FINDING OF ALTERNATIVE SOURCES OF INNOVATIONS FUNDING IN AGRICULTURE

1. Introduction

Financial support of sustainable development of agriculture is very important, because this development ensures food security, contributes to the transformation of the agricultural sector in a highly competitive sector and in the domestic and foreign markets, and provides a comprehensive rural development and social problems in rural areas.

The need for investment in agriculture is increasing due to the growing global population and changing diet preferences of the growing middle class in the markets towards higher quality products (such as dairy products, meat, fish, fruit, vegetables, etc.).

The banking sector has a much smaller share of their financial needs of farmers and small agribusinesses, and investment. This informal funding only partially covers the need for investment in agriculture in GDP. This limits investment in agriculture and indicates that the threshold for loans not due to lack of liquidity in the banking sector, but rather due to lack of willingness to expand lending to agriculture.

Even if there is, most of the funding for agriculture is usually informal and short precluding a long-term investment. This informal funding only partially covers the financial needs of farmers and small agribusinesses, and usually at a high cost.

2. The object of research and its technological audit

In order to effective formation of an innovative agricultural development strategy, a study of financing sources...
for innovation is made. The most well-known experts [1–3] once again specified the methodology of innovative development financing of agriculture. That is why, in the development of theoretical, methodological and practical foundations of financing sources for innovations and the search for alternative financing sources for innovation development of the agricultural sector of Ukraine, one should take an example of developed countries.

3. The aim and objectives of research

The aim of research is an assessment of the sustainable agricultural development financing and the search for alternative sources of innovation financing in agriculture.

To achieve this goal, the following tasks are set:
1. To investigate the need to finance the development of agriculture of Ukraine.
2. To consider the major trends prevailing in the current conditions on the use of alternative financing instruments.
3. To describe the characteristics and possible use of innovative forms of raising funds.

4. Research of existing solutions of the problem

There are many unresolved theoretical, methodological and practical issues of financing agriculture in terms of the globalization process in Ukraine.

Author [4] notes that the current state of funding research is characterized by significant barriers to the formation of an innovative model of agriculture. Inertia of investment support of sector, inadequate funding mechanisms for innovation disorder a clear legal framework, high risk innovations hinder the development of the agricultural sector on new principles [4].

The analysis of scientific literature [2, 3, 5, 6] confirms that the limiting factor for development of agricultural financing is the instability of economic conditions, due to the influence of weather conditions, price volatility, changes in the legislative and regulatory regulation. Therefore, in these conditions, special attention needs to systemic problems of agriculture and introducing a mechanism of its public financial support and ensuring sustainable development. Much of the issues related to the improvement of financing agriculture still need further investigation and resolution [7].

The problems of financial institutions increased by offering financial products for agriculture: operating costs are high, no return of the specific risks of the industry, such as production, prices and market risks; financial institutions lack knowledge in how to manage transaction costs specific risks that agriculture and financial services market for customers to agricultural producers [8].

5. Methods of research

To achieve the objectives the following methods are used: analysis and synthesis, logic synthesis, analogy, comparison, monographs and graphic-analytical method.

6. Research results

In addition, government policy is often ineffective and may actually interfere with the provision of financial services to the agricultural industry. Politics, as a practice of preferential lending interest rates and loan programs create obstacles to lending to the private sector, creating problems for the state crediting of agriculture.

Agricultural financing should be focused on the following four areas:
1. The segment of small farmers and determination of their financial needs. Small farmers are miscellaneous and have different needs. It is important to identify the various small sub fragments and assess their needs and concerns to develop products and solutions. In addition, small farmers do not just need loans for agricultural activities, but they also need credit for other needs and activities, savings, payment systems and insurance.
2. It is necessary to find ways to finance agricultural risk using the solution as unique (or individual) risks and significant systemic risks. Individual risks often associated with the assessment of credit risk, as well as information and system. Information can assist financial institutions in assessing credit risk. Finding of a good mortgage, such as personal property may also help. The assessment of systemic risks, agricultural insurance, catastrophic risk programs, price hedging through commodity exchanges or value chain can provide some solutions.
3. It is necessary to identify the relevant institutions and delivery channels, thus reducing maintenance costs of agricultural customers. A variety of sources can provide financing agriculture, depending on the type of clients they serve. Commercial banks can provide solutions through a chain of added value and better organized groups of small farmers. New technologies and advances in mobile banking solutions, and improving of the integration of farmers in best organized value chain can promote solutions and delivery channels that reduce the cost of public services in rural areas.
4. The decision to issue should be at favorable specific state policy that restricts the flow of financial services to smallholders. The government may restrict lending, but also can crowd out the private sector.

