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Ключевые слова: инновационный процесс, линейная модель, системно-интегрированная модель, эффективность, инновационный цикл, инновационная инфраструктура.
Ключові слова: інноваційний процес, лінійна модель, системно-інтегрована модель, ефективність, інноваційний цикл, інноваційна інфраструктура.
Keywords: innovation process, the linear model, system-integrated model, efficiency, innovation cycle, innovation infrastructure.

УДК 338

INNOVATION IN THE AGRICULTURAL SECTOR IN THE CONTEXT OF EUROPE 2020 STRATEGY FOR SMART, SUSTAINABLE AND INCLUSIVE GROWTH

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Blazheva V. Innovation in the agricultural sector in the context of Europe 2020 Strategy for smart, sustainable and inclusive growth.

Innovation has a long history in the European policy for rural development. At present, there are two concepts of innovation – of one-dimensional and interactive innovations. *One-dimensional* (linear) innovations are based on a research approach, the new ideas being the result of research and they are put into practice through one-dimensional transfer of knowledge. *Interactive* (systemic) innovations are also based on science, but on practice and some other "intermediaries" as well, such as farmers, consultants, NGOs and researchers. They are believed to provide more targeted solutions that are easier to apply. The issue of innovation in the agricultural sector is particularly topical at present in terms of: the implemented European agricultural policy, famine worldwide, food security, etc. The focus is on the dynamic changes in the economy and in the agricultural sector, in particular, in terms of the priority of the "new" European agricultural policy – "Fostering knowledge transfer and innovation in agriculture, forestry and rural areas", and especially in the following aspects: fostering innovation and the knowledge base in rural areas; strengthening the

links between agriculture and forestry and research and innovation; fostering lifelong learning and vocational training in the agricultural and forestry sectors. From this point of view it is necessary to foster the development of competitive and sustainable agriculture and forestry, which “does more with less” in harmony with the environment.

Блажева В. І. Інновації в аграрному секторі в контексті стратегії "Європа –2020" для інтелігентного, стійкого і прилучає зростання.

Інновації мають довголітню історію в європейській політиці з розвитку сільських районів. На даний момент концепцій про інновації дві - про односпрямованих та інтерактивних інноваціях. Односпрямовані (лінійні) інновації грунтуються на науково - дослідному підході, при цьому нові ідеї є результатом наукових досліджень і введені в практику через односпрямований трансфер знань. Інтерактивні (системні) інновації грунтуються також на науці , а й на практиці та інших „посередників”, таких як: виробники аграрної продукції, консультанти, неурядові організації, дослідники. Вважається, що вони надають більш цілеспрямовані рішення, які є простішими у застосуванні. Тема про інновації в аграрному секторі особливо актуальна в даний час з погляду проведеної європейської сільськогосподарської політики; голоду в світовому масштабі, продовольчої безпеки і т.д. Ставиться акцент на динамічних змінах в економіці і зокрема в аграрному секторі по відношенню до пріоритету "нової" європейської сільськогосподарської політики – "Стимулювання трансферу знань і інновацій в області сільського та лісового господарства і сільських районах", і конкретного в наступних напрямках: стимулювання інновацій і бази знань у сільських ра йонах; зміцнення зв'язків між сільським господарством, виробництвом продуктів харчування, лісовим господарством і науково-дослідною діяльністю та інноваціями; заохочення навчання протягом усього життя і професійне навчання в секторах сільського та лісового господарства. З цієї позиції необхідно стимулювання розвитку конкурентоспроможності та сталого сільського та лісового господарства, яке "досягає більшого за допомогою меншого" в гармонії з навколишнім середовищем.

Блажева В. И. Инновации в аграрном секторе в контексте стратегии „Европа-2020” для интеллигентного, устойчивого и приобщающего роста.

