UDK 658.5:338.43

WORLD EXPERIENCE OF INNOVATIVE ACTIVITIES MANAGEMENT IN THE AGRICULTURE

АУЫЛ ШАРУАШЫЛЫҒЫНДАҒЫ ИННОВАЦИЯЛЫҚ ҚЫЗМЕТТІ БАСҚАРУДЫҢ ӘЛЕМДІК ТӘЖІРИБЕСІ

МИРОВОЙ ОПЫТ УПРАВЛЕНИЯ ИННОВАЦИОННОЙ ДЕЯТЕЛЬНОСТЬЮ В СЕЛЬСКОМ ХОЗЯЙСТВЕ

S.S. YDYRYS
Dr.E.sc., professor
ZH.O. TOKHAYEVA
PhD student
Kh.A.Yasawi International Kazakh-Turkish University
С.С. ЫДЫРЫС
э.ғ.д., профессор
Ж.О. ТОХАЕВА
PhD докторанты
Қ.А.Ясауи атындағы Халықаралық қазақ-түрік университеті
С.С. ЫДЫРЫС
д.э.н., профессор
Ж.О. ТОХАЕВА
докторант PhD
Международный казахско-турецкий университет им. Х.А.Ясави

Abstract. The world experience in management of innovation activity, legislative aspects of innovation activity support, infrastructure, programs and activities aimed at development of innovation sphere, sources, volumes and mechanisms of public financing have been studied. The experience of introducing innovations in agricultural production in countries with developed market economies has been presented, where effective commercialization of scientific developments is carried out. A comparative analysis of the state and functioning of foreign innovation systems has been carried out. Factors that hinder their development have been identified, in particular, a small share of business in funding research and development; low level of involvement of small businesses in innovation activities; problems related to commercialization of innovations. It has been noted that the process of transformation of agricultural sphere should play an important role in stimulating agricultural production of the industry. In this regard, it is necessary to search for new effective management tools in the field of integration of agricultural production and science, taking into account the experience of foreign countries and specifics of the agro-industrial complex of Kazakhstan.

Аңдатпа. Инновациялық қызметті басқарудағы инновациялық қызметтің заңнамалық аспектілері, инфрақұрылым, инновациялық саланы дамыту бағдарламалары мен іс-шаралары, оның көздері, көлемі мен мемлекеттік қаржыландыру тетіктері зерттелген. Ғылыми әзірлемелерді тиімді коммерцияландыру жүргізілетін дамыған нарықтық экономикасы бар елдерде ауыл шаруашылығы өндірісіндегі инновацияларды енгізу тәжірибесі көрсетілген. Шетелдік инновациялық жүйелердің жағдайына және жұмыс істеуіне салыстырмалы талдау жүргізілген. Олардың дамуына кедергі келтіретін факторлар, атап айтқанда, ғылыми-зерттеу және тәжірибелік-конструкторлық жұмыстарды қаржыландыратын бизнестің шағын үлесі анықталған; инновациялық қызметке шағын бизнес субъектілерін тарту деңгейі төмен; инновацияларды коммерцияландыру мәселелері белгіленген. Аграрлық саланы трансформациялау үрдісі ауыл шаруашылық өндірісі салаларын ынталандыруда маңызды рөль атқаратынын айта кету керек. Осы мақсатта шет елдердің тәжірибесін және Қазақстанның агроөнеркәсіптік кешенінің ерекшелігін ескере отырып, ауыл шаруашылығы өндірісін және ғылымды интеграциялау саласындағы жаңа тиімді басқару тетіктерін іздестіру қажет.

Аннотация. **Исследованы мировой опыт управления инновационной деятельностью, законодательные аспекты поддержки инновационной активности, инфраструктура, программы и мероприятия по развитию инновационной сферы, источники, объемы и механизмы ее государственного финансирования. Показан опыт внедрения в сельскохозяйственное производство инноваций в странах с развитой рыночной экономикой, где осуществляется эффективная коммерциализация научных разработок. Проведен сравнительный анализ состояния и функционирования зарубежных инновационных систем. Обозначены факторы, препятствующие их развитию, в частности, небольшая доля бизнеса в финансировании научно-исследовательских и опытно-конструкторских работ; низкий уровень вовлечения малого бизнеса в инновационную деятельность; проблемы коммерциализации инноваций. Отмечается, что важную роль в стимулировании сельскохозяйственного производства отрасли должен играть процесс преобразования аграрной сферы. В этих целях необходим поиск новых эффективных механизмов управления в сфере интеграции аграрного производства и науки, с учетом опыта зарубежных государств и специфики агропромышленного комплекса Казахстана.**

Key words: innovative development, agricultural production, potential, public funding, small business, commercialization, technology, international experience, legislative aspects.

