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**INTERNATIONAL EXPERIENCE
INNOVATIVE IMPLEMENTATION IN AGRICULTURE**

Abstract. From the experience of foreign countries, an innovative agrarian economy is formed when agro-industrial production is based mainly on the basis of innovative activity, which is impossible without new technologies for the formation of a single financial and information space. At the same time, the introduction of innovations and the increase in the efficiency of agricultural production are creating new challenges: the industry needs more qualified personnel, at the same time there is a release of workers, which can lead to an increase in unemployment and outflow of the population.

Keywords: innovations, agriculture, economics, modernization, technology.

INTRODUCTION

A comprehensive approach to the problem of employment is required, including the creation of processing enterprises close to the production of agricultural raw materials, training programs and retraining of personnel.

In Australia, in the grain-sowing regions, the weather conditions are much more severe than in northern Kazakhstan, the precipitation is less, but the yield is 2 times higher. Holland is a country that occupies one fifth of our Almaty region, but this country annually exports \$ 100 billion worth of agricultural products. And the whole of Kazakhstan, a country 66 times larger than the Netherlands, exports only 2.1 billion dollars, that is, 50 times less.

Currently, the so-called organic farming is experiencing an era of rapid development in Switzerland. But knowledge in this area is still noticeably lacking. The Swiss Research Institute for the Problems of Biological Agriculture is developing new technologies in the field of innovative agricultural production. Now in Switzerland for biological agriculture, conducted in compliance with the most serious environmental standards, given to about 12% of all farmland.

The problem, however, is that such agro-production largely depends on modern innovative know-how. One of the sources generating special agricultural knowledge is in Switzerland and it is called the “Research Institute for the Problems of Biological Agriculture”

MAIN PART

The US economy has a lot of experience in solving problems of managing the innovation process. On the basis of the functional division of labor in the economy, a special type of entrepreneurship has emerged and is actively developing, specializing in innovation, which has been called the “risk business”. Within the framework of US agro-industrial companies, such management methods and forms of organization of innovation processes were developed that would fit as much as possible into the principles of functioning of large economic organizations.

Tax measures in the form that was applied in the United States, Canada or Australia, had a rather strong stimulating effect, and enterprises responded to the decrease in the R & D price by increasing their costs. For example, in the United States it turned out that how much money the state did not get in the form of taxes that could finance this kind of activity, about as many firms invested additional funds for R & D. In general, up to 40-60% of non-taxable profits of corporations are sent to the field of R & D to update production, fixed assets.

In the UK, Germany, Italy, Canada, USA and Japan, enterprises operating at a profit have the right to deduct 100% of R & D expenses from the tax base. In Austria, this value is 105%, in Australia and Denmark - 125% (according to the OECD).

In creating an innovative economy, the decisive role belongs to the state. Funding is provided by the state or through venture companies, alliances or business associations, and the state provides:

- development of forms and methods of state support of innovation entities;
- selection of priorities in the field of innovation;
- strategic planning, determining the list of goods and services that may be subject to a state order;
- formation of an innovation infrastructure, including the creation of specialized subjects of innovation activity of a state, intersectoral, sectoral and regional nature;
- stimulating the transfer of foreign technologies by creating conditions for a civilized technology market, that is, by recognizing all international conventions in the field of copyright, patent and trademark protection;
- creation of self-organization mechanisms in the innovation sphere, encouragement for the participation of large capital in innovative projects;
- examination and analysis of innovative projects.

Analysis of the innovation state in the republic consisted in the development of theoretical and methodological foundations, conceptual provisions for the formation of a system for the development of innovations in agriculture, taking into account the use of the institute of agricultural consulting in the process of innovative support for rural producers. Within the framework of the proposed system for the development of innovations in agriculture, the theoretical foundations and methodological provisions of the formation of the system for the adoption of innovations in agriculture were developed; the economic essence of innovation activity is revealed as the most effective direction for the development of the agrarian sector of the economy and a classification of innovations in agriculture is proposed.

