

INFLUENCE OF INNOVATION APPLICATION ON THE DEVELOPMENT OF STOCK-RAISING ECONOMIC ENTITIES

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The influence of innovation activities on the development of stock-raising economic entities is discussed in the article. The analysis of management of innovation activities and activation thereof is given in the article. The research data, highlighting the problems of the Lithuanian stock-raising sector in pursuance of innovation activities, is analyzed in the article. The results demonstrated a positive relation between the ongoing scientific research and experimental development (R&D) activities as well as development of new products.

Innovations, innovation activities, management, agriculture, stock-raising, R&D.

Introduction

Business environment, which is lately rapidly changing, forces the economic entities to search for new ways of surviving on the market. Coming of new technologies, changes in the consumer needs, and increasing competition significantly reduce the product lifetime. These tendencies will continue to increase. Under the market economy conditions the innovations are an important factor in the competitive activities of the economic entities. It is true to say that those economic entities, which do not implement innovation activities, become powerless against the dynamic competitors. Agricultural sector is one of the most problematic sectors of economy in Lithuania. The crucial problem of economic entities of this sector is outdated technologies. Only those, who promptly and efficiently adopt the results of scientific-technical progress and who are oriented towards the ongoing innovation activities, will survive in the future.

One of the basic factors of agricultural competitive ability is innovations, as the lack of support to science and innovations for implementation may determine a long-term technological backwardness of the country in general. Now the agrarian, food economy, as well as village innovations must be integrated into the common EU innovation strategy.

The fifth edition of the European Innovation Scoreboard reveals that the majority of the member states of the European Union are currently trying to catch up with the leading countries, however, a relatively slow rate of this process will hardly let them measure up to the European leaders in the nearest future. The European Innovation Scoreboard presents the indicators of innovations and analysis of the tendencies, made in all 25 member states of the European Union as well as Bulgaria, Romania, Turkey, Iceland, Norway, Switzerland, USA, and Japan. Five main aspects of innovations are assessed therein: *innovation promoting factors, information development, innovations and enterprise, applied innovations, as well as intellectual property*. Moreover, a new way of assessing the efficiency of innovations is offered as well as the methods, applied to this sector, are explicated therein.

Therefore, one of the crucial **problems** in the agricultural sector of these days is the implementation and application of innovations.

Purpose of the research is to determine the influence of innovation application on the development of stock-raising economic entities.

Tasks of the research: 1) to analyze the factors, having an influence on the efficient development of innovation activities; 2) to analyze the activation of innovation activities in the Lithuanian agricultural stock-raising sector; 3) to perform the feasibility study of the application of innovation activities to the development of stock-raising.

Subject-matter of the research. Lithuanian stock-raising economic entities.

Methods: comparative analysis and synthesis of scientific literature, questionnaire, correlation analysis.

Means of the research. A special questionnaire was designed for the survey with the questions covering the following fields of research: 1) innovation management and performance of R&D activities within the stock-raising sector; 2) employee incentive by using the intellectual capital of the employees. The managers and experts of the Lithuanian stock-raising economic entities participated (were surveyed) in the research. 178 questionnaires were sent to the managers as well as experts of the stock-raising economic entities and 83 filled in forms, suitable for the analysis of the results, were received during the performance of the research.

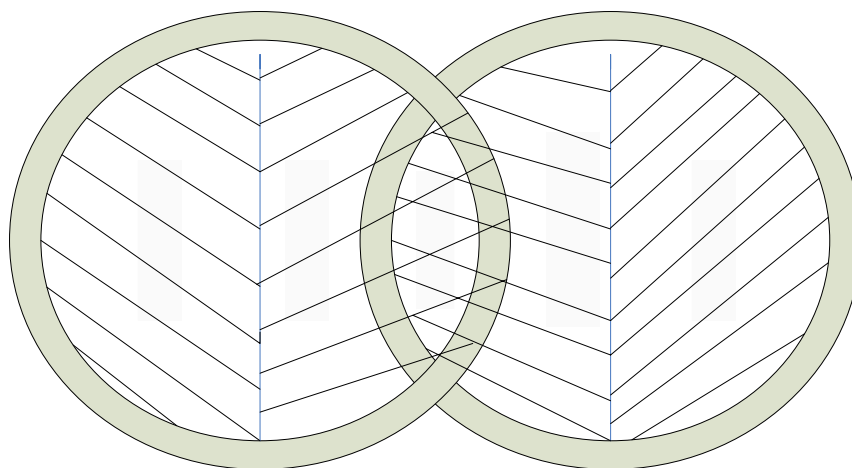
The data was assessed with the help of the software SPSS 10.0 for Windows.

