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WAYS TO IMPROVE IMPLEMENTATION OF INNOVATIONS IN THE FIELD OF AGRICULTURE IN UZBEKISTAN

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A B S T R A C T

The article presents ways to improve the introduction of innovations in agriculture. One of the main factors in the growth of production and employment in agriculture is the application and wide distribution of innovations. Practice shows that innovation is the most important source of improving product quality, saving labor and material costs, increasing labor productivity, improving production and increasing industry efficiency. As a result of the development of innovations, the competitiveness of manufactured products and enterprises in the domestic and foreign markets and the improvement of the socio-economic situation in the country's agrarian sector will be ensured. requires some changes in their relations.

K E Y W O R D S

Agriculture, innovation, economy, innovative activity, cotton, logistics, efficiency, resource-saving technologies, hydroponic methods

Introduction

The problems of the theory of innovation are becoming more and more relevant and arouse the interest of many scientists, which is confirmed by the ever-increasing volume of publications in foreign and domestic science.

The introduction of modern machinery, tools and equipment, technology and know-how to the agricultural sector in Uzbekistan requires, first of all, the organization of effective innovation and innovative activities and the carrying out of properly oriented innovative activities. Attracting foreign investors through full use of innovative opportunities is the main task.

In order to implement it at the level of agricultural sectors and economic entities, it is necessary to determine the directions of innovative policy based on the current requirements of economic development, implement innovative projects, and create a market for innovative products. In order to carry out these works, it is necessary to train personnel who have a deep knowledge of the scientific bases and organizational forms of innovative activity. [1-2].

Continuous updating of the technical, technological and organizational base of agricultural production, increasing the productivity of agricultural plants and livestock, innovative activities that

ensure the competitiveness of manufactured products in world markets, and encouraging the use of innovations are important for the sustainable development of the country's economy. [1-4].

In the conditions of modernization of the economy, it is necessary to solve a number of problems in attracting innovations to the agricultural sector, because the processes of reforming the agrarian sector, priority development of farming, and extensive development of cooperatives are being carried out without stopping. [1-3].

In this regard, the development of science-based mechanisms for the introduction of innovations in the agricultural sector, the improvement of the prospective organizational-management methodology of the introduction of innovations, and the search for effective ways of their implementation become relevant and determine the directions of research.

Literature Review:

The problems of innovation in agriculture are becoming more and more relevant and are attracting the interest of many scientists, as evidenced by the ever-increasing volume of publications in foreign and domestic science.

Theoretical and methodological foundations of ways to improve the introduction of innovations in agriculture L. Vodachek, P. Draker, M. Peters, B. Santo, B. Twiss, R. Khizrich, M. Khuchek, I. Schumpeter, V. V. Alekseev, S. V. Valdaytsev, G. Ya. Goldstein, L.M. Gokhberg, P.N. Zavlin, S.D. Ilenkova, G.D. Kovalev, G.I. Morozova, I.S. Sandu, R.A. Fathutdinov Abdurakhmanov Q.Kh, Yusupov .E.D, Umurzakov O'.P, Toshboev A.J, Toshboev A.A, Abdug'aniev.A, Samatov. It is based on the scientific works of scientists such as G'A, IB Rustamova.

Materials and methods

Implementation of promising projects for the development of agrarian industries in Uzbekistan requires the introduction of modern machinery, tools and equipment, technology and know-how to new agrarian industries, first of all, the organization of effective innovation and innovative activities and the carrying out of properly oriented innovative activities. Attracting foreign investors through full use of innovative opportunities is the main task.

Innovation is an activity or activity that involves the use of new knowledge, know-how embodied in new technologies, new combinations of production factors, as well as having the goal of creating new products that can perform new characteristic tasks with a much higher market potential, or eliminating the negative consequences of destructive processes. is the result. . [1-2].

That is, innovation can be considered as the result of the transformation of ideas, research, development, new or perfect scientific-technical or socio-economic decisions.

Innovation is an achievement of science and technology development implemented in economic, social and environmental terms.

Innovation activity is not a type of activity, but rather its character. The field of innovation does not exist, because any activity and any field, if innovations (such as knowledge, technologies, applications, approaches) are introduced to achieve a result characterized by high demand (such as social, market, defense). can be innovative.

As a result of the reforms carried out in the agrarian sector of our country's economy, in various ownership-based economic entities, which are entering the path of solid economic growth, first of all, the sense of ownership of property, the results of their labor, and the increase in the efficiency of

agricultural production, including cotton and grain production, through the mechanism of material interest. is creating the ground. [1-4].

Cotton growing is an important commodity sector in the republic's agriculture. Its importance in the economy of the country is very great and it is the main currency resource. Uzbekistan's generous nature, warm climate, land, water and rich labor resources, the experience of its people over the centuries, and farming culture ensured that cotton growing became a profitable industry. That's why its high performance in cotton cultivation determined its great position in the world.