Classification of innovations according to the criterion of significance in the development of the productive forces of society implies their division into the following groups:

- basic innovations - these are innovations that implement the largest inventions and become the basis of revolutionary upheavals in technology, the formation of its new directions, qualitative changes in the technological system, the creation of new industries. Such innovations require a long period of time and large expenditures for development, but they provide a significant level and scale national economic effect.
- major and fundamental innovations - innovations that have arisen on the basis of a similar rank of inventions, scientific and technical recommendations, which result in a change of generations of technology in this area or the emergence of a new technology while maintaining the original fundamental scientific principle.

Created as a result of mainly applied research and development, new equipment and technology have higher technical and economic indicators that allow them to meet new needs. The implementation of these innovations takes place in a shorter time and at lower costs, but the jump in the technical level and efficiency is much less.

- Medium and combinatorial innovations are the use of various combinations of constructive connection of elements. Realizing the average level of the invention and know-how, these innovations allow us to create a basis for the development of new models and modifications of this generation of technology, to improve the existing technology, to improve the basic technical and economic indicators of the products.

- small and combinatorial innovations - innovations arising on the basis of small inventions, innovation proposals, production experience. They are necessary to maintain the technical and economic level of basic or improve secondary technical and economic parameters of equipment and technology, improve the parameters of manufactured products, which contributes to a more efficient production of these products, or increase the efficiency of its use.

Problems of investment security in the agricultural sector:

- in agriculture there is a steady trend of deterioration of financial and economic indicators;
- the profound consequences of the decline in production in the industry are the consistent destruction of its reproductive potential (technology, land, human factors, undermining of intellectual forces, the state of science, etc.);

- lack of own financial resources in agriculture, a significant reduction in long-term lending led to a significant reduction in investment activity;
- there is no system for organizing investment activities in agriculture, both in the country and its regions.

Based on the theoretical and methodological analysis of investment management measures, approaches to assessing investment attractiveness were determined. The most significant is a multifactorial approach, which is based on the interrelated characteristics of a wide range of factors affecting investment attractiveness. These include economic potential; general business conditions; level of development of the market environment; political factors; social and sociocultural factors; political factors; organizational and legal; financial and several others. The main positions for forming the investment climate rating score include:

1. Formation of the initial statistical information.
2. Select the object of comparison.
3. Formation of indicators of regional development

The concept of drip irrigation appeared long ago. In its present form, it was developed by Israeli engineer Simha Blass, who found that slow and balanced watering significantly increases the yield. He invented a flexible pipeline, with which you can water in the places where it is most needed. In 1965, Netafim based a whole industry on this technology. Modern drip irrigation systems are even more efficient. Thanks to advanced technologies, the systems can self-clean and also ensure an even distribution of water, regardless of its quality and pressure. The most innovative of them allow increasing yields even in those regions where farming was not possible before.

Biological agents should be understood as beneficial insects and mites intended for the destruction of pests, as well as bumblebees used for natural pollination in greenhouses and in the open ground. Biological control is widely used in horticulture and the cultivation of berries. For example, Bio-Bee exports 8 different types of beneficial insects and bumblebees to more than 32 countries around the world. The use of these technologies in the cultivation of a number of crops, for example, sweet pepper, reduces the use of chemical fertilizers by 75%.

A number of companies, such as Hof Hasharon Dairy Farm, SAE Afimilk and SCR Precise Dairy Farming, are developing state-of-the-art herd management systems based on the monitoring of the physical condition of the livestock and control of the diet. The introduction and appropriate use of such systems increases the productivity of the herd by 60%. Thanks to diet planning, the quality of milk is also improved. Based on the growth dynamics of the dairy cattle breeding segment in Ukraine, the demand for such technologies will increase.

Applications developed by AKOL help farmers manage the process of planting, watering and harvesting; deal with drought; plant crops that best fit the climate of a particular area; ensure proper storage of the crop and temperature conditions; to be engaged in animal husbandry and plant growing. In Ukraine, the use of such tools is the exception rather than the rule, but the active development of private farms should increase the demand for such technologies in the future.

Today, there is a variety of potatoes that can grow in a hot, dry climate and be watered with sea water. Potatoes are one of the main dietary products in most countries of the world. Previously, it was impossible to grow it in the hot, desert climate of Africa and the Middle East. Now, thanks to innovative varieties, even farmers in these regions have the opportunity to grow, and moreover, sell potatoes. Tal-Ya Water Technologies has developed reusable plastic trays that, by accumulating condensate, reduce the need for crops and trees for water by 50%. Square corrugated trays made of unprocessed PET materials, recycled plastics and limestone impurities, equipped with UV filters, can be used to grow various crops and trees.