Innovation activities

Innovation activities in the business organization management of these days are one of the basic factors of success. Successful activities are not defined by the variety of the surrounding factors or the amount of investment, but by efficient innovation activities. Development and activation of innovation activities enables the diverse modernization of production and service rendering structures, improvement of the products developed and technologies applied, increase of international competitive ability thereof, which is one of the leading factors of economy development of the country (Knašas, 2001). Modernization of equipment and reduction of input are the main conditions for the stock-raising business to remain competitive.

Development and activation of innovation activities enables the organizations to improve the products developed, to modernize the production technologies, as well as increases the competitive advantage thereof. However, the increase of competitive ability and development of new technological solutions as well as application thereof in the market is hardly possible without the beneficial state control and incentive as well as promotion system (Jakubavičius, 1999). „Ability of an enterprise to acquire and spread the knowledge, to apply it repeatedly, to invent and develop innovations based on that knowledge is the fundamental factor and instrument, determining the value of the enterprise“ (Ramanauskienė, 2005). Though different scientific sources emphasize the importance of intellectual capital for the business, the most of organizations, when assessing their business, still ignore the intellectual capital. This is particularly relevant to the agricultural organizations.

Science plays an important role in the process of innovation activities. Science is a complex phenomenon, performing quite different functions in production. Basic functions of science are cognitive and industrial. If one of those two functions prevailed in the creative processes, the science could be divided into two parts: theoretical research as well as scientific research and experimental development (R&D). Relatively independent functions of theoretical science and production are integrated in R&D field, covering the technical requirements for production and scientific potential, accrued during the process of theoretical research. Thus, R&D, given in Picture 1, is an intermediate link between science and production.



Picture 1. Position of R&D within “science-production” system (Жилинскас, 1988)

Theory and practice demonstrates that the higher the R&D expenses are, the bigger the efficiency growth is. One of the fundamental conditions for the efficiency growth in Lithuania and entire European Union is the increase in R&D expenditure. As compared with the USA, the investments of the EU member states are significantly lagging behind. USA investment growth amounts in average to 5.4%, whereas the EU – only 1.7% (Предпринимательская..., 2006).

A. Jakubavičius and other authors (2003), having assessed the Lithuanian scientific potential, maintain that just an insignificant part of modern technologies which are required by the Lithuanian economic entities, can be developed in Lithuania. It is emphasized in the Lithuanian Science and Technology White Book that in order for the Lithuanian scientists to be able to develop worldwide competitive technologies, it is necessary to focus the efforts and resources just on several fields of science. This means that the Lithuanian enterprises will have to acquire the vast majority of modern and competitive technologies in other countries.

Though in these latter years the Lithuanian economical growth is speeding up, however, the business, particularly agricultural sector, is facing the challenges of different nature. The emigration of the labor force, insufficient investment into innovations, and other factors force to search for more and more efficient means that would increase the competitive ability of the economy.

Stock-raising organizations, as other business enterprises, are forced to search for new ways to remain competitive as well as carry out innovation activities. The

European Union allocates big funds to support the modernization of the Lithuanian agricultural entities and, especially, the priority branches thereof – cattle breeding and swine-breeding.

Research results

Research results demonstrated that the majority of economic entities innovate under minimum condition, raised to innovations, under which the organizational method of technology or process must be new for the enterprise. The majority of them simply acquires and applies the innovation, developed by other enterprises, to their activities. Based on the research results, it could be stated that the biggest part of the economic entities, which participated in the research, are attributed to the category of interceptors of technologies (Picture 2).

It could be maintained that 65% of the Lithuanian stock-raising complexes do not develop innovations themselves. The innovation activities of other economic entities are more episodic, constituting only 7%. Innovation in the activities of the Lithuanian stock-raising complexes is a strategic component of the activities of that organization (Inovacijų plėtra..., 2007).