Түйінді сөздер: инновациялық даму, ауыл шаруашылық өндірісі, әлеует, мемлекеттік қаржыландыру, шағын бизнес, коммерциаландыру, технологиялар, халықаралық тәжірибе, заңнамалық аспекттер.

Ключевые слова: инновационное развитие, сельскохозяйственное производство, потенциал, государственное финансирование, малый бизнес, коммерциализация, технологии, международный опыт, законодательные аспекты.

Introduction. In present situation, it is possible to achieve a sustained and stable supply of agro-food products and the development of the agriculture productive sphere only on the basis of modern technology. The transition to an innovative way of development is the most effective way of cut a production cost, increase labor productivity, and drop in dependence on weather conditions. Knowingly, the Strategy "Kazakhstan-2050" sets the task about the necessity joining of Kazakhstan to the list of first 30 world industrialized countries. The ways of achieving this goal are outlined.

After the disintegration of the Soviet Union, Kazakhstan was given a sufficiently developed industry for extraction and primary processing of minerals. Particularly valuable wealth of Kazakhstan is oil and natural gas. With the investment of some investments, the oil and gas and mining industries have become the main, most profitable in the country. So, for the first years of the 21st century, according to the Statistics Agency of the Republic of Kazakhstan, the profitability of the oil and gas sector was 0.61 Tenge per 1 Tenge of sales, and in the mining industry this figure was 0.55. High indices were different for the production of non-ferrous and ferrous metals. At the same time, funds were invested in the following years in these sectors, mainly in the oil and gas industry,. As for other industries, they differed not only in modest but rather low indicators, especially for agriculture, where profitability was only 0.09 tenge per 1 tenge of sold products, and energy, having profitability of 0.14 Tenge [1, p.46].

Material and methods of research. Well-known foreign scientists, as J.A. Schumpeter, N.G. Mankiw, have studied their work in the field of innovation, organization and management of innovative activities, innovation development. Russian scientists V.F. Fedorenko, D.S. Buklagin, E.L. Aronov, I.S. Sandu, R.G. Mumladze considered the role of innovation in the process of agricultural development.

Kazakhstani economist scientists R. Alshanov and S. Abdygapparova made a significant contribution to scientific research on the development and prospects of innovations in Kazakhstan and other innovation aspects.

The main methods of research are comparative, statistical, bibliographical and other analyses.

Agricultural science, technology, and innovation are vital to promoting rural development and poverty reduction. To this end, many studies on agricultural research, extension, and education have highlighted the importance of public investment and policies in these areas. However, as agricultural innovation becomes increasingly viewed as a complex process that defies simple solutions, it has become more and more difficult to identify the types of investment and policy interventions needed to make devel-

oping-country agriculture more responsive, dynamic, and competitive.

An increasingly popular mode of analysis to this end is the study of agricultural innovation from a systems perspective - that is, the study of sets of interrelated actors who interact in the generation, exchange, and use of agriculture-related knowledge in processes of social or economic relevance, and the institutional context that conditions their actions and interactions.

Results and discussion. According to the speeches of the President and his annual Address to the people of Kazakhstan, priority areas include the following: technological re-equipment and large-scale modernization of the agricultural sector, development of construction industry and production of building materials, development of oil refining and infrastructure of the oil and gas sector, development of metallurgy and production of finished metal products, pharmaceutical and defense industries, modernization and development of the energy sector, including the production of "green" energy, development of transport and communications infrastructure.

In spite of this circumstance, now Kazakhstan is experiencing an innovative crisis, which is connected with the lack of a well-developed mechanism for using advanced scientific achievements in the sphere of production and management. Considering the causes of the crisis phenomena in agriculture, we can identify the following factors that negatively affect its development as the following:

♦ the reduction in the number of people living in the territory of rural settlements, which are the main producers of agricultural products. The problem of reducing the number of rural population is complicated by the problem of the lack of staff professionalism;

♦ the reduction of agricultural machinery amount used in the production process. The number of tractors in agricultural areas decreased to the 71.8% of amount, harvesting combines to 80.1%. This situation is extremely negatively characterizes the situation in agriculture development, and allows us to judge about the insufficient provision of land and the appropriate type of equipment.

