SCIENTIFIC-RESEARCH IN THE AGRARIAN SPHERE: FINANCING, IMPROVEMENT AND INNOVATION

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ABSTRACT
Expansion of the scope of research work in the agrarian sector of the country and improvement of its financing system. In the development of agricultural production, in solving the problems of the industry, it is important to establish a scientifically based system of sectoral production from the current state of the country. Agricultural crops growers are mainly farmer and the peasant farms, they should be developed on the scientific basis of their activities, as well as a new approach to the system of scientific supply at a new stage of economic reforms and its effective financing.
In the article it is necessary to analyze in depth the activities of research in the agrarian sphere of the country, it is necessary to improve the financing system. Also, conclusion and practical recommendations were made based on the findings of the study.

Keywords: agrarian sphere, scientific research, scientific supply, mexanizm, financing, improvement, farmer and peasant farms, economics.

INTRODUCTION
In current days, the ultimate objective of conducted economic reforms in the state's economy sectors is the improvement of socio-economic conditions of the population. One of the basic means for achieving this objective, i.e. considered relevant nowadays, is expanding the implementation of research scientific operations in the agrarian sector, development of its funding system as well as introduction of findings of research scientific operations.
The issues in the agrarian sector of the state are directly associated with searching for non-traditional sources and development of the funding system on conducting the promising projects in directions such as expanding the implementation of research scientific operations, accelerating advancement of science and technology in the industry - defining its directions in line with contemporary demands, systematically and promptly introducing the innovation. However, the researches exhibit that the current mechanism for funding research scientific operations does not fully meet the up-to-date demands. Especially, there are series of issues such as repetition of topics, put for selection, dedication of project topics to addressing issues in a narrow context, low-efficiency use of funds, allocated for research scientific operations, lack of attention to issues on funding innovative research scientific operations and unexpanded use of non-traditional methods on funding of research scientific operations and others. In addition, the research scientific operations, currently conducted, are only mainly linked to the process of manufacture of agricultural products. Little attention is paid to funding the research scientific operations on issues of development of technologies and engineering of post-production process [1].
Expanding the implementation of research scientific operations in the agrarian sector, development of non-traditional methods for funding of research scientific operations, increasing the efficiency of funds, allotted to conduct research scientific operations, development of stimulating mechanism on the introduction of scientific developments in practice are considered to be the issues overdue for solution.

MATERIALS
Increase in the product competitiveness will be attained via advancement of scientific infrastructure of agriculture, strengthening the existing innovative potential, expanding the scope of conducted research

scientific operations, introduction of scientific development in practice and improving the scientific support and its funding system of the sector. Whereas in contrast, in developed countries, conducted research scientific operations are primarily centered on modernization of technologies, involved in the post-production process. As world practice depicts, expanding the implementation and increasing the efficiency of research scientific operations are defined by improving the funding system [2].

In recent years, in the republic , practical works have been conducted on supporting research scientific operations and innovation activities, reforming the system of personnel training [3]. In this regard, in every aspect of expanding the implementation of research scientific operations, nowadays, research institutions are required to conduct large-scale research, not only on issues that need to be addressed, but also on issues, associated with sustainable development of agrarian sector in the future.

The influence of agrarian science on agriculture is defined not only by achieved results of research scientific operations, but also by results of activity in research scientific operations and introduction of intellectual property and technologies in practice. Demand for scientific developments is formed on the grounds of a necessity to raise the quality of scientific products in agricultural production and in its fields, using the results of scientific production. In other words, demand for the production should make up of an important part of scientific support in the agro-industrial complex.

Transition to market relations in the industry is leading to an increased demand for scientific advances [4]. Therefore, at a new stage of economic reforms, the significance of opportunities for the wider introduction of scientific and technological achievements into production is growing.

In view of this, in every aspect of agrarian's scientific provision, the scientific research institutions, nowadays, are required to conduct large-scale researches not only on the issues that need to be addressed, but also on the issues, associated with the improvement of the agrarian sector in the future. In light of this, it is required to revise radically and improve the selection of scientific research topics for scholars and research institutions as well as funding mechanism [5].

Exporting the agricultural products will contribute to increasing the country's currency earnings. It is worth noting that agriculture in the Republic has great potential in this domain and its effective utilization should make up one of the main directions in the country's agrarian policy.