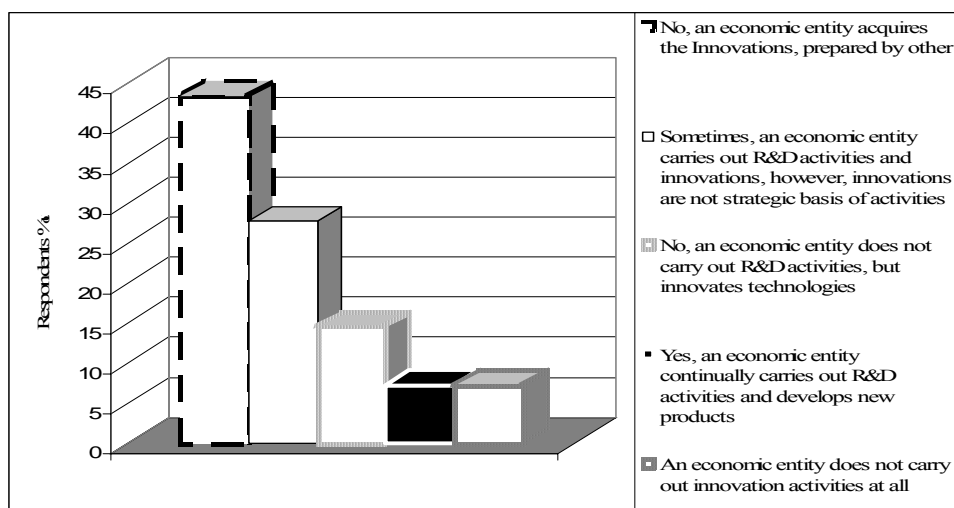
The example of innovations in organizations is adoption of information technologies in organizations (animal management programs). Lithuanian farmers do not develop management programs themselves; they just acquire it from foreign companies. Usage of animal management programs in the farms helps farmers to reduce non-productive days of animals and by that to reduce expenses.

In average 90% of the surveyed economic entities during the coming years are planning to improve the technological and management processes in their activities and only approximately 20% are planning to start developing new technologies. The results of this matter demonstrated that innovative stock-raising complexes are more inclined to improve the existing technologies or services, than develop new ones. This tendency corresponds to the official innovation statistics, where Lithuania, in order of strategic innovators, is found in one of the lowest positions in Europe.

The European Innovation Scoreboard (Inovacijų rezultatų ..., 2006) highlights the national gaps. The European Innovation Scoreboard presents the big picture of the innovation results in Europe. The Nordic countries together with Germany remain the EU's innovation leaders. The new member states either try to catch up with the leading countries or have much leeway to make up with them. The majority of the "old" member states belong to the average result group.

Considering the innovation results, the European countries are divided into following four groups:

- „leading countries“: Switzerland, Finland, Sweden, Denmark, and Germany;
- „average result countries“: France, Luxembourg, Ireland, United Kingdom, the Netherlands, Belgium, Austria, Norway, Italy, and Iceland;
- „trying to catch up countries“: Slovenia, Hungary, Portugal, Czech Republic, **Lithuania**, Latvia, Greece, Cyprus, and Malta;
- „countries that are not able of catching up“: Estonia, Spain, Bulgaria, Poland, Slovakia, Romania, and Turkey.

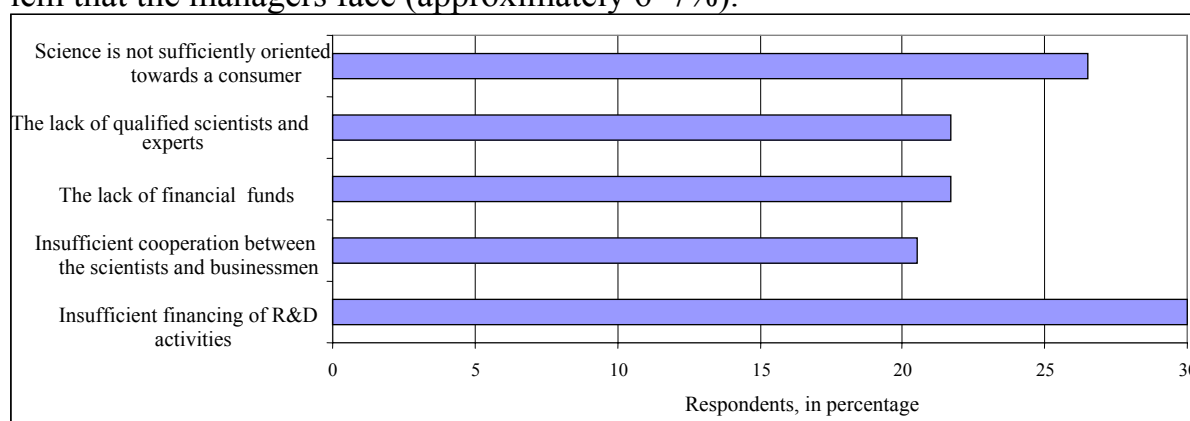


Picture 2. The level of innovative ability of the Lithuanian stock-raising economic entities

As the ultimate obstacles to develop new technologies the respondents mentioned insufficient financing of R&D activities and the fact that science is not sufficiently oriented towards a particular consumer (Picture 3).