Future financing needs in agriculture include:
– Long-term financing of agriculture is necessary for long-term investments such as better storage conditions, food, processing of raw materials, equipment, and mechanization. Most of this is long-term financing for working capital;
– Agriculture financing related with infrastructure such as rural roads, port facilities, loading terminals, etc., should be in most regions. Currently, transport costs are often too high, especially for areas where moving food becomes almost impossible because of poor logistics and high cost;
– Climate change is the greatest threat to agriculture and food security. It is necessary to invest in agriculture (e.g., irrigation, drought-tolerant technology, control floods, etc.) to be able to adapt to climate change. It is also necessary to use insurance and other mechanisms to mitigate climate events.

Management system of agriculture is given in Fig. 1. State influence on the development of innovative processes is the set of actions of public authorities, stimulating production of new competitive products, development and introduction of advanced technologies. An important role is played by a set of legislative and organizational measures aimed at creating and maintaining so-called «innovation climate» in the economy by methods of direct
and indirect economic control (Fig. 2) [9]. Methods of direct regulation based on the fact that economic entities must be guided by the requirements of the legislative and executive authorities.

![Management system of agriculture](image)

**Fig. 1. Management system of agriculture**

Indirect regulation aimed at creating preconditions to ensure that local government and business entities in self-selecting economic solutions focused on options that meet the objectives of public policy. They focus on the one hand, to stimulate innovation processes, on the other – to create favorable conditions for economic, social and political environment for scientific, technological and social development.

The development of innovation in agriculture is only possible with the support of the state, which should create conditions that allow all market participants to develop their innovations, promote and implement in production. Also, inefficient state policy of Ukraine in the field of agriculture does not promote development of the agricultural sector, which is reflected in the technological lag production of unprofitable industry, its low profitability and so on.

Here, in Fig. 2 let’s consider the main directions of state support innovation in agriculture.

Regarding the financing of agriculture Law «About State Budget 2017» decides to establish that in 2017 the funds received to the special fund of the State Budget of Ukraine for the implementation of programs and activities:

- the measures relate to the state reserve fund by seed sources (the return of budget loans granted for the purchase of agricultural products for public order (contract) 1994–1997);
- financial support measures in agriculture under financial leasing by sources, refund, provided Ministry of Agrarian Policy and Food of Ukraine for financial support measures in agriculture under financial lease and purchase of breeding heifers and cows, domestic machinery and equipment for agriculture, with subsequent implementation of agricultural enterprises under financial leasing;
- financial support to farmers by sources, confiscated assets and funds derived from the sale of property confiscated by the court for corruption and corruption related offenses (excluding seized government bonds, the entire amount which the nominal value refers to reducing public debt while repayment obligations on these bonds), the allocation is determined by the Cabinet of Ministers of Ukraine; and percent single tax paid by a single tax payer fourth group [9].

![Main directions of state support for agricultural innovation](image)

**Fig. 2. Main directions of state support for agricultural innovation**

Alternative and innovative financing of agriculture in Ukraine is a holistic collaboration, strategic financing and multilateral relations in management, stimulating significant and steady flow of public and private investment in the agricultural sector, leading to increased productivity and agricultural development.

Financing of innovation in agriculture is characterized by multilateral management of mobilized resources (public and private) are in addition to official development assistance and other traditional finance is stable, predictable, and will further the search for new ways to scale up the use of innovative tools in agriculture Ukraine. According to the World Bank, the optimal investment efforts related to efforts in areas such as economic empower-

![Chain of innovation and investment financing in agriculture](image)

**Fig. 3. Chain of innovation and investment financing in agriculture**
ment, water, energy, education and training and financial services [1].

They include support for agricultural activities by the capital, public and private institutional partnerships that catalyze and attract new resources and relationships of financial management for agriculture. In practice, the traditional sources and mechanisms of financing and investment in the agricultural sector in Ukraine can not achieve and do not achieve the desired results of economic development. It is a fact that confirmed the need for alternative and innovative financing in the agricultural sector of Ukraine.

There are benefits to include large private investments into agriculture to finance and financial markets work at agricultural producers. Financial transactions of high frequency, small tax gives them a significant funding source is easy to assemble in financing economic development of agriculture. Banks can complement traditional mortgage loans innovative forms of support, such as warehouse receipts, bonds and related risk management mechanisms to reduce risks.

Can Ukraine to accelerate the adoption of alternative and innovative financing mechanisms for agriculture, just the adoption of any other innovative idea? Awareness and interest (the first stages of the adoption of any innovation) are starting to occur in some financial institutions.

The value of the global value chain of agriculture is increasingly proving bond measures taken by different countries and companies on the basis of comparative advantage reduce costs and planning of added value.