Agrarian sector is deemed to be the most affected sector due to global warming, high rainfalls or droughts, water scarcities, various natural disasters and an increase in pest insects. Agrarian sector must adapt to global climate change. This, in turn, demands expanding the scope of research scientific operations and searching for the newest directions [6].

Moreover, the assortment, in regions where there is sufficient food, does not always meet the demands. This, in turn, demands to increase the production volume of foodstuffs, to expand its assortment and to improve its quality as well as, in this regard, to expand the scope of research scientific operations.

Generally, agrarian sector with its features is fundamentally different from all sectors of the economy and agrarian sector plays an important role in the development of the society. On contrast, it is worth noting that land and water resources, forming the basis of agrarian sector, are limited and declining in numbers per capita. This is, on the one hand, connected with the growth of the population, and on the other hand, with a decrease in the absolute amount of land and water resources, suitable for agricultural use. Under these conditions, issues of increasing productivity of agricultural crops and livestock, improving the product quality, reduction of resource waste, cheapening the product's prime cost, long-term storage, processing, and delivery to customers are becoming the priority. Addressing of these issues requires expanding the implementation of research scientific operations in the field and revising its funding system.

Modernization demands development of scientific ideas, selection of topics, raising the level of research scientific operations to international standards, improvement of mechanism for introducing the findings of research scientific operations into the sector, conversion of scientific products into commodities and increasing the knowledge of customers on scientific products. Scientific support is not only limited with the execution of research scientific operations but also forms its implementation and increasing the knowledge of customers on scientific products into one of the main directions. Science breakthroughs cannot be promptly and efficiently introduced into the production if the

conducting research scientific operations are not put on a proper way in terms of priority and few efforts are made to creating stimulus mechanism for introduction of their findings, to disseminating knowledge and to increasing the knowledge of customers.

If even a series of changes have been made in conducting research scientific operations and funding in the agrarian sector, the old approaches are still maintained there. Research scientific institutes in agrarian sector have been attached to Research and Production Center for Agriculture and Food Supply. However, research scientific operations that are being conducted at higher educational institutions are out of the operational activity of the center. Consequently, incomplete coordination of research scientific operations has led to causing repetition in the research operations and preservation of insignificant conditions.

The demand for technological solutions, advanced technology and engineering, in general, is increasing more rapidly, compared to the previous period. It is demanded to maintain competitiveness in the global market and to introduce innovations in the industry in response to changing requirements of the market. Firstly, it is needful to introduce technologies, targeted at increasing the efficiency of labor force, land and water use with a view of adapting to the ever-changing climate. Contemporary technologies should reduce the impact of climate in agriculture and damage, incurred by the shortage of resources.

At a time when shortage for land and water resources is increasing, growth of agricultural production, growing demand for types and quality of the population's foodstuffs and the industry's need for the raw materials should be taken into account too.

Nowadays, it is demanded to maintain competitiveness in the global market and to introduce innovations in the industry in response to the ever-changing requirements of the market. In this, first of all, it is necessary to adapt to the constant climate change of our planet. For this, it is required to introduce the technologies, targeted at increasing the efficiency of labor force, land and water use [7].

Technologies should minimize the impact of climate change on agriculture and damages, incurred by shortage of resources. Technological changes should not only increase the fertility of crop yielding but also shall meet the demands on ensuring saving of water and energy resources, reduction of expected risks, improvement of product quality, prevention of damages, caused to the surrounding environment, and the employment specifications of population segments in utilization of labor force.

At this juncture, the fields of science and technology are undergoing rapid changes. The farming houses that are adapting to the market's conditions need to use effectively information technology in confronting against droughts, diseases of plants and damages to harvest, caused by pest insects thus increasing their competitiveness.In this regard, biotechnology that is used in cotton cultivation and other industries can be attributed as an example.

Application of biotechnology, first of all, decreases the impact of diseases and pest insects, secondly, provides an increase in productivity and in gaining income by farmers contributing to reducing the utilization volume of various toxic chemicals. However, the smaller the sizes of a farming house, the more difficulties appear in the introduction of innovations of science and technology. By virtue of the fact that introduction into the life of institutional changes, related to technological innovation with a blistering pace, requires the implementation, in a complex way, of innovation process, including sources of innovation [8].

