

AN INVESTIGATION INTO CURRENT ISSUES IN THE FINANCING OF THE INNOVATIVE DEVELOPMENT OF THE AGRO-INDUSTRIAL COMPLEX

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ABSTRACT

This paper examines some of the current issues in innovative activity within the agro-industrial complex, determines some of the components and elements of the mechanism for stimulating the innovative process and identifies some of the institutional restrictions impeding the development of the nation's agrarian sector. It also describes some of the characteristics of the process of actualizing innovative processes and puts forward a classification of innovations based on the content of activity in the area of crop farming, determines some of the key sources of funding for the agrarian sector, identifies some of the major issues impeding the sector's innovative development and proposes a set of approaches to identifying the nation's optimal sources of funding for innovative activity within the agro-industrial complex.

Keywords: Innovation, Innovative Process, Innovative Development, Innovative Activity, Agro-Industrial Complex, Agrarian Enterprises, Classification of Innovations, State Financial Support.

INTRODUCTION

In today's conditions, the competitiveness of national economies is determined by, above all, their actual innovative potential and how effectively it is utilized. In light of the need to work out effective strategic objectives for resolving the world's food problem, Russia, too, is expected to carry out a number of systematic activities aimed at guiding its agro-industrial complex to a path of innovative development (Farinyuk & Glebova, 2013).

A major issue facing the nation's agro-industrial sector is renewing and upgrading fixed assets. That being said, domestic agriculture needs not just new machinery but an integrated material-technical base that will help boost labour productivity and minimize costs per unit of output multifold (Avarskii et al., 2015). In fostering the innovative development of Russia's agrarian sector, it may help to look to the experience of the nations within Northwest Europe (Sweden, Finland, etc.), where agricultural enterprises are always interested in implementing novel scientific solutions and the state provides efficient support for the agro-industrial complex through low taxes, facilitating the attraction of investment (Lamprinopoulou et al., 2014).

The development of innovative infrastructure has been limited to the creation of a few innovative centres, the contribution of which to the interaction of science and small and medium businesses has been extremely insufficient for now. A major issue within the agrarian sector is the lack of mechanisms for transferring innovative solutions into production (Kazannikov, 2012).

Research indicates that innovative activity in agriculture is determined by diversity in types of agricultural output and differences in the method of their production; significant differentiation across regions and the technological dependence of production on natural and climatic conditions; manufacturers being detached from science institutions; most organizational-economic mechanisms for translating research insights into innovations being

underdeveloped; diversity in the organizational forms of agricultural activity (Kuchieva et al., 2016).

It is of relevance to try to resolve the issue of enabling the prompt transfer of innovations to agricultural producers. It is normally believed that at the innovation creation stage the state ought to entirely ensure the funding of basic research, while applied projects oriented toward specific requests from the market may be funded through both state and private sources. The most common types of innovation identified by research are new varieties and hybrids of plants and animals, new microorganism strains, new and modified models of agricultural machinery, new technologies, new chemical and biological preparations (vaccines) and new economic solutions (Pound & Conroy, 2017).

Innovations are reproduced in agriculture by seed farms, stud farms, machine-building enterprises and bio factories (Wright, 2012).

It will be possible to galvanize innovative activity in agriculture at the stages of developing, testing and reproducing innovations through the creation of science parks (technoparks), regional centres for technology transfer, business incubators and other innovative establishments, factoring in the regional and sectorial characteristics of agro-industrial production (Marinchenko, 2016).

Furthermore, it is worth noting that what makes crop farming sector more attractive to manufacturers and investors is that it requires less expenditure of labour per unit of output and that the length of an operation cycle for major crops is a lot shorter than that for livestock farming and harvests can be achieved just using the useful properties of soil in combination with favourable weather conditions, with minimal efforts required to look after the plantings, as well as requires less expenditure on marketing. Crop farming currently accounts for 56.4% of Russia's gross agricultural output (Russian federal state statistics service, 2017).

Among Russia's agricultural sectors, crop farming has significant export potential. Over the last few years, grain exports from Russia have been increasingly on the rise. In 2016, the total volume of grain exports (inclusive of grain legume crops), exclusive of shipments to the member states of the Eurasian Customs Union, was 34.55 million tons, which was 10.8% or 3.36 million tons more than in 2015 and 12.6% or 3.88 million tons more than in 2014 (AB centre, 2017).