Инновации имеют долголетнюю историю в европейской политике по развитию сельских районов. В настоящий момент концепций об инновациях две – об однонаправленных и интерактивных инновациях. *Однонаправленные* (линейные) инновации основываются на научно-исследовательском подходе, при этом новые идеи являются результатом научных исследований и введены в практику через однонаправленный трансфер знаний. *Интерактивные* (системные) инновации основываются также на науке, но и на практике и других „посредников“, таких как: производители аграрной продукции, консультанты, неправительственные организации, исследователи. Считается, что они предоставляют более целенаправленные решения, которые являются более простыми в применении. Тема об инновациях в аграрном секторе особенно актуальна в настоящее время с точки зрения проводимой европейской сельскохозяйственной политики; голода в мировом масштабе, продовольственной безопасности и т.д. Ставится акцент на динамических изменениях в экономике и в частности в аграрном секторе по отношению к приоритету „новой” европейской сельскохозяйственной политики - „Стимулирование трансфера знаний и инноваций в области сельского и лесного хозяйства и сельских районах“, и конкретнее в следующих направлениях: стимулирование инноваций и базы знаний в сельских районах; укрепление связей между сельским хозяйством, производством продуктов питания, лесным хозяйством и научно-исследовательской деятельностью и инновациями; поощрение обучения в течение всей жизни и професиональное обучение в секторах сельского и лесного хозяйства. С этой позиции необходимо стимулирование развития конкурентоспособного и устойчивого сельского и лесного хозяйства, которое „достигает большего посредством меньшего” в гармонии с окружающей средой.

I. Introduction. The idea of this paper "Innovation in the agricultural sector in the context of the Europe 2020 Strategy for smart, sustainable and inclusive growth" was inspired by the desire to cover the modern and topical aspects in the fields of science.

This paper aims to study innovation in the economy as a whole and particularly in the agricultural sector, through the prism of the Europe 2020 Strategy for smart, sustainable and inclusive growth. The following tasks define the accomplishment of its goal:

- studying the theory and practice to clarify the specifics and conceptual apparatus regarding innovation in the economy and agricultural sector;
- identifying the factors necessitating the introduction of innovation in the agricultural sector;
- a foundation for creating innovation partnership;
- a European policy for the introduction of innovation in the agricultural sector;
- proposals and conclusions regarding the introduction of innovation in the agricultural sector to achieve smart, sustainable and inclusive growth.

The object of study is innovation in economy, and the innovation in the agricultural sector, in particular, is the subject of study.

The thesis statement stems from the need to achieve smart, sustainable and inclusive growth by applying innovation in the context of Europe 2020 Strategy.

II. Innovation in the economy and prerequisites for introducing innovation in the gricultural sector. In economics, the introduction of new things and offering new products and services is called innovation. Often being described as new ideas they relate to the creation of a new product, service, production process, etc. The major requirement is that innovation has to prove its usefulness in practice.

The word "innovation" comes from Latin and means introducing novelties, updating (innovatio – in; novelty). There should be applicability and orientation towards practical use in order for innovation to be present. Otherwise, the new idea remains at the level of invention.

Here, the focus is on the specifics and the conceptual apparatus regarding innovation in the agricultural sector and the transfer of knowledge in agriculture, on the one hand. On the other hand, farmers and manufacturers must look for new solutions to optimize the production process in collaboration with researchers. They will be aided by the tools of the Rural Development Programme funded by the European Agricultural Fund for Rural Development.

.Innovation in agriculture is restricted to new approaches and ideas for rural development, using new equipment, aiming at alternative markets, consolidating different sectors and stakeholders through new methods of building contact networks, supporting new priority groups or finding new solutions to social, economic and environmental challenges.

Innovation is necessary in the agricultural sector as Europe is faced with the challenge related to food security, due to the growing trend for a sharp increase in the search for food and bio-mass. Contrary to the above there is a worldwide trend to slow down the growth of productivity of agricultural foods and products owing to the reduced investment in research in agriculture and the rise in the pressure and negative impact on environment and natural resources. [1]

In order to enhance the transfer of technologies from science to agricultural practice and to implement feedback from agricultural activities to science it is necessary to foster the cooperation between researchers, farmers and other stakeholders.

The above stated forms the grounds for the general conclusion that a major challenge in the near future will not be only to produce more, but also to realize production in a sustainable and environmentally-friendly manner. This requires strengthening the scientific research in the field of agriculture.

III. Innovation Partnerships in the European Union. In order to meet three of the major challenges facing our society in areas essential for growth and employment (supply of raw materials, conducting sustainable agriculture and active and healthy ageing) the European Commission has proposed taking decisive actions.