The next success of the agrarian sector is associated with the involvement of all participants in the process of technological development and innovation. In stimulating the development of the innovation market, it is required to take into account research scientific operations as well as the proper development of demands for scientific developments.

METHODS

Taking into account the development of Agrarian science and the dissemination of advanced experience, the modernization of technology and equipment, technological processes on the basis of widespread use of innovations, it is necessary to move faster to the path of innovation development. In general, innovation is the final result of an activity created in the form of a new or improved product, a

new or improved process, a new approach to social services to the market. Innovations in relation to the agrarian sector-new plant varieties, new or improved food products, Materials, Plant Science, new technologies in the livestock and processing industry, means of protection of plants and animals, new methods of treatment of animals and poultry, new forms of organization and management of various sectors of the economy, new approaches to social services that increase production efficiency.

It is worth noting that the transition of the agrarian sector to innovation path largely depends on the ability of economic entities to mobilize available resources for the implementation of innovative activities. One of the important conditions for achieving the set goal is the formation and development of adequate financing of innovative activities.

Financing innovative activities in the agrarian sector is a very complex and constantly developing economy [9].

In modern conditions, the methods of financing innovations in the agrarian sector are divided into direct and indirect (Table 1).

1- Methods of financing innovation activities in the agrarian sphere

Financing method	Features
Direct methods	
Internal self-financing	Use only internal own financial resources of the enterprise
Financing External with the use of capital market	investors to borrow funds or attract capital
Financing the loan market using	Financing of innovation processes is carried out from the bank's credit account, which is also one of the main indicators
Financing from the budget	Financial resources are allocated from the budget
Financing through combined schemes	Using several methods of attracting funds to the innovation sector
Indirect methods	
Procurement of material and technical means for a loan synchronized with the period of implementation of an innovative project	The Binding of the loan term is carried out with the term of receipt of benefits from innovative activity, as a result of which the goods are serviced and paid for the loan
Acquisition of material property in synchronization with expected returns	The buyer receives the right to use the goods without the right of ownership, he buys only after the payment and the final payment of interest
Obtaining a license for the technology included in the innovation project when paying the license only in the form of royalties	Payment as a percentage of the volume of sales of products, services under license
Attraction of labor resources paid in the securities of the company issued for the innovation project	Almost the salary is made with dividends from income on the investment project

In the economic context of the innovation activity of the agrarian sector, the sources of the formation of financial resources for the implementation of an investment project play an important role. It is characteristic to obtain multichannel financial resources to finance innovative activities in the agrarian sector of the economy, to include them in innovative projects and targeted innovation programs, as well as to control their effective use.

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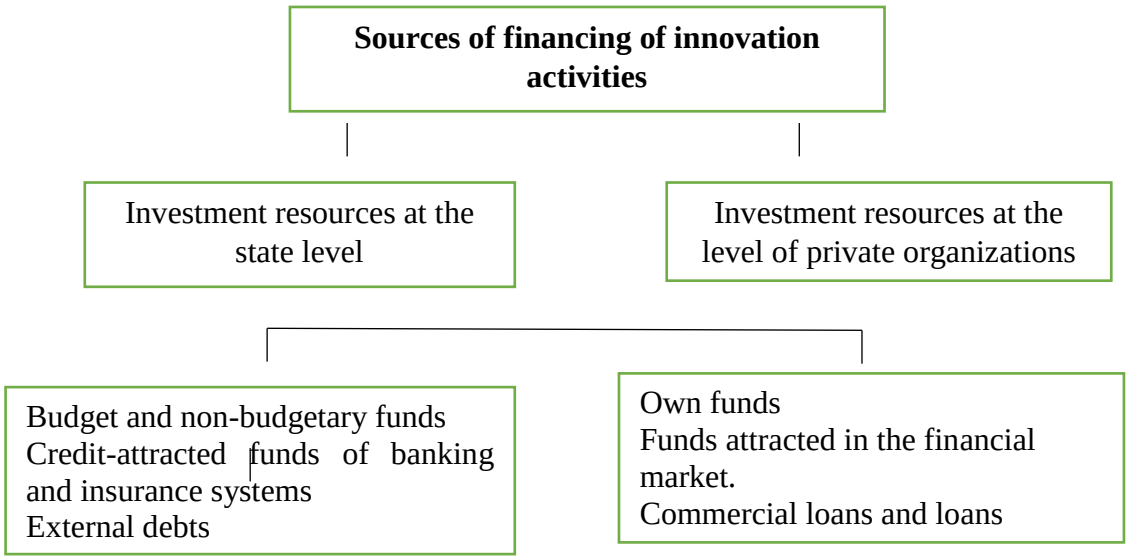
Sources of financing of innovation activities in the agrarian sector by type of ownership are divided into private and public investment resources (Figure 1).

