



## The Role of State Financial Support in the Development of Innovations in Agriculture in Uzbekistan

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**Abstract:** This paper reveals the importance and role of innovation in agriculture, which plays one of the leading roles in the country's economy. It was emphasized that the introduction of innovative technologies will significantly increase the efficiency of ongoing projects in agriculture. Namely, to increase productivity, expand the area of land, facilitate the work of workers through innovative equipment and technologies, while not resorting to excessive chemicalization and soil erosion.

**Key words:** innovations, innovative technologies, agriculture, government support, subsidies, credit support, research.

### INTRODUCTION

Agriculture is one of the most important sectors of the economy of any country. Therefore, their governments actively support the development of agriculture, including financial and technical support, production subsidies and investment in agriculture.

One of the main tasks of the government is to ensure the food security of the country. To this end, work is underway to increase agricultural production, including by attracting investment in the development of the industry and modernizing production. There is also a system of state support for agricultural producers, including the provision of preferential loans, subsidizing the cost of purchasing seeds, fertilizers and other inputs, as well as the provision of tax incentives. Such support allows to stimulate the deployment of a new innovative type of management based on a system of personal criteria of a reliable borrower (Зайналов, Д. Р., & Алиева, С. С., 2016).

In addition, governments are also actively developing agricultural infrastructure, including the construction and modernization of irrigation systems, roads and transport infrastructure for the delivery of agricultural products.

In general, support for agriculture is one of the priority areas for the development of the economy of states, in particular Uzbekistan, which allows for the growth of agricultural production and an increase in the standard of living of the population.

Today, no state can perform its functions without the development and implementation of innovations in various spheres of society, as well as the fact that no industry can stay on the market without using innovative developments to improve its activities and compete.

Since the time in which we all live can easily be called innovative, and the fact that it is filled with new technologies, models and developments will be confirmed by almost any resident.

It is known that each state, regardless of its location, pursues the same goal - ensuring security and organizing the most favorable conditions for the life of the population. The realization of this goal directly proportionally depends not only on the development of various spheres and directions of economic growth, but also on their improvement and modernization. In view of this, in order to obtain the desired change for the better, financing (investment) in the development and implementation of innovations is required, since they are the fundamental factor in establishing the vector for improving activities and its results, which leads to a significant amount of benefits and benefits, and subsequently as well as a sustainable competitiveness that can be further developed. As for the innovations themselves, they can easily be called something universal, since they can be applied in almost all areas, thereby playing a dominant role there. According to D.A. Hobson, competitive advantage lies in the ability to find new markets, produce new products, and invent new ways of making products. If a certain enterprise has an innovation that is in demand in the market, then, of course, this will be its competitive advantage, at least until the moment when competing organizations create an analogue of the innovation, or until the demand for this innovation runs out (Жданова, О. А., 2011).

**Literature review.** According to Mirela Tomaš Simin, Dejan Janković (Simin etc., 2014) the process of dissemination (diffusion) and introduction (acceptance) of innovations, knowledge and technologies, which is usually at the center of social change in rural communities, is a complex and controversial process.

Organic farming is indeed a modern agricultural practice based on the latest scientific knowledge or the integration of modern scientific knowledge. With the advent of industrial (traditional) agriculture and its consequences for people and the environment, organic agriculture has become a theoretical, environmental, technological, social and political problem and a current global topic. (Ćifrić, 2003).

Dayana Andrade etc. (Simin, 2020) believe that for centuries, innovation in agriculture has been mainly associated with technologies aimed at achieving economic goals related to productivity.

Diffusion theory, developed in the United States by rural sociologists, is a very important theory that describes the process of diffusion of innovations in society. This theory attempts to characterize the behavior of individuals and social groups in the process of adopting an innovation, taking into account their personal characteristics, social relations, the time factor and the characteristics of the innovation. (Padel, 2001). Pejanović and Njegovan (2009) believe that "innovation is a new method of producing known goods, the discovery and production of new types of products, the introduction of new production combinations". And according to Rogers, innovation is an idea, practice or object that is perceived as new by an individual or other unit of acceptance (Rogers, 2003). At the same time, the spread of innovations is associated with some social changes. It is a social process that involves interpersonal communication.

