

# Innovation in Agriculture - a Way for Romanian Farmers to Adjust Production to Market Requirements

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## Abstract

One of the main problems of the world in the coming years is food security. The main problem of agriculture in the future is not only to produce more, but to do so in a sustainable way. European Innovation Partnership called "Productivity and sustainability of agriculture" aims to provide a working interface between agriculture, bio-economy, science and other disciplines at national, regional and EU level. European Innovation Partnership is a new concept that was introduced in Strategy Europe 2020 of the European Commission. In this document, the Commission underlines the role of research and innovation as key elements in adapting to future challenges of the European Union. This partnership will also serve as a catalyst to increase the effectiveness of actions related to innovation supported through rural development policy, EU research and innovation. It has been identified two main objectives for the European Innovation Partnership: promoting productivity and efficiency of agriculture and durable agriculture sustainability in all Member States. It aims to create a better cooperation between research and agricultural practice, namely farmers. Through National Program for Rural Development 2014 - 2020, can be financed such initiatives, through Measure 16, sub-16.1 - Support for the establishment and operation of operational groups of the EIP for agricultural productivity and sustainability and sub-16.2 - Support for pilot projects and development of new products, practices, processes and technologies. The purpose of these sub-measures is to support the establishment of operational groups between partners coming from research: research institutes, research stations or centers, higher education institutions that have research in agriculture or which can be applied in agriculture and agricultural producers (farmers, companies, cooperatives and producer groups). Development and innovation activities would enable farmers to capitalize on joint the produced products, to adapt production to market requirements, have better access to inputs, equipment, credit and marketing, to optimize their production costs, create short supply chains and handle with various market challenges.

**Keywords:** agriculture, development, farmers, innovation, research

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## 1. Introduction

Innovation is recognized as a major source of improvement in productivity, competitiveness and growth in all advanced and emerging areas. The most important role of innovation is to create jobs, income generation, targeting social development

and poverty reduction.

Innovation is an aspect included in the priorities of the Common Agricultural Policy and the National Rural Development Program 2014-2020 and contributes to smart, sustainable and inclusive growth. The establishment of a European Innovation Partnership in the field of agriculture is mentioned in the Communication "Innovation Union" (the Europe 2020 flagship initiative). In the 2014-2020 programming period, innovation is supported by the NRDP through two distinct measures: Measure 16 - "Cooperation" and

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Measure 1 - "Transfer of knowledge and information actions". The transfer of knowledge and information actions will be tailored to the needs of all those working in the agri-food sector [1,2].

In the Member States of the European Union, the European Innovation Partnership on Productivity and Sustainability of Agriculture (PEI-AGRI) is a new approach to promoting innovation in European agriculture. In principle, innovation aims at creating a link between science and practice, notably through projects developed by operational groups, but also through interconnection activities. The concept encourages collaborative efforts to achieve synergies and added value at EU level on the basis of existing policies, notably on the basis of rural development policy and the EU's research and innovation policy, Horizon 2020 [2].

New products, practices and processes are the main drivers for innovation and diversification of agricultural activities, as well as for improving the competitiveness of the rural economy. SWOT analysis shows there is a real lack of component factors of the "innovation culture" that fosters such results in rural areas of Romania. This situation has a negative effect on the added value and on the viability of rural businesses, and implicitly on their level of competitiveness compared to the existing level in the urban area. Also, a limited range of agri-food products are recognized at European level, a lower level of farm productivity and processing, as well as diversification and marketing activities. In addition, a large proportion of exported agricultural products are unprocessed or processed primary, with a low processing level, generated by the non-use of new technologies and ideas.

The use of innovative technologies will be reflected in socio-economic and environmental impacts such as increasing production, reducing fuel consumption, improving working conditions for farmers, maintaining soil structure, preserving and improving soil characteristics, significantly reducing the risk of erosion, increasing the water reserve in the soil, etc. [1].

By supporting links between research and agricultural practice, the European Innovation Partnership on Productivity and Sustainability of Agriculture will help promote a more efficient, economically viable, productive and low-carbon farming and forestry sector. The European

Innovation Partnership will be implemented through operational groups. They will be composed of at least two entities, of which at least one will be the beneficiary of the innovation activity. The implementation of the EIP will allow for more effective and sustainable links between researchers and practitioners and a better transfer of research and innovation outcomes in the agri-food sector. In order to better integrate agricultural producers in the agri-food chain, will be encouraged horizontal and vertical cooperation forms, including through support for local markets and short chains.

The new regulation on support for rural development by the EAFRD (EU Regulation no. 1308/2013) focuses on innovation in rural development [4]. It includes a new approach to promoting and supporting innovation - namely providing financial support for establishment and operation of operational groups, the pivotal element of the European Innovation Partnership on Productivity and Sustainability of Agriculture (PEI-AGRI).

PEI-AGRI's operational groups are partnerships that are mainly formed to link scientific research to practical farming. They aim to use rural development funds to implement concrete innovative projects.

The composition of a PEI-AGRI operating group may vary from one project to another, depending on the objective - farmers, farmers' organizations, researchers, NGOs, business representatives or other relevant parts that can contribute with ideas and solutions.