Coordinated innovation efforts in the public and private sectors are needed to improve the quality of life. To this end, the Commission launched two new European Innovation Partnerships (EIPs) – on raw materials and on sustainable and productive agriculture, and approved the four-year plan of action on active and healthy ageing, a pilot launched in February 2011. [2]

3.1. Innovation partnership to overcome Europe's raw materials shortages

It is becoming more difficult to supply raw materials, which is essential for the high-tech industry. Under the proposed European Innovation Partnership on raw materials efforts are joined in support of exploration, extraction and processing of raw materials in order to increase their production in Europe. The efforts are focused on: the creation of new technologies that would help to obtain raw materials from greater depths, in more remote areas and in adverse conditions; development of substitutes of the major raw materials and better recycling of electrical and electronic equipment and other waste. The better access to fossil resources will facilitate the development of innovative products such as thin photovoltaic panels, energy saving lighting, electric cars, advanced passenger aircraft, infrared optical equipment and fibreglass. [3]

3.2. European Innovation Partnership for agriculture

The priorities of the European Innovation Partnership for agricultural productivity and sustainability are aimed at:

- fostering a productive agricultural sector, consistent with and sustainable to the climate change with low carbon emissions, using resources efficiently;
- facilitating the sustainable supply of food, forage, and biomaterials;
- environmental protection, mitigation of and adaptation to the consequences of climate change;
- establishing relations between the latest research knowledge and technologies and farmers, companies and consultancy services.

Given the present trend in Europe of: problems with soil quality (45%); arable land exposed to nitrate contamination (around 40%); and the declining number of birds in farmlands (by 20-25%); in the last 20 years these problems could not be resolved without a decisive step towards research and innovation and, especially, towards the cooperation of researchers, farmers and other stakeholders in the sector in order to accelerate the technology transfer from science to agricultural practice and to offer the scientific community a systematic feedback on the needs of agriculture.

The European Innovation Partnership "Agricultural Productivity and Sustainability" provides an operational platform for exchange between agriculture, bio-economy, science and other stakeholders at regional, national and European levels, the implementation of which is expected to enhance the effectiveness of the innovation-related activities that are supported by the rural development policy and the European Union policy for research and innovation. In this respect, the European Innovation Partnership is aimed at two leading objectives – fostering productivity and efficiency of the agricultural sector and agricultural sustainability. [4]

3.3. European Innovation Partnership on active and healthy ageing

Population ageing is one of the most serious challenges facing Europe today. The number of European citizens aged 65 and over will double in the following 50 years and from 87 million people it will reach 148 million in 2060.

The specific activities are aimed at promoting the involvement of stakeholders; building a market for innovative ideas; and solving the problems in the field of regulation and standardization. [5]

European Innovation Partnerships offer a new approach to the whole research chain – innovative developments, bringing together stakeholders from the public and private sectors, surpassing the national and sectoral boundaries in order to enhance the introduction of innovation. Each of them pursues the achievement of an ambitious goal by 2020 and is expected to start yielding results within the next one to three years. [6]

IV. European policy for the introduction of innovation in the agricultural sector. The priority of the "new" European agricultural policy, "Fostering knowledge transfer and innovation in agriculture, forestry and rural areas" sets three main areas: fostering innovation and the knowledge

base in rural areas: strengthening the links between agriculture, food, forestry and research and innovation; and fostering lifelong learning and vocational training in the agricultural and forestry sectors.

Fostering innovation and the knowledge base in rural areas aims at improving the awareness of medium and small farmers in the creation of: a network of innovation intermediaries between the research centres and farmers; conditions for identifying the farmers' needs for innovative solutions in their farms; conditions for the scientific results of the research and practical studies in agriculture to reach farmers as well as supporting the small farms for promoting and introducing innovation.

Strengthening the links between agriculture, food, forestry and research and innovation is expressed in facilitating the access of farms and companies to an external financial resource for introducing innovation and expanding the opportunities for using consultancy services for the introduction of innovation in production. That would contribute to improving the access to information (regarding new technological solutions, innovation in management, the market situation, adapting to the climatic changes and reducing carbon dioxide emission, etc.) of farmers, incl. through creating networks for exchange of good practices and experience. The emphasis is placed on the effective use of the created national resource for providing consultancy and advisory services, training and qualification and introducing innovative approaches.