Innovation can occur at the product or process level (Thompson, 1965). In the case of agriculture, innovation occurs on the production front or in the organization of agri-food systems. Over the past 200 years, innovation in both production and organization has accelerated, largely thanks to science and technology (for example, high-yielding varieties, pesticides, fertilizers, mechanization and infrastructure) and has led to a huge increase in crop yields (Ellis, 2013). The innovation process, covering the generation of new ideas and their commercialization in agricultural

products and the organization of economic processes, plays a special role, acting as a product and as a driving force for the formation and development of farms (Зайналов Д.Р. etc.). Process innovations, such as process automation, reduce costs, and breeding new varieties that are best suited to growing under certain conditions increases the level of production efficiency (Авдеева, Е.А., 2021).

**Analysis and results.** With the introduction of innovative equipment in the activities of enterprises, appropriate knowledge is required to work with new equipment, which sometimes implies the passage of advanced training courses. The consequence of this is an increase in the qualifications of personnel, their professionalism. Innovations play an important role not only in the economy, but also in all spheres of the life of the population. In most countries, innovations are regularly introduced into many areas and areas, and are an integral part of their successful life. Uzbekistan is also trying to contribute to the development of innovation, as evidenced by the Strategy for Innovative Development of Uzbekistan for 2022-2026 (Decree of the President №165 of 6 July 2022, Decision of the President №307 of 6 July 2022). This strategy was adopted in order to accelerate innovative development in the republic, the widespread introduction of innovations and technologies in all sectors of the economy, the development of human capital, science and innovation. Another document contributing to the introduction of innovative technologies in the life of the country was the Decree of the President of the Republic of Uzbekistan "On improving the public administration system in the development of scientific and innovative activities" (Decree of the President №6198 of 1 April 2021).

It defines the priority areas of activity of the Ministry of Innovative Development for 2021-2022: among them stand out:

- development of biopharmaceutical products, recombinant and DNA vaccines, biomedical diagnostic technologies;
- creation of a system of integrated monitoring of soil resources, resource-saving irrigation technologies and agro-fertilization technologies, development of agrochemical maps of agricultural crops based on the creation of a network of mobile laboratories in the regions to identify existing useful and harmful substances in the soil;
- creation of "smart" innovative technologies in the road transport infrastructure, education system and courts;
- creation of innovative technologies for the production, storage and use of "green" hydrogen - an alternative and environmentally friendly source of energy;
- increase in the gene pool of livestock breeds and increase the amount of meat products through the use of genetic methods, the introduction of innovative technologies to expand the forage base;
- creation of innovative designs of agricultural machinery and new technologies for growing agricultural products, aimed at increasing the efficiency of processing (Decree of the President №6198 of 1 April 2021, article 2).

Agriculture is one of the leading sectors of the economy of Uzbekistan, and also makes a significant contribution to the development of the state's GDP, so its innovative development is of particular importance for the state. In addition, a large number of measures taken in relation to the development of agriculture are aimed at the development of animal husbandry, that is, an increase in the gene pool of livestock breeds and an increase in the number of meat products through the use of genetic methods, the introduction of innovative technologies to expand the forage base.

