of existing ones in 2016-2020**

<b>Names of initiators and designers</b>	<b>Total cost of projects</b>	<b>Including by funding sources:</b>		
		<b>Own funds</b>	<b>Bank loans</b>	<b>Foreign investment and loans</b>
Total (180 projects)	595 886,3	242 916,7	189 461,6	163 508,0
Including:				
New construction projects (141)	463 267,3	169 714,7	144 324,6	149 228,0
Reconstruction and modernization (39 projects)	132 619,0	73 202,0	45 137,0	14 280,0

**Source:** Compiled on the basis of the information of JSC "Uzbekoziqvokatholding" [8].

According to this decision, in 2016-2020, 138 fruit and vegetable processing plants with a capacity of 99,100 tons, 46 meat processing plants with a capacity of 16,500 tons, 79 plants with a dairy processing capacity of 34,850 tons, and other food - it is planned to launch 153 new food processing enterprises with a capacity of 26,840 tons.

**CONCLUSIONS AND SUGGESTIONS.** By 2020, as a result of implementation of systematic measures on deep processing of agricultural products, compared to 2016, the volume of canned fruits and vegetables will increase by 79.4%, fruit juices by 80.5%, dry fruits by 73.1%, and meat and meat products by 59.5%, sausage products by 68.8%, milk and dairy products by 56.6%, butter by 51.4%, confectionery products by 59.9%, vegetable oil by 57.2%, sugar by 24.0%, cheese by 2.5%, meat allows to increase canned goods by 2.4 times, fish products by 3.4 times and frozen fish by 2.8 times [8].

Together with the implementation of the above measures, in our opinion, the way to organize a new form of production (association, association or cooperative) of peasant (private assistant) farms with small plots of land and livestock together with regular producers of agricultural products. It is important to create a mechanism for introducing innovations in peasant (personal assistant) farms.

However, their production was based on the use of manual labor with the help of low-yield livestock and outdated equipment. That's why we think that it is necessary to create methods of encouraging peasant (private assistant) farms in order to further develop the cultivation of livestock products and fully satisfy the needs of our people for livestock products. Because we know that cattle do not produce products without

fodder. Fodder is one of the main problems in peasant farms today. In order to increase the number of livestock in peasant (private assistant) farms, it is necessary to provide them with sufficient arable land and pastures, and to increase their productivity by purchasing various fodder (kunjara, shulkha, bran, etc.). For example, farmer (private assistant) farms should be given the opportunity to buy fodder for livestock directly from feed manufacturers, rather than through intermediaries (farms, agricultural enterprises or other state-owned enterprises). Then the prices of livestock products in our markets today, including meat and meat products, milk and milk products, would be in accordance with the capabilities of consumers. We also think that it is necessary to start processing wool, which is considered the most valuable product in animal husbandry today.

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