Realizing the importance of agro-industrial complex development, the state implements its support through financing. By financing agricultural enterprises activities, the state relies on the use of these resources for the purpose of agriculture innovative development, since it becomes increasingly obvious that the increase in the efficiency of agricultural production is achieved mainly through the innovation activity intensification. It is a significant increase in introducing the new technologies into production.

However, at the present time the innovative potential of the AIC in the RK is used only by a third, which creates prerequisites for formation of new approaches that create organizational and economic mechanisms that make it possible to intensify the scientific achievements introduction in agrarian production.

In the world economic literature, the word "innovation" is interpreted as the transformation of potential scientific and technological progress (NTP) into a real one, embodied in new products and technologies. In the world practice it is customary to refer organizations to innovation, in which more than 70% of the total volume of products in monetary terms for the reporting tax period is formed by innovative production. To assess the innovative development of the state, a global innovation index is applied, which has been defined since 2007, consisting of 80 different variables characterizing the innovative of the world countries development. The index is calculated as a weighted sum of estimates of indicators' two groups [1, p.47]:

■ disposable resources and conditions for innovation (Innovation Input);

■ accomplished practical results of innovation (Innovation Output).

The resulting index is a cost-effectiveness ratio, which allows you to objectively assess the efforts effectiveness to develop innovation in a particular country. Switzerland, followed by the United Kingdom, Sweden, Finland, the Netherlands, the United States, Singapore, Denmark, Luxembourg and Hong Kong are leading in the ranking of the world countries in terms of innovative opportunities and results. They occupy a strong position in such areas as innovation infrastructure (including information and communication technology), the level of business development (indicators: mental workers, the relationship between innovation and knowledge acquisition) and innovation results (indicators: creative goods and services and creative activity on-line) [2].

The transition to innovative development based on the use of the latest scientific discoveries and technological developments in the economy is due to many objective reasons, among which the growing role of their dependence on imports play a significant role. Unfortunately, modern innovative technologies of agricultural production are rare exceptions, and the majority of Kazakhstani farms

are producing obsolete methods and technologies [3, p.132].

It should be noted that an active study on innovative economic development issues in European countries began in the 50s of the 20th century. With a delay of half a century, Kazakhstan also began to pursue an innovative policy. In Kazakhstan, concrete steps to implement and revitalize the innovation program are made with the adoption of the Strategy for Industrial and Innovative Development of the Republic of Kazakhstan until 2015, the laws "On Innovation", "On Science", and the "Road Map", Business and Science 2020. The implementation of these programs will ensure the demand for competitive scientific results by the economics; will create the most important institutional elements of science-production relations.

The most widespread abroad was the state policy, based on the mechanisms of financial support for R & D (state, investment funds, business, etc.), as well as forms of the right to intellectual property. Recently, the share of innovative products in the countries with developed economies is constantly growing in the rate of GDP growth. Thus, the share of innovation in the growth of economic growth from 1980s to the early 2000 increased in Japan from 30.6% to 42.3%, in the USA from 31.0% to 34.6%. In the first decades of the 21st century in some European countries, the share of the innovation factor was growing at an even faster rate: in Germany and Austria it was 67%, in Sweden and Finland - about 64%, in France - 58%, and in Great Britain and Ireland - 50-55% [4, p.36].

In these countries, the economic strategy core is not simply the development of high-tech industries, but the achievement of innovative balance - the optimization of the role and magnitude of the innovation component. This approach shapes the special attitude of business and society towards the development of science-intensive technolo-gically complex industries and large-scale R & D, which implies the development of the economy along an innovative path.

In developed countries, a high-performance and ramified scientific and technical complex represents a special sector of the national economy closely integrated with the sphere of education, science, and branches of the economy and government bodies. It includes research centers of universities, industrial corporations, national state labora-tories, small and medium-sized commercial and engineering firms, various cooperative organizations that combine the resources of government, private capital and universities around the main task of accelerating scientific and technological progress and improving the quality of research and development [5, p.28].