Ukraine may connect to a global value chain rapid growth through strategic industries rapid access point that can quickly monitor certain aspects of industrialization and help have some market share in global corporate profits and, ultimately, economic development:

- Machines for mechanization of agriculture. Innovative financing as agricultural machinery agriculture would change Ukraine for the better.
- Organic and inorganic fertilizers. Production of organic and inorganic fertilizers in Ukraine has great investment opportunities.
- Irrigation and energy. Withdrawal of irrigated land is about 3.5 times greater than that of rainfed production, 3.5 times greater return on investment. Innovative financing irrigation will receive a higher yield of agricultural products.

So, there are many needs in the agricultural sector of Ukraine, which require investment, but offer financial resources are low. Each country should adopt a strategic and innovative ways to get the best result with the available financial resources available for agriculture.

Let’s consider some traditional funding mechanisms in agriculture in Ukraine.

1. Taxes. By bringing most of its traditional taxes, which constitute a significant proportion of revenues to state and local budgets may send them to finance agriculture.

2. Bank loans. Loans for agriculture constitute a small proportion of the total bank credit portfolio in many Ukrainian banks. Banks perceive agriculture as a high-risk sector, which should be avoided. Many agricultural producers have low financial literacy, and do not know their capabilities. Government loan guarantees on loans agricultural sector should encourage banks to issue more loans to agriculture, but many producers are unaware of the existence of such banking products.

There are alternative and innovative financing mechanisms for agriculture:

- innovative special meeting of the producers of those industries which receive profits. Protection licenses, regulatory framework and market dynamics allow some

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**Fig. 4. The system of formation of state innovation policy**

- Institutional approach: Provides a structure of public authorities
- Functional approach: State control, regulation and coordination
- Formational approach: State Forecasting and Planning
- Systematic approach: State monitoring
- Information-analytical approach: State promotion
- Support and monitoring: State rationing

Based on innovative approaches to regulation

- Institutional approach: Determines the regulatory functions of the state
- Functional approach: Provides institutional, economic, administrative management
- Formational approach: Provides monitoring, financing, legal and organizational support
- Systematic approach: Information-analytical support and monitoring of the state of the economy and individual industries
- Information approach: Assures an effective system of information and analytical support
businesses and industries operate as monopolies or oligopolies that are able to make enormous profits, and can be special taxes on profits. Some telecommunication and oil companies face unique market dynamics of demand, which helps them making huge profits, some of which can be returned to the national economy through special fees in the industry;
- custodian banks money belonging to other businesses, governments and citizens, which banks sell for profit. The presence of large public resources at its disposal from which profit and privileges that are not in other, will always produce extraordinary profits that may be levied specifically for the benefit of society;
- a small percentage of profits chargeable to the extraordinary business giants will affect them a little, but realize a significant influx of government funding for agricultural and other key industries for the common good;
- a tax on consumer items and products that are harmful in excessive amounts.

These fees can be invested in agriculture:
- innovative banking products for the agricultural sector. Bank loans will remain an everyday source of funding for agriculture;
- many farmers belong to the informal sector and do not have a legally registered property to be used as collateral, effectively excluding them from obtaining loans from banks;
- banks can deploy active operational mechanisms to reduce the risks that ensure repayment, the use of innovative, combining loans with consulting services and innovative monitoring (and other security measures) to achieve repayment and protect its loan portfolio;
- strategic and innovative leasing. Through innovative leasing options with structured finance leases, operating leases or use everyday payments on the lease, services of agricultural machinery and preservation of agricultural products or processing equipment can be provided many small farmers who do not have money to buy them. This will enable small farmers to use machinery [2, 3];
- financing options from companies involved in agricultural technology. They can attract funding mechanisms leasing companies, commercial/microfinance banks, insurance companies;
- an innovative financing model business partner for small and medium enterprises. It uses the income distribution among different financial instruments combined with the services of business consulting/support businesses that reduce risk and ensure business success and payouts;
- funding model using venture capital and private equity, if properly adapted and structured. It may not be suitable for informal smallholder farms, but suitable for medium and large agricultural enterprises with innovative management team and good management of growth and development of agricultural sub-sectors. Major sources of funds, including global, regional and national pension funds, private funds, foundations, financial institutions, many family businesses and individuals are generally not available for agriculture;
- stock exchanges and commodity exchanges. Advantageous provide an initial public offering or sell shares placed on the stock exchanges to attract funding for further expansion and growth. Commodity exchanges may also stimulate more growth and development in various agricultural value chain and products. They are able to overcome the barriers of space to connect farmers, sellers, buyers, processors, logistics, financial institutions, etc., usually common market and trade information is a basis for financial platform. Through trade and financial flows, exchanges provided for in stock products can connect space agribusiness;
- market-smart subsidies. Subsidies are managed by governments and the market is not always effective. When the subsidy scheme is managed by strict government collects production and rampant corruption. When they are driven by the private sector and the market is timely delivery and other market elements of performance;
- strategic public-private partnership. The public-private partnerships require strategic financial and organizational synergies and cooperation by the private and public sectors to achieve overall goals. Strategically successful model of public-private partnership in agriculture is a holistic approach to agricultural value chain from core and cluster structures, international, regional and national partners. The core consists of large agricultural producers the private sector, their management, an integrated technological approach and final marketing. It is connecting with many medium and small agricultural producers;
- business model is based on synergies domestic market demand and export demand providing agricultural producers access to financing, improved seeds, training, ready access to the market in a key market segment, providing a holistic approach to the challenges facing agriculture;
- innovative agricultural and rural banks. At present, banks in Ukraine are traditionally structured and operate as efficiently through the state bureaucracy, thus not able to function effectively in financial terms, to achieve strategic growth agricultural business goals and market agriculture. Innovative development banks to agriculture and rural areas have become key strategic institutions in the rural economy. These banks contribute financial and business operations, accelerating the velocity of money in the rural economy, as fundamental to economic growth and development.