Fostering lifelong learning and vocational training in the agricultural and forestry sectors aims at improving the conditions for training farmers and owners of forests so that they can acquire new knowledge and skills. The creation of a lifelong learning system through providing support for training in courses of different lengths and flexible modes of study has to be complied with the specifics of the activities in agriculture and forestry. The provision of opportunities for attractive vocational training would increase the level of technical and economic knowledge in the sphere of business management, new technologies, product quality and safety, sustainable management of natural resources, incl. the cross correspondence requirements, renewable energy sources and biological production.

The priority specified is the basis for establishing a new one, namely the concept of the European Innovation Partnership. It was introduced through one of the Europe 2020 pilot initiatives – "Innovation Union", and its aim is to overcome the shortcomings, delays and obstacles in the European system of research and innovation activities, which prevent or inhibit the development and introduction of new ideas in the economy.

The European Innovation Partnership acts as an intermediary aiming to foster the cooperation between the different participants involved in the achievement of the goals set. This approach is expected to foster the effective use of resources and the competitiveness in the agricultural and forestry sectors. The building of "bridges" between research, farmers and foresters, food companies, NGOs and consultants is considered to inevitably contribute to the emergence of innovations in agriculture.

The opportunity to implement a feedback gives us grounds to consider the European Innovation Partnership concept as interactive innovation.

V. Conclusion. The reasons for the creation of the European Innovation Partnership are the insufficient investment, outdated regulations, lack of standards and market fragmentation.

The conceptual apparatus for agriculture needs to be specified and there should be clarity and differentiation as to what should be considered innovation and what – not. This is particularly true for the statement in the economic literature that "... providing a precise definition of innovation is neither necessary, nor would be useful as the Rural Development Policy aims to provide a "favourable climate" for the emergence of innovation, namely to provide freedom for innovation and opportunity for dynamics in this direction". Is that not contrary to the implementation of the European policy? Moreover, the innovation in the agricultural sector is expected to achieve smart, sustainable and inclusive growth.

In order to achieve the goals set in the European Innovation Partnership it is necessary to foster projects for:

- environment preservation;

- adapting agriculture to the climate change and mitigating its consequences;
- sustainable provision of food, forage and biomaterials, productive and sustainable (to the climatic changes) agriculture with low carbon dioxide emissions.

Innovation will be sought in the implementation of pilot projects, demonstration farms, short supply chains, projects related to the production and processing of biomass, energy efficiency, renewable energy sources to meet the energy needs of farms, development of new products in the processing sector, organic farming, projects for processing forest products through new methods, etc. The successful transfer of knowledge and innovation in agriculture and forestry will depend on the criteria set.

Innovation is the driving force for the development of European rural areas, and the European Innovation Partnership is a tool for innovation implementation – essential for the development of agriculture. The successful implementation of innovations in agriculture requires a normative foundation.

In conclusion it can be summarized that the European Innovation Partnership concept fosters the creation of competitive and sustainable agricultural and forestry sectors, which will achieve more with less and which are in harmony with the environment. To achieve the goal set there should be an interaction between agriculture and bio-economy and science, both at European and at national and regional levels.

The successful transition towards smart, sustainable and inclusive growth needs: an efficient system for research and innovation (including supporting private investment in them); investments to increase productivity and reduce energy consumption and the resource consumption of production; access of small and medium-sized enterprises and start-ups to funds; infrastructure and capacity; fostering a low-carbon economy, energy efficiency and renewable energy sources.

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Keywords: Agricultural sector, innovation, European Union (EU), Europe 2020 Strategy for smart, sustainable and inclusive growth, European Innovation Partnership for agriculture.
Ключові слова: аграрний сектор, інновації, Європейський союз, стратегії "Європа-2020" для інтелігентного, стійкого і залучающого зростання, Європейське партнерство, інновації в галузі сільського господарства.
Ключовые слова: аграрный сектор, иновации, Европейский союз, стратегии „Европа-2020" для интеллигентного, устойчивого и приобщающего роста, Европейское партнерство, инновации в области сельского хозяйства.