The analysis of innovative activities in the agrarian sector of our country shows that one of the main problems facing agricultural producers is the attraction of funds for initial development.

In recent years, positive trends in the development of innovative activities in the agrarian sector have been associated with the existence of significant state support within the framework of the national project "development of the agrarian sector" and the state program for the development of Agriculture and the regulation of agricultural products, raw materials and food markets. In accordance with these documents, the main emphasis is on technological modernization of local enterprises, which is a necessary condition for the activation of innovation activities in our country.



1-picture. Sources of financing of innovation activities in the agrarian sector.

ANALYSIS AND RESULTS DISCUSSION

Now, we will focus on the factors that have been identified through our research and their implications for addressing the issues.

At the moment, it is necessary to commercialize the practical disciplines, associated with the practice of the agrarian sector, and to form its specific mechanisms as an integral part of the agrarian market. This, in turn, demands the development of cooperation of scientific institutions with local agro-industrial complex entities. The product, supplied by the agrarian sector to the agricultural producers, should be a finished product, in which each author of scientific result shall clearly show the economic outcome, gained from the introduction of its scientific development in practice. In future days, raising the personnel qualification shall occur accordingly with the complexity level in the development of the sector. It is needful to develop a new concept of functioning of the agrarian science, to improve the country's scientific potential and to increase the efficiency of scientific activity. It is required to develop principally new mechanism in mutual relations between the agrarian sector and the agricultural production under the position of the country's main reformer.

Including: timely coordination of research scientific operations; implementation of introduction of scientific developments in practice via an in-field program; incorporation of clear measures on the introduction of developed programs, final scientific product in practice, including their funding and supervision; formation of the system for effective introduction of ready scientific developments in production, interconnected with the agricultural production.

The most urgent issues for nowadays in the agrarian sector are: enhancement of the legal and regulatory framework for land relations; enhancement of financial condition of the country's agrarian sector; performing works on enhancement of the relations between the activity of agricultural subjects and directions of the country's agrarian policy.

The tasks, implemented for accelerating the introduction of scientific and technological achievements in the field, shall be training the scientific personnel and preparing them to implement research scientific operations in the market conditions.

In this regard, the following directions can be recommended: establishment of a school of highly qualified young researchers in the leading research scientific institutions on the main directions of agricultural science, as well as vitalization of postgraduate training program and post-doctoral program; organization of training of scientific personnel in foreign countries in the most necessary directions of the agrarian science. In this, special attention shall be paid to research scientific operations, implemented on biotechnology and genetic engineering.

It is known that in today's fast-growing world market, the volume of GM food products is growing. In developed countries, a large-scale research operation on cultivation of food products, based on the genetic engineering, are conducted, and we shall have a scientific base and the relevant knowledge to identify the virtues and shortcomings of this process.

To date, the introduction of energy-saving technology and the energy saving in the agrarian sector is executed through reducing the absolute volume of capital investments per one hectare of the land: increasing the efficiency of energy resources; reduction of non-renewable resources and vitalization of ecological and biological processes; selecting a farming system, giving an opportunity to reduce the amount of expenditures at the expense of intensive factors (selecting crop types, adapted to the local conditions, their sorts, having high-grade indicators and technologies).

Another major issue is that the republic is divided into different regions, depending on natural climatic conditions, soil fertility, water supply, labor force supply and other natural resources. Considering this, it is demanded to revise changes in natural climatic conditions (global temperature rise), changes in soils (decrease of soil bonitet and salinity), changes in structure of crops, changes in business management and forms of property ownership, inventory and logistics framework and types of resources (types of mineral fertilizers), decrease of local fertilizers' volumes, introduction of water-saving technologies, today's scientific bases of agricultural management [11].