The peculiarity of the American structure of scientific and technological progress management in the agro-industrial complex is close interaction of the state and private business. There is a significant proportion of mixed organizations, financed by public and private sources. The contract of state and private institutions in the agrarian sphere is an important feature innovative mechanism. By that the main interests for the largest producers, private organizations provide feedback by providing state authorities with information on the effectiveness of business conducted by them and measures for businessmen on economic policy.

In Canada and the United States, the state, together with local authorities, finances the university system of science, education and extension in each state, which activities are influenced by farmers' associations and attended by the board of trustees of universities. Thus, the main importance is attached to the practical reliability of the innovations obtained and the preparedness level of the graduates. In addition, numerous rural counseling centers entering the cooperative extension system, introducing innovations and training farmers, have their own boards of guardians supervising their activities. More than $ 1 billion in the US is expended on the activities of the cooperative extension service in approximately the following proportion: 28% - the federal budget, 66 - state budgets, 16% - local budgets. Moreover, state budgets allocate funds not just to extension services that are part of university systems, but mainly to specific programs of consulting and training support for farmers and their families [6].

Also the experience of the USA and Canada is interesting in that in the field of stimulating innovation activity, as the countries in which there is an exceptionally powerful and legally fixed economic and political support for agrarian innovations by the state. Canada's tax policy is designed to strengthen the financial situation of farming. Tax benefits to farmers, as well as other forms of support (federal and provincial contributions to insurance programs, etc.) created economic conditions for the productive activities of farms. There, the discount is 20%, and in various provinces of Canada there are preferential tax rates for small agricultural enterprises. In general, the total amount of tax benefits is approximately

equal to the costs of enterprises for innovative research.

World experience shows that application of the program-target method allows the governments of many developed countries to effectively use public resources to stimulate research and production of innovative products [7, p. 33].

Large corporate innovation groups are more typical for Europe. In the 70s of the last century their associations with industrial structures appeared, and in the last two decades of the last century, states began to stimulate the development of small innovative development. The state has an indirect impact on innovative business - a number of small innovation centers are managed by local authorities, and the largest ones are part of the European network with a base in Brussels. Consequently, there is a com-bination of innovative activity of small enterprises and the production power of large innovative companies [8].

The experience of the European Union suggests that for the development of innovative activities different countries use a variety of tax, financial and other mechanisms of state support for the agricultural sector. For example, in Germany, Sweden and Finland, in order to provide targeted support to the main production sectors, they are granted loans at reduced interest rates. In Italy, Spain and Portugal, tax incentives are used to encou-rage enterprises that make extensive use of innovations. Thus, in Spain tax incentives are granted to agricultural enterprises, even for import purchases of advanced production technologies, as well as for advertising and design of domestic agricultural products [see 5, p.29].

In Japan, there is the Council for Science, headed by the Prime Minister. It includes the heads of several ministries, as well as representatives of the largest private industrial corporations – the Council on Science Affairs formulates the strategic line of scientific and technical development of the country and determines the amount of expenditure on R & D from the state budget.

Innovative formations in Japan, unlike the European and American models, rely on close cooperation between science and production, a clear organization of planning and forecasting of scientific and innovative work, and coordination by the state. According to some reports, the effectiveness of scientific research in Japan is more than 6 times higher than in America, and the term of implementation of development is reduced to 2-4 years. First of all, this is due to the clarity of the interaction of fundamental, applied science and production, the availability of a highly developed information base, and also the unity of joint actions of people at all stages in innovation. At the same time, the last stage of the innovation process has a market-based basis, which encourages all participants to compete. Coordination at the research and development stage and competition at the final stage inevitably complement each other, ultimately ensuring the brilliant success of the Japanese economy [9, p.12].

In Japan, among the government's measures to ensure scientific and technological progress, to stimulate science-intensive "high" technologies, regional development programs take a prominent place. One of such programs is the program "Technopolis". As a plan to accelerate the economic development of the peripheral regions of Japan, it simultaneously contributes not only to building up their scientific and technical potential, but also forcing NTPs throughout the country. Considering the scientific and technical potential as one of the most significant factors in the restructuring and intensification of the economy, the Japanese government and the campaigns made it key in both the general economic and regional strategies. The essence of these ideas is that in order to promote regional development, further acceleration of scientific and technological progress and the priority development of science-intensive industries, specialized research and production towns-technopolises are created, which provide favorable conditions for the organic merger of scientific research with knowledge-intensive production [10, p. 52].