The development of science in the field of cotton farming, the use of modern techniques and technologies in the industry, the level of development of the industry for the production of technical tools for cotton farming, the creation of new agrotechnical methods, the great scientific potential accumulated in the field of cotton selection and seed breeding, the experiences accumulated in the industry and trained qualified specialists today make our republic the world's leading cotton producer. laid the foundation for becoming one of the growing countries.

In particular, in the development of the agrarian sector economy, the importance of the cotton sector is high in agriculture. A cotton farmer today earns a high income from his labor and is engaged in the development of production, acquiring entrepreneurial skills.

Table 1 below shows the dynamics of changes in the area of agricultural crops. According to the table, the area of cereal crops in 1991 was 1079.9 thousand hectares, in 2020 it was 1578.3 thousand hectares, vegetable crops were 165.6 thousand hectares in 1991 to 220.0 thousand hectares in 2020, and potatoes were 40.0 thousand hectares in 1991 to 2020 increased by 89.6 thousand hectares. We can see that the total area of agricultural crops has decreased from 4200.0 thousand hectares in 1991 to 53309.4 thousand hectares in 2020. However, the year-by-year decrease in arable land has not affected the volume of agricultural products. The volume of agricultural products is provided mainly due to the intensive development of agriculture, i.e. increasing the yield of crops.[1-4].

Table 1 Dynamics of changes in agricultural arable land in the republic (thousand hectares)

№	Indicators	**1991 year**	**2018 year**	**2019 year**	**2020 year**	**2021 year**	**2022 year**
1	Total cultivated area	4200,3	3706,5	3706,7	3474,5	3396,0	3309,4
	Including:						
2	Don	1079,9	1689,9	1689,4	1655,6	1643,2	1578,3
3	Potatoes	40,0	84,6	84,7	78,8	86,8	89,6
4	Vegetable	165,6	206,0	206,1	189,7	219,0	220,0
5	Poly crops	83,2	58,8	58,9	53,3	52,6	53,4
6	Cotton	1720,5	1265,1	1265,1	1201,2	1108,2	1050,6

Table 2 shows the dynamics of agricultural production in the Republic. As can be seen from the data in the table, over the past 20 years, the gross yield of the main types of crops had a constant growth rate. In particular, in 2022, compared to 1991, grain will increase from 1899 thousand tons to 7437.8 thousand tons, vegetables from 2843 thousand tons to 10215.1 thousand tons, potatoes from 336 thousand tons to 3089.2 thousand tons, sugar products from 1000 tons to 2068.7 thousand tons, fruits

660 thousand tons to 2752.7 thousand tons, grapes increased from 745 thousand tons to 1749.9 thousand tons.[1-5].

It should be noted that during the years of independence, the increase in the volume of agricultural products was ensured not only due to the expansion of cultivated areas, but mainly due to intensive development, i.e., increasing the productivity of crops.

Table 2 Dynamics of agricultural production in the republic (thousand tons)

№	Indicators	1991 year	2018 year	2019 year	2020 year	2021 year	2022 year
1.	Don	1899	8263,8	8116,5	7288,5	6553,5	7437,8
2.	Cotton	5058	3300	2900,2	2853,9	2285,6	2691,7
3.	Potatoes	336	2958,3	3014,6	2793,7	2911,9	3089,2
4.	Vegetable	2843	11272,5	11433,6	10219,9	9760,3	10215,1
5.	Poly crops	1000	2045,2	2094,8	2031,0	1837,0	2068,7
6.	Fruits	660	3042,7	3076,3	2614,9	2706,2	2752,7
7.	Grapes	745	1735,3	1746,9	1747,9	1748,9	1749,9

In order to increase the efficiency of the produced products, it is necessary to rationally implement the works and activities that ensure the saving of production and management costs. For this purpose, it is necessary to mechanize production, harvesting, storage processes, full and effective use of means of production, introduction of new equipment, advanced technologies, material and moral stimulation of employees.

Based on the results of the research, in the future, it is advisable to keep the cotton cultivation areas around 95-100 thousand hectares in the period when the water supply is normal. Because this amount makes up 25-30% of the total cultivated area in years with good water supply, and the cotton fields of such weight make it possible to follow scientifically based crop rotation system in the agriculture of the Republic of Karakalpakistan.

In some cases, unplanned planting of cotton in unplanned areas or planting of cotton in areas with low productivity and high soil salinity causes significant financial damage to the economy of cotton-growing farmers. This damage should be assessed as damage to the republic's economy.

Wide implementation of resource-saving innovative technologies in our country is important. Cotton farming is developing in the republic as a result of the use of innovative technologies. In particular, due to the use of the drug "Gumimax-dvoynaya sila" in cotton cultivation, the weight of raw materials belonging to the first variety is high, on average it is 85-90 percent. This provides additional income to farms.

Experiments show that this drug has a positive effect on the growth and development of cotton. Indeed, from the observations, the length of the cotton stem was 54.3 cm from the control field, while it was 3.3-8.3 cm higher in the fields treated with Gumimax.