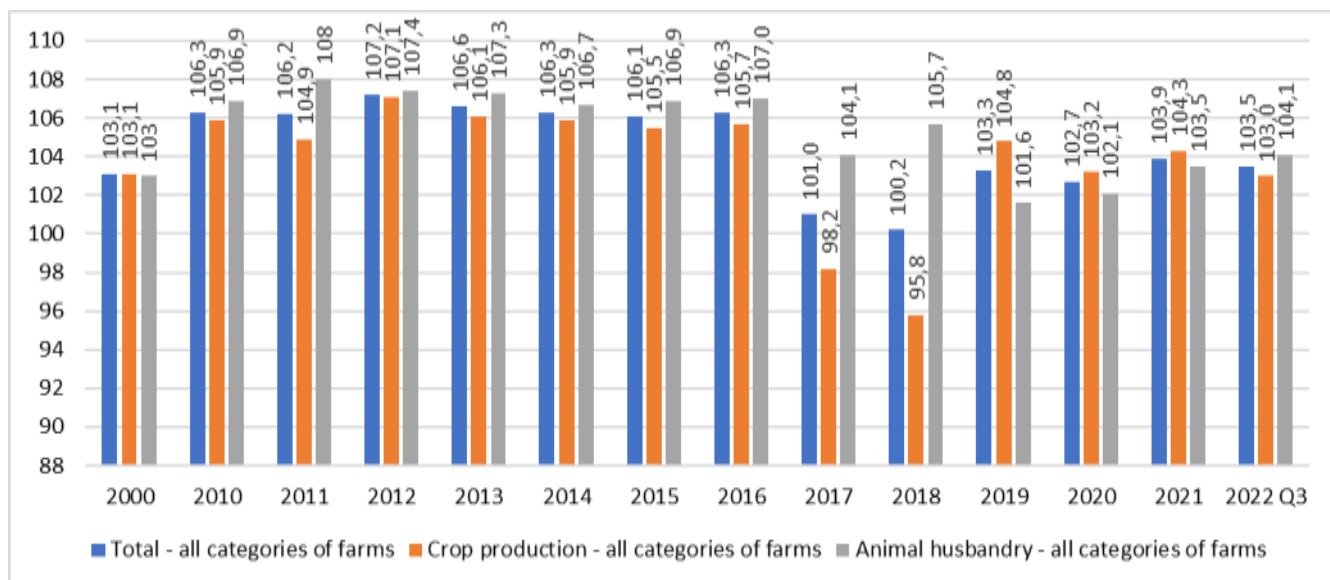


Fig. 1. Growth rates of agricultural production in Uzbekistan, %  
 (Statistics Agency under the President of the Republic of Uzbekistan)

This sector itself is developing quite rapidly, but at the same time it is difficult to call them largely effective (see: Fig. 1), so this sector, like many others, needs a number of innovations. Sometimes, even having the necessary innovations, skills and abilities to apply them are needed, that is, this area needs, first of all, highly qualified personnel, who, in turn, will not only be able to attract innovative technologies, but, in particular, will be able to correctly and effectively implement and apply them in order to obtain the maximum volume of a quality crop with a minimum amount of damage to the soil and land.

The implementation of the above tasks is carried out, first of all, through the development and implementation of legislative and regulatory acts..

Consider the provisions of the main legislative and regulatory acts regulated by our state:

- the Concept for the Priority Development of the Knowledge and Innovation System in Agriculture in 2021-2025 was approved (Decree of the President №6159 of 3 February 2021);

- the National Center for Knowledge and Innovation in Agriculture was established under the Ministry of Agriculture, linking education, science and production in the agricultural sectors with a continuous system for providing modern agricultural services to agricultural entities;

- the Coordinating Council was formed to ensure the close integration of education, science and production in the field of agriculture;

- in order to implement projects envisaged by the research program for the scientific solution of problems in priority areas of agriculture, as well as those proposed by agricultural entities that are not funded or not fully funded from the budget, and other tasks, a Fund is being created to support knowledge and innovation in agriculture, the funds of which are formed at the expense of the republican budget, the overfulfilled part of the forecast of local budget revenues, extra-budgetary funds of ministries and departments, charitable donations, grants from international and foreign organizations, funds from agricultural entities and other persons who have expressed a desire to finance research work and use their final results in the future and etc. (Decree of the President №6159 of 3 February 2021).

As a result of the ongoing reforms in the field of agricultural science, new varieties of plants are being consistently introduced into practice that correspond to the soil and climatic conditions of the regions and allow the production of export-oriented products, as well as resource-saving intensive

agricultural technologies for caring for plants and growing products. (Decree of the President №6159 of 3 February 2021).

In continuation of the trends in supporting the agricultural sector, a number of the following legislative and regulatory acts were adopted, in particular, the Presidential Decree dated July 14, 2022 "On measures to introduce advanced technologies in agriculture of Uzbekistan at the expense of grant funds from the Government of the Republic of Korea".