Since the potential for the development of the crop farming sector is a crucial factor for ensuring competitive advantage in the internal and external markets, it is of relevance to search for ways to boost economic efficiency within the sector on an innovative basis.

METHODS

The purpose of this empirical research study is to investigate the essence and key characteristics of the process of actualizing innovative processes in the area of crop farming, determine some of the major types of innovation depending on the content of activity and instruments for funding innovative activity in agricultural enterprises, as well as determine some of the key areas for enhancing financial support for innovative development initiatives within the nation's agrarian sector and assess the prospects for innovative development among enterprises operating within it.

For the purposes of this research study, a survey of experts was conducted regarding some of the key issues related to funding innovative development initiatives within the agro-industrial complex in which experts in the field of financing of innovations and the agro-industrial complex activities (50 people) took part, of which 30% were specialists in financing of

innovations and 40%-agricultural specialists; representatives of management personnel of agro-industrial companies accounted for 30%.

The experts were asked a number of questions concerning the concept and essence of innovative activities in the sphere of agro-industrial complex; features of financing in crop farming, determining the nature of innovation; types of innovation in crop farming, depending on the content of the activity; the choice of the source of financing innovations in crop farming, depending on the payback period of the innovation, as well as the cost of raising funds.

RESULTS

According to expert opinion, innovative activity within the agro-industrial complex is activity aimed at transforming the results of scientific and scientific-technical activity into innovations and using the latter to ensure the competitiveness and development of agricultural enterprises. Viewing an enterprise operating within the agro-industrial complex as a system requires identifying its boundaries, determining the effect of the outside environment on its operation and focusing attention on internal factors (innovations) for ensuring it external competitive advantage (Table 1).

Table 1 RATIONALE FOR POTENTIAL SOURCES OF FUNDING FOR INNOVATION IN CROP FARMING, BASED ON INVESTMENT PAYOFF TIMES			
Payoff Time	Types of Innovation	Sources of Funding	Criteria for Assessing the Advisability of Attracting Funding
not more than 1 year (1 operation cycle)	Biological Chemical	Own funds	$R_{\Delta} > 1$, i.e. $\Delta I_{gr} > 0$ Where, R_{Δ} is the recoupment of additional costs through increased sales proceeds; ΔI_{gr} is the increase in gross profit from using innovations.
		Loans	$\Delta I_{gr} > C_{in}$ Where, ΔI_{gr} is the additional gross profit from using borrowed funds; C_{in} is the costs associated with repaying the loan amount and interest.
		External investment	$P_{pr} > R_{inv}$ Where, P_{pr} is the production profitability level; R_{inv} is the nominal rate of return for investors.
More than 1 year (mid-and long-term)	Technological Technical Marketing Information	Own funds	$R_{DISC} = R_{retC}$ Where, R_{DISC} is the discount rate, coefficient; R_{retC} is the rate of return on capital in the enterprise, coefficient.
		Raised funds (issuance of shares)	$R_{DISC} = R_d$ Where, R_{DISC} is the discount rate, coefficient; R_d is the nominal dividend rate for shareholders, coefficient.
		Loans	$R_{DISC} = R_{in}$ Where, R_{DISC} is the discount rate, coefficient; R_{in} is the interest rate for borrowed resources, coefficient.
		External investment	$R_{DISC} = R_{inv} PC_t = I_t$ Where, R_{DISC} is the discount rate, coefficient; R_{inv} is the nominal rate of return for investors; PC_t is the production costs in the t^{th} year, I_t is the investment costs in the t^{th} year.

Right now, among the more promising areas for the innovative development of crop farming is dialogizing arable farming and utilizing cutting-edge combination units and geoinformation systems, which are intended to ensure boosts in crop yields and the quality of crops and help keep the costs down.

An example of successful innovation in crop farming is the use of growth stimulants. Growth stimulants make it possible to significantly reduce the rate of application of pesticides, as, by boosting the immunity of plants, they unlock their potential and facilitate the actualization of capacities laid down in the organism, including relevant immune responses and life energy as a whole (Kuz'minykh & Pashkova, 2016). Implementing research insights in crop farming requires additional financial resources. The choice of sources of funding for innovation activities in crop farming depends on payoff times for an innovation, as well as the cost of attracting funds.