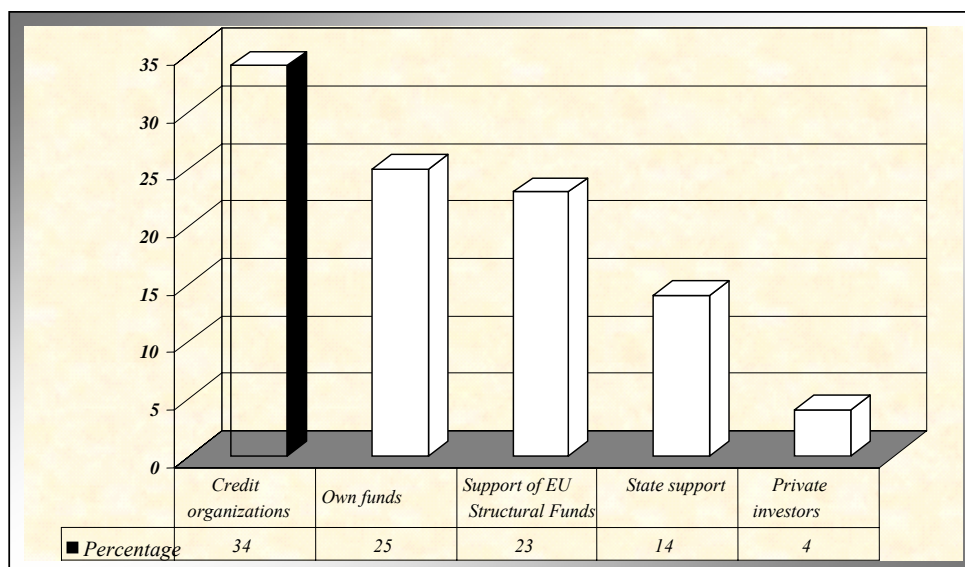
Spearman's correlation coefficient was used for the determination of the inter-face of development of R&D activities and new technologies of the organizations. The following value of the data was determined: $r_s=0.413$; $p<0.00$. This demonstrates that the data is statistically significant and that there is a reasonable relation between these features.

The problems that the managers mostly face in pursuance of innovation activities were also found out during the research. The biggest problem in the stock-raising complexes is the lack of financial resources (approximately 36%) and bureaucratic obstacles (approximately 34%). Though one could expect that the employee resistance to the innovation would be quite considerable, however, this is the most seldom problem that the managers face (approximately 6–7%).



Picture 3. Obstacles to develop new technologies

It was determined after the research that the majority of the agricultural entities, in pursuance of the innovation activities, are using the assistance of the commercial banks and structural funds (Picture 4).



Picture 4. Sources of financing of innovation activities

The research results demonstrate that the state does not pay enough of regard and support to less popular fields of agriculture, therefore, the economic entities of such branches (e.g. sheep breeding) hardly perform the innovation activities. The sheep breeding development would be useful to both the Lithuanian agricultural sector as well as the textile and garment industry. This is a newly regenerating sector, which needs a lot of support from the state.

Observing the provision that the intellectual capital of the personnel is an important factor in successful activities of the organization, the goal was to find out the way the Lithuanian stock-raising economic entities use the intellectual capital of their employees for the development of innovation activities. The data demonstrates that most of the organizations researched insufficiently apply the knowledge of their personnel to the innovations as the source of information. Generally they use the state scientific institutions to receive the information on innovations. Rather high application of knowledge of scientific institutions denies the fact, already established in other researches, that in Lithuania the cooperation of science and business is very poor. It could be maintained that the Lithuanian stock-raising organizations are in close cooperation with scientific institutions and use the information as well as knowledge, provided by them.

Moreover, it came out during the research that the centralized management is still prevailing in the Lithuanian stock-raising organizations, when the decision is made by one person – the manager. In the innovation activities this is a pretty risky decision-making method, as one person very often cannot cover all administration and management problems.

Conslutions

Innovation activities for the stock-raising development are of capital importance. Majority of the economic entities do not develop new technologies, but simply are limited to the renewal of processes and technologies as well as commonly just practice the innovations, developed by other authors, in their activities.

Insufficient financing of R&D and insufficient orientation of science towards a specific consumer impede the development of new technologies in the stock-raising complexes.

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INOVACIJŲ PANAUDOJIMO ĮTAKA GYVULININKYSTĖS KRYPTIES ŪKIO SUBJEKTŲ PLĖTRAI

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Santrauka

Straipsnyje nagrinėjama inovacinės veiklos įtaka gyvulininkystės krypties ūkio subjektų plėtrai. Pateikiama inovacinės veiklos valdymo ir jos aktyvinimo analizė. Analizuojami tyrimo duomenys, išryškinantys Lietuvos gyvulininkystės sektoriaus problemas vykdant inovacinę veiklą. Rezultatai parodė teigiamą ryšį tarp nuolat vykdomos mokslinių tyrimų ir eksperimentinės plėtros (MTEP) veiklos ir naujų produktų kūrimo.

Inovacijos, inovacinė veikla, valdymas, žemės ūkis, gyvulininkystė, MTEP.