It was also noted that the number of bolls, buds, bolls and bolls of cotton in the control field was much lower than that of cotton in other fields. For example, on August 1, the number of bolls in one cotton boll was 5.5 in the field under control, 6.5 in the field where Gumimax was applied at the rate of 0.3 l/ha, and 6.6 in the control field on September 1, Gumimax 0 It was 8.0 pcs.

It should be noted that the highest or 16.2% more number of opened bolls than the control field was observed in cotton fields where Gumimax fertilizer was applied at the rate of 0.3 l/ha.

In the areas where Gumimax drug was applied at the rate of 0.3 liters, the average weight of raw cotton in each boll of cotton was 5.98 grams. This is 0.27 grams or 4.7 percent more than the cotton boll weight in the control plots.

From the experiments, it was found that as the rate of use of Gumimax drug decreases, the weight of cotton raw material in one bag decreases proportionally. Calculations show that the cotton yield in the fields where Gumimax was applied was on average 2.2-4.2 ts/ha higher than in the control fields. When the Gumimax drug was applied at the rate of 0.3 l/ha at the beginning of the cotton budding and flowering period, the yield was the highest - 34.4 t/ha. Also, it was determined that the relative breaking strength of 1000 seed weight of 3-10 g fiber increased by 0.5-1.0 gk/tex.

According to the experiments, the economic efficiency of the Gumimax drug is high, and its use ensures an additional yield of 3.68 t/ha from 1 hectare of cotton area.

Calculations based on the results of the analysis show that the use of the drug "Gumimax-dvoynaya sila" will increase cotton productivity, increase the weight of the first grade in the composition of cotton raw materials, increase the average sales estimate and the level of profitability.

Table 3 Effect of Gumimax stimulant on cotton yield

Experience options	Bag weight, g	Cotton yield, tons/ha	In addition	
			s/ha	%
Control	5,0	27,7	-	-
Suspension urea 5+7 kg/ha	5,0	28,8	0,6	102,2
Gummimax 0.8 l/t	5,3	31,2	3,5	112,6
Gummimax 0.8 l/t 0.3+0.3 l/ha	5,4	32,3	4,6	116,6
Gummimax 1.0 l/t	5,3	31,6	3,9	114,1
Gummimax 1.0 l/t 0.3+0.3 l/ha	5,3	31,2	4,7	117,0

According to Table 4, the yield in the treatment with the drug "Gumimax-dvoynaya sila" was 29 centners, compared to the yield in the untreated state (25 ts/ha) by 4 centners, compared to the yield in the suspension treatment (26/ha) by 3 centners, When treated with gumimaks+suspension, the productivity increased by 2 centners compared to (27 ts/ha). The increase in productivity had an effect on the increase in profit and the increase in the level of profitability. The rate of profitability is 34 percent in the treatment with the drug "Gumimax-dvoynaya sila", and cotton cultivation in the untreated state has increased by 13 points compared to the rate of profitability.

Currently, practical work on the use of drip irrigation is being carried out in our country. Drip irrigation allows not only to save water, but also to increase land productivity, prevent environmental pollution, drastically reduce the amount of wastewater, improve the quality of water in water sources, and ensure environmental safety.

In order to solve the identified problems in increasing the efficiency of cotton cultivation in agricultural enterprises in the republic, it is necessary to implement the following measures: selection of seeds according to the level of soil fertility; good organization of irrigation and reclamation works;

improvement of the economic support system for cotton-growing enterprises; improvement of mutual legal relations of agricultural enterprises with training and service organizations; introduction of mechanisms that ensure full fulfillment of obligations in connection with contracts concluded with farms; further development of farms, small business, entrepreneurship, industry in rural areas; formation of market and social infrastructure and further improvement of their activities.

Summary

One of the main factors in increasing the level of production of agricultural products and increasing their productivity is the application and wide distribution of innovations. Practice shows that innovation is the most important source of improving product quality, saving labor and material costs, increasing labor productivity, improving production, and increasing industry efficiency. As a result of the development of innovations, the competitiveness of manufactured products and enterprises in the domestic and foreign markets and the improvement of the socio-economic situation in the country's agrarian sector will be ensured.

The main directions of introduction of innovations in agriculture are:

- improvement of the ecological and reclamation condition of irrigated lands and improvement of water-saving technologies;
- improvement of modern methods of maintaining and increasing soil fertility;
- development of resource-saving technologies for obtaining high-quality and abundant harvests from crops;
- creation of new varieties of cotton and grain suitable for different soil-climate and extreme conditions, quick-ripening, fruitful, resistant to diseases and pests and improvement of the primary seed production system;
- development and implementation of specific agrotechnical measures for cultivation of new acclimatized and promising varieties;
- effective use of local raw materials and resources;
- introduction of integrated methods of protection of agricultural plants;
- creation of new techniques and their introduction into production.

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