Currently, it is needful to determine the subject of scientific product user and further identify this subject's role and participation in selecting the research topic, making orders, funding and introducing in practice the completed research scientific operations. Without clarifying these issues, it is hard to find the solutions of the aforesaid issues. Indeed, nowadays, the state remains the main customer of research scientific operations in agriculture.

The activity of product cultivators, i.e. farmers and farming houses, shall be focused on scientific basis. However, farmers and farming houses have no opportunity to make orders and fund the research scientific operations. Apart from that, the research scientific topic covers not only the issues of one of the farmers or farming houses but rather the issues of several farmers and farming houses. Even in case they allocate funds for research scientific operations, there is no opportunity to sell the scientific results as a commodity after their use. Therefore, it is necessary to adopt a new approach to scientific support of the agrarian sector in the market economy conditions and to develop an effective mechanism for it. Development of this kind of mechanism at the regional level would be desirable. In light of the fact that if research covers the issues of a particular region depending on a demand of this region's subjects, producing goods, it will be possible to know, on the one hand, the orientation of the researches and on the other hand, for what purposes the funds for research scientific operations, allocated by the farmers and farming houses, are used. Taking into account the aforementioned, by accumulating the targeted funds, on behalf of the farmers and peasants and depending on their demand, a system should be formed for organization of funding the research scientific operations, supervising the conduct of research scientific operations, receiving the final result of the research scientific operations and introducing them in practice.

In our point of view, such a system can be established within the territory of the regions and in the form of a regional center for scientific support. The ultimate objective of this region's center for scientific support will be selecting a research topic and making orders regarding research scientific operations through accumulating the funds of the customers of research scientific operations. They shall execute their activity via coordinating with Regional Administration, the Department for Agriculture and Water Management [12].

This shall be the issues overdue for the current implementation for research institutions under Research and Production Center for Agriculture and Food Supply, the Regional Center for Agricultural Scientific Significance and Regional Scientific Support.

CONCLUSIONS AND RECOMMENDATIONS

In every aspect of expanding the implementation of research scientific operations in the agrarian sector, nowadays, research institutions are required to conduct large-scale research, not only on scientific issues that need to be addressed but also on issues, associated with funding the research scientific operations of the agrarian sector in the future. As a result of conducted research scientific operations, the following main scientific conclusions were developed:

The following issues may arise while expanding the implementation of research scientific operations and developing the funding system in the agrarian sector. The issues are as follows: no new approach mechanism is created regarding the research scientific operations; no new system is introduced regarding the funding of research scientific operations; scientific products are still being utilized free of charge by users; lack of knowledge regarding the utilization of scientific developments in agriculture and the benefits of new technologies; lack of understanding of farmers and farming houses in production, improvement of financial condition and earning of income; no favorable conditions are created in introducing the science-technology and technological development in the agricultural production.

It is necessary to pay attention to the following in preventing and addressing the issues, found as a result of research scientific operations:

Now, there are available the regional divisions of Research and Production Center for Agriculture and Food Supply. It is envisaged that the Center will provide the regional agricultural scientific support.

Including: complete addressing the issues on organizational, legal and economic relations in implementing the activity by the regional agricultural scientific support; undertaking complete responsibility for the tasks of abovementioned activities as a low stream of the scientific center; establishment in regions of the scientific council constituting the subjects of agriculture and the agrarian sector under the centers for scientific support; it is important to include in the composition of scientific council the regional administration and agricultural department, including district administrations and the representatives of farmers and farming houses.

In the regions, the further development of agricultural production, creation of a scientifically sound system of regional agriculture taking into account the current state of each region, first of all, shall make up one of the important features in addressing the issues, listed in the agrarian sector.

In the republic, mainly two types of business subjects i.e. farmers and farming houses are currently engaged in the cultivation of agricultural products. Hence, in our point of view, it requires developing mechanisms and measures on expanding the implementation of research scientific operations by present business subjects, involved in cultivating agricultural products, selecting the priority innovative topics as well as active engagement in directions on the introduction of scientific solutions and practical results in production. Wide involvement of product cultivators in conducting research scientific operations in the agrarian sector, in their funding and in the process of introduction of scientific developments will increase the potential for sustainable advancement of the agrarian sector.

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