This approach goes beyond the transfer of technology and simply accelerates the transfer from the laboratory to practice. The proposed approach is entirely new and aims at building links between the lab and the actual production between academia and farmers. The created decks will provide better use of different types of knowledge and skills (practical, scientific, technical and / or entrepreneurial) and will provide an interactive environment for testing new ideas, developing new management solutions for specific issues, or for the implementation of new technologies.

The PEI-AGRI Operational Groups represent a new and exciting opportunity for Romania. However, it will take time for them to develop and adapt to the unique characteristics of Romanian agriculture.

## 2. Materials and methods

Innovation is an aspect included in the priorities of the Common Agricultural Policy and the National Rural Development Program 2014-2020 and contributes to smart, green and inclusive growth. The establishment of a European Innovation Partnership in the field of agriculture is mentioned in the Communication "Innovation Union" (the Europe 2020 flagship initiative). In the 2014-2020 programming period, innovation is supported by the NRDP through two distinct measures: Measure 16 - "Cooperation" and Measure 1 - "Transfer of knowledge and information actions". This paper addresses the theoretical aspects of the role of innovation in agriculture, the role of the European Innovation Partnership on Productivity and Sustainability of Agriculture, through the analysis of documents that highlight the issue, innovation in the agri-food sector.

## 3. Results and discussion

In Romania, the research and innovation sector is not sufficiently adapted to the specific needs of farmers and processors. The structural problems of agriculture in Romania, the challenges of environmental protection, the effects of climate change and the impact on environmental protection, as well as the low degree of adaptation to market requirements are aspects that maintain a high gap between market requirements and real possibilities of production, processing and marketing of agri-food products. The modest collaboration between farmers and stakeholders which are promoting research-innovation has led to a limited transfer of it's from RDI providers to farmers on punctual issues. It is therefore necessary for farmers, consultants, research units and other stakeholders to work together to identify innovative solutions to the specific issues faced by the sector, such as the use of environment-friendly practices and optimizing the use of resources and production factors. The implementation of innovative technologies and processes, developed and supported by research and innovation activities, identified by farmers which are and finding in the research-development-innovation provider a partner in addressing its problems, will

generate positive socio-economic and environmental effects. Among the socio-economic and environmental effects, we mention: increasing production, developing and promoting quality food, stimulating the creation of short supply chains, lowering fuel consumption and improving working conditions for farmers.

Innovation, knowledge transfer and information have an extremely important role in the National Rural Development Program 2014-2020 as they facilitate the development, use and transfer of new ideas, products or technologies to improve a particular system, product, service etc. [3]. The chosen measures will thus significantly contribute to: increasing the agri-food sector's competitiveness (especially by promoting innovative technologies), promoting cooperation in the supply chain, raising awareness of the protection of ecosystems and biodiversity, promoting technologies and ideas innovative solutions for the efficient use of resources and adaptation to climate change and the promotion of social inclusion and economic development of rural areas.

The amount allocated to the measure 16 - "Cooperation" is 31,134,556 euros and aimed at creating and functioning operational groups established by farmers, researchers, advisors, businesses and NGOs from rural areas in order to undertake joint research - development - innovation projects and specific issues and exploiting opportunities in the agri-food sector. Projects will focus on innovative solutions that generate direct benefits for partners in operational groups and, implicitly, for the local economy and / or for environmental and social conditions in rural areas, including by disseminating results to all stakeholders.

Measure 16 - "Cooperation" consists of two sub-measures [2]:

- Sub-measure 16.1 - "Support for the establishment and functioning of Operational Groups (GO) for the development of pilot projects, new products, practices, processes and technologies in the agricultural, food and forestry sectors".
- Sub-measure 16.4 - "Support for horizontal and vertical cooperation between the actors from the supply chain, in order to establishing and developing short supply chains and local markets as well as realizing correlated promotional activities in a local context."

The overall aim of Sub-measure 16.1 is to facilitate cooperation between those who are working in the agri-food and forestry sectors and also between them and other stakeholders, to the achievement of objectives and priorities of the Common Agricultural Policy, to help them overcome the sector-specific problems. An important feature of this sub-measure is that it provides support for the direct costs of pilot / development projects that are not currently supported by other measures under the 2014-2020 National Rural Development Program (NRDP) [3].

The general objective of sub-measure 16.4 to promote local cooperation for the purpose of marketing agri-food products through short chains not only involves cooperation between farmers, processors, retailers, restaurants, hotels and other forms of accommodation / services in rural areas, but also partnerships with non-governmental organizations and public authorities. Through cooperation, small producers will be able to identify new ways of marketing a larger volume of their own products and attracting new categories of consumers.

Actions under Measure 16 - "Cooperation" play an extremely important role in the 2014-2020 NRDP, as it supports innovation and facilitates the development, use and transfer of new ideas, products or technologies to improve a particular production system or service. The aid granted through this measure will help to improve farmers' knowledge, increase the viability of rural businesses and ensure a wider range of products and services.

The priorities to which innovative rural projects can go can be:

1. Creating safe, affordable and nutritionally optimized food products by capitalizing on existing and / or insufficiently exploited resources and their sustainable use, contributing to the increasing of the added value of the agri