In order for Ukraine agriculture adaptation to specific market situations it is necessary to find answers to the following questions: Can more funding be directed to agriculture; whether the financing of agriculture in Ukraine to be more innovative, strategic, holistic and applied to the major investment destinations that are able to achieve much more than agriculture, obtained in the past; whether existing and new players in the financing of agriculture and investments to be introduced because of public-private partnership, where each partner carries out a role that best suits and better complement the whole?

These issues are presented in this article require further investigation. Strong, efficient and innovative institutions that provide innovative services to those who need them and are strategic guidelines should be implemented. Alternative financing model are crucial to achieving the strategic objectives of economic development of agriculture.
7. SWOT analysis if research results

Strengths. The strength of the research is analysis of alternative innovation financing and opportunities for their usage in agriculture.

Weaknesses. The weaknesses is that the complexity of agricultural production and its specificity determining the originality of approaches and methods of innovation management, a combination of different types of innovation, strengthening the state’s role in promoting innovation. It should be emphasized that agricultural production are characterized by high risks of innovation processes: risk of financing research and production results, risk of a temporary gap between spending and results, the uncertainty of demand for innovative products. Avoiding innovative development related primarily to the sharp decline in effective demand for science and technology and science-intensive products due to the difficult financial situation of companies, a sharp decline in funds from budgetary sources of funding, inability to get loans.

Opportunities. The opportunities for further research are solutions of the existing problems of financial innovation support, which requires the establishment of its mechanism, i. e., model building, implementation of which will enable to establish scientific and reasonable funding sources and funding directions and more.

Threats. The threats to the results of the research are that under conditions of limited financial resources for innovative development of the agricultural sector important issue is the rational use. From this perspective, the priority is not the value of borrowed resources and the efficiency improvement of their use; improve the structure and areas of investment support, channeling funds for new technology and equipment.

8. Conclusions

1. Agriculture provides food security and food independence of Ukraine generates 9 % of total GDP and about 60 % of the population consumption fund. In addition, the agricultural sector is one of the major budget-making sectors of the national economy, whose share in the consolidated budget of Ukraine in recent years is 8.9 % and is the second largest economic sectors in the commodity structure of export. Agriculture contributes to development of other industries that supply the means of production and consume agricultural products as raw materials, and provide transportation, shopping and other services. Only innovative financing sustainable agriculture can ensure the improvement of rural population, environmental protection, preservation of natural, human and production resources, increasing competitiveness of agricultural production.

2. There are many needs in the agricultural sector of Ukraine, which require investment, but offer financial resources are low.

3. Each country should adopt a strategic and innovative ways to get the best result with the available financial resources available for agriculture.

In practice, the traditional sources and mechanisms of financing and investment in the agricultural sector in Ukraine can not achieve and do not achieve the desired results of economic development. It is a fact that confirms the need for alternative and innovative financing in the agricultural sector of Ukraine.

References


Поиск альтернативных источников финансирования инноваций в сельском хозяйстве

Озвучены и исследованы аспекты альтернативного финансирования развития сельского хозяйства Украины. Рассмотрены основные тенденции, сложившиеся в современных условиях по использованию инструментов альтернативного финансирования, охарактеризованы особенности и возможности использования таких форм привлечения финансовых ресурсов. Механизм финансирования через альтернативные источники будет способствовать обеспечению доступу субъектов хозяйствования сельскохозяйственной отрасли к финансовым ресурсам.

Ключевые слова: развитие инноваций, сельскохозяйственный риск, альтернативные источники, альтернативные формы финансирования, государственная поддержка сельскохозяйственных инноваций.

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