Night temperature differences lead to condensation on both surfaces of the tray, which, with the help of grooves, goes straight to the roots. When rainy weather trays increase the efficiency of water absorption by 27 times. The trays also block sunlight, preventing the development of weeds, and protect plants from extreme temperature extremes. Thus, farmers can save water and use less fertilizer, which in turn reduces pollution of groundwater.

Recently, a lot of research is underway to create unique means of protecting crops. Already today there are a number of slowly fissile herbicides and insecticides of selective action, which are not harmful to beneficial insects. The global market for herbicides is estimated at \$ 15 million, with a quarter of this

amount accounted for by soil herbicides and other pesticides. Modern technologies allow herbicides to effectively split in clay soils, which provides a slow and controlled absorption of active substances, preventing their infiltration into the deeper layers of the soil. This reduces the use of fertilizers and increases their efficiency. Modern insecticides kill the caterpillars of the night moths - pests known to farmers all over the world - but at the same time, unlike standard means of protection, they practically do not harm other insects. A high level of protection is provided with minimal use of the drugs themselves, which, in turn, reduces their negative impact on the environment. Algal ponds fed by liquid industrial waste are necessary for growing usable products, as they create 30 times rarer materials for the production of biofuels than cereals. In addition, these small plants, which develop due to the absorption of carbon dioxide and sunlight, are the raw material for the production of valuable dietary supplements that are eaten throughout the world.

CONCLUSION

Successful implementation of innovation policy will be promoted by measures to stimulate investors who invest in the production of high-tech products, the replication of which will speed up the development of innovative processes in agriculture. This is important to carry out both with the help of investors and by organizing temporary teams for the implementation of some large innovative project. Other measures to stimulate this type of activity are also effective: the adoption of tax and benefits for entities implementing innovations; improvement of the depreciation policy in order to enable enterprises and organizations to increase depreciation funds as a source of investment; development of high-tech unique equipment leasing, etc.

In modern conditions, foreign economic support of enterprises and consolidation of efforts of public authorities aimed at organizing interaction with various countries are extremely important and necessary. At the same time, the participation of such organizations in international competitions can act as a separate event.

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МЕЖДУНАРОДНЫЙ ОПЫТ ИННОВАЦИОННЫХ ВНЕДРЕНИЙ В СЕЛЬСКОЕ ХОЗЯЙСТВО

Аннотация. Из опыта зарубежных стран, инновационная аграрная экономика формируется, когда агропромышленное производство базируется преимущественно на основе инновационной деятельности, которая невозможна без новых технологий для формирования единого финансово-информационного пространства. Вместе с тем внедрение инноваций и повышение эффективности сельскохозяйственного производства формирует новые вызовы: отрасли требуются более квалифицированные кадры, одновременно происходит высвобождение рабочих рук, что может привести к росту безработицы и оттоку населения.

Ключевые слова: инновации, агропромышленный комплекс, сельское хозяйство, экономика, модернизация, технологии.

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АУЫЛ ШАРУАШЫНЫҢ ХАЛЫҚАРАЛЫҚ ТӘЖІРИБЕСІ ИННОВАЦИЯЛЫҚ ІСКЕ АСЫРУ

Аннотация. Шет елдердің тәжірибесінен агроөнеркәсіптік өндіріс негізінен инновациялық қызметке негізделген, бұл бірыңғай қаржылық және ақпараттық кеңістікті қалыптастыру үшін жаңа технологияларсыз мүмкін болмаған кезде инновациялық аграрлық экономика қалыптасады. Сонымен қатар, инновацияларды енгізу және ауылшаруашылық өндірісінің тиімділігін арттыру жаңа міндеттерді тудырады: салаға білікті кадрлар қажет, сонымен бірге жұмыссыздықтың жоғарылауы және халықтың жұмыссыздық деңгейінің артуына әкелуі мүмкін.

Түйін сөздер: инновациялар, ауыл шаруашылығы, экономика, жаңғырту, технологиялар.

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