In accordance with this resolution, grant funds are allocated for the creation on the territory of the National Center for Knowledge and Innovation in Agriculture located in the Yukorichirchik district:

1) creation of a training center for advanced technologies in horticulture in Uzbekistan – \$3,7 mln.;

2) creation of an innovative center for industrial technologies of "smart agriculture" in Uzbekistan – \$14 mln.;

3) создание центра производства сельскохозяйственной продукции и ее саженцев – \$3,7 млн. (Decision of the President №321 of 14 July 2022).

The National Center is also designed to train IT specialists and highly qualified trainers to work with software, develop software for modern experimental greenhouses using industrial technologies of "smart agriculture".

Another direction is the application of artificial intelligence through the introduction of "smart" innovative technologies in road transport infrastructure, education systems and courts..

Uzbekistan is the most populous country in Central Asia, with a population of more than 35.6 mln. people (Statistics Agency under the President of the Republic of Uzbekistan). The bulk of the population is represented by young people, who throughout the world are famous for spending much more than, for example, the older generation requires. Taking into account the fact that the sphere of agriculture, as well as each sphere of the life of society for the state is important and significant in its own way, with such a large population, issues related to education in the field of ensuring food security, increasing productivity, and the level of infrastructure development and a number of other areas.

In 2021-2022 in the field of livestock development, work is underway to use innovative technologies to increase the gene pool of livestock breeds and increase meat productivity, increase the forage base using genetic methods. For this purpose, 42 projects were financed in the livestock sector in 2021-2022, in particular 2 innovative, 24 applied, 13 commercial, 3 start-ups with a total amount of 18,688.8 mln. soums<sup>1</sup>.

Financing of 183 projects was implemented, including 13 fundamental, 120 applied, 29 in preparation for commercialization, 14 start-ups, totaling 98,263.2 million soums, aimed at developing frost-resistant grape varieties, creating a technology for growing medicinal plants kavar, stevia and to create natural sweeteners Sweetlife 1 и Sweetlife 2<sup>2</sup>.

Equipment and technologies are of particular importance in financing innovations in agriculture.

Work is underway to build innovative designs of agricultural machinery and new technologies for the cultivation of agricultural products, aimed at increasing the efficiency of processing in agriculture. 12 projects were financed in the amount of 9,597.7 million soums, including 9 applied, 1 applied from young scientists, 1 experimental design, 1 innovative in the direction of creating mobile innovative laboratories "Soil Clinic" to serve agricultural enterprises, to assess the level of health soils of the Republic of Karakalpakstan, Namangan, Fergana, Surkhandarya and Tashkent regions; technologies for 3D mapping and cultivation of environmentally friendly products, taking into

<sup>1</sup><https://yuz.uz/ru/news/v-tashkente-startovala-nedelya-innovatsionnx-texnologiy-v-agrarnom-sektore>.

<sup>2</sup><https://yuz.uz/ru/news/v-tashkente-startovala-nedelya-innovatsionnx-texnologiy-v-agrarnom-sektore>

account the degree of poisoning of agricultural land with toxic substances, a method for creating 3D maps and plaster cartography of 23,318 hectares of irrigated lands in the Bukhara region based on geoinformation technologies, etc.<sup>3</sup>.

**Conclusion.** Considering all of the above, we can say with confidence that in whatever area innovations are introduced, they will always carry not only modernization, but also the intellectual improvement of the population. Therefore, taking into account all these above areas, it can be noted with confidence that the state is trying in every possible way to create a fertile ground for the introduction of innovations and technologies in the field of agriculture for its further and effective development. And in this, in our opinion, measures such as:

- expansion of leasing services in agriculture, which will help to eliminate such a problem as a lack of financial resources, which is often a problem in agriculture;
- subsidizing promising projects and research in agriculture;
- preferential taxation (2. Akhrorov, Z., 2022);
- providing incentives for investors in the innovative development of agriculture.

By implementing these measures, it seems possible to achieve the goal set by the state - entry by 2026 into the 56 leading countries of the world according to the Global Innovation Index rating. In this ranking on the innovation index, Uzbekistan took 82nd place, also in the category "Efficiency of innovation at different income levels 2022" our state was in the group with countries with an upper middle income level.

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<sup>3</sup> <https://yuz.uz/ru/news/v-tashkente-startovala-nedelya-innovatsionnx-texnologiy-v-agrarnom-sektore>

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