Where the object of innovation is resources that will be consumed within 1 operation cycle, payoff times for this kind of innovations should be short (under 1 year). If an innovation is to be used for several years to produce various types of crop farming output, the choice of sources of funding for them may involve estimating and comparing the Net Present Value.

However, at the moment business's own funds are still among the most common sources of funding for agricultural production. This includes inappropriate profit and depreciation allowances. Still, the current level of depreciation allowances laid down in the direct cost of production appears to be insufficient for the proper reproduction of fixed capital.

DISCUSSION

The agro-industrial complex and particularly agriculture, is in greater need of financial support and protection today compared with other sectors of the economy and the nature of this support and protection should be governed by specific conditions underlying its operation, the very social-economic significance of the agrarian sector and a number of other objective factors.

An important role in enhancing the financing of the agro-industrial complex is played by the government. Since one of its major functions today is the creation of an economic environment that would help drive innovative development, it helps to employ relevant economic methods of influence. These include state loans, price formation through a system of supplements, public contracts, tax concessions and financial assistance. These methods are aimed at ensuring maximum protection for domestic manufacturers and support for their competitiveness in the internal and external markets. The key objectives in state financial support for the development of the agro-industrial complex are ensuring sufficient profit margins and facilitating the achievement of target levels of profitability in agrarian enterprises of all forms of ownership, boosting the equivalence of exchange with industrial sectors, as well as boosting the financial soundness and financial condition of enterprises and organizations operating within the agro-industrial complex.

Essentially, state support is governed by the specific nature of agricultural activity and the need of agricultural businesses for protection from price discrimination on the part of natural monopolies and cartel agreements within particular sectors of the economy, as well as the need for financing relevant measures aimed at overcoming the current lag of the domestic agro-industrial complex behind that of advanced nations and minimizing the effects of the deficit of imported agricultural products and equipment associated with the sanctions war with the EU. One of the positive aspects of the current sanctions period is the creation of innovative agro-industrial enterprises by foreign companies and natural persons on Russian soil. Considering that imposing retaliatory sanctions within the agro-industrial complex is a win-win situation, it may

be advisable to impose a moratorium on all direct taxes and tax payments from agricultural producers. During the moratorium period, it will help to develop and test a system of taxation for agricultural producers that, on the one hand, would factor in, as much as possible, the specific nature of agricultural production and, on the other hand, serve as a component of the general state taxation system.

As the results of the research showed, crediting is one of the main sources of financing innovations in crop production.

Another source of financing innovations in crop production in accordance with the results of the study is external investment.

To facilitate the making of Russia's national innovation system, which is intended to help enhance the mechanisms of state support for small innovative entrepreneurial organizations and enable domestic innovative products' entry to foreign markets, the Russian government set up OAO Russian Venture Company (RVC) with 100% state capital (Decree No. 838-r. of June 7, 2006). However, an analysis of RVC's activity indicates that within the agro-industrial complex venture capital financing has only been employed in the area of biotechnology (Frost & Sullivan, 2014), as for the time being it appears to be pretty hard to compensate for all risks and investment costs through innovation.

Right now, virtually no work is conducted within the agro-industrial sector in terms of providing domestic or foreign specialists with information on the actual needs for funding among farms and regions, types of loans they need, timeframes for repaying those loans based on the production potential of enterprises and regions, price forecasts for the output they produce, or the potential for the sale of this output. This kind of analysis could actually be helpful in guiding decision-making in the current economic situation not only to banks but agricultural enterprises as well (Goncharov, 2014; Babaeva et al., 2017).

Thus, the financing of the innovative development of the agro-industrial complex is a systematic process that requires adjusting and enhancing the financial-economic mechanism underlying the process of creating and assimilating innovations.

CONCLUSION

Shifting to an innovative path of development within the agrarian sector requires creating the right conditions for generating innovation rent, as well as providing the stimulus and incentives for the pursuit of innovative development. This is why a key role in putting in place effective support for innovative development initiatives within the agro-industrial complex is played by the state, one of the main functions whereof is the optimum combination of state regulation of the agrarian sector with free market mechanisms. It, however, will help to exercise some care in undertaking direct intervention in the marketplace, a measure that has proven only minimally effective and try to take measures that will facilitate innovative development and help boost the financial soundness of agricultural enterprises.

Having in place a sound mechanism for funding innovative activity may foster multiple forms and sources of financial support for enterprises within the agro-industrial complex in combination with funds of their own.

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