Conclusion. The experience of developed countries in the field of innovation should be thoroughly studied with a view to further transformation to Kazakhstan's realities. For today, the main emphasis is on the organization and development of science cities, technology parks on the basis of leading research institutes, large industrial enterprises, financing of which is mostly carried out from the state budget, which in future should be reduced in order to transfer these organizations to a market basis. If problems can be eliminated that relate to the underdeveloped legislative framework that regulates and stimulates innovation, the lack of highly skilled specialists in the field of innovative management who know the specifics of a certain specialization of the economy; absence of participation of authorities in providing sectoral funds for research and development work by attracting investments and arranging venture

funds; undeveloped infrastructure of innovative activities in agriculture; the influence of innovative processes on the development and effectiveness of agricultural production will become more significant.

The widespread use of innovative technologies in Kazakhstan's agriculture opens up broad prospects for increasing its effectiveness. It gives new opportunities for a significant increase in labor productivity, increasing production efficiency, increasing profitability and reducing the payback period of invested capital. In addition, we should say that the results of agricultural activities may increase the investment attractiveness of the regions and provide opportunities to attract additional investment in agriculture from other sectors of the economics [11, p. 56].

Summing up, we can conclude that there is no single model of scientific and innovative development in economics, which could become the basis for the innovative economics formation of each country. Each country with a developed economics has gone its own way of becoming an innovative economics. The analysis of foreign experience on innovation developments has shown that the key innovative development factors of agricultural sector are various instruments of state incentives. On a large number of examples it is proved that the growth of the state innovative potential did not pass without the strong support from the state bodies. Also, world practice proves the need for interaction between business entities, science and educational institutions for creating the space for a single innovation.

Rereference

1 Nekrassov V. Kazakhstani Klondike // The Industry of Kazakhstan.-2013.-№1(76).-pp.46-49.

2 INSEAD Research: Global Innovation index 2014// Humanitarian Technology Center [Electronic reseources].-2014.-URL: http://gtmarket.ru/ news/2014/07/18/6841 (application date: 01.12.2017).

3 Kojabaeva A.T. Instruments of state management of agricultural innovative development // Problems of Agromarket. - 2017. - N 1.- pp. 131-135.

4 Mumladze R.G., Platonov A.V. The effectiveness of innovation management in agriculture: Monograph Study. – M.: "Ru-Science" Press, 2014. - pp. 35-40.

5 Mikhailushkin P.V. The main priorities of Russia's agrarian policy// Scientific Journal of Kuban State Agrarian University.- 2013.- N 90 (06).- pp. 28-32.

6 Gritskov S.V. Features of modern models of innovation activity abroad// Bulletin of the Altai State Agrarian University №5(67) [Electronic resource]. -2010.-URL: https://cyberleninka.ru/ article/n/osobennosti-sovremennyh-modeley-innovatsionnoy-deyatelnosti-za-rubezhom (application date: 01.12.2017).

7 Fedorenko V.F., Buklagin D.S., Aronov E.L. Innovative activity in agroindustrial complex: state, problems, prospects: Scientific Edition. – Moscow, Federal State Scientific Institution "Rosinformagrotekh", 2010. – pp. 32-33.

8 Jukenov B. Foreign experience of innovative development of agro-industrial complex [Electronic resource].-2014.-URL: https: //cyberleninka.ru/ article/v/zarubezhnyy-opyt-innovatsionnogo-razvitiya- agropromyshlennogo-kompleksa (application date: 25.01.2018).

9 Savenko V. Mastering of innovations in the world leading countries and the possibility of using their experience in Russia// International Agricultural Journal.- 2007.-N 3.- pp. 11-13.

10 Innovation in Agro-Industrial Complex of Russia, Collective Monograph Study under edition of I.G.Ucvasheva, E.S.Ogloblina, I.S. Sandu, A.I.Trubilina, Moscow: "Economics and Computer Studies", 2006. – pp. 52-53.

11 Smagulova G.S., Jumagazieva A.G., Yesenjigitova R.G. Innovative development of agrarian and industrial complex of the Republic of Kazakhstan // Problems of Agromarket. - 2017.-N 2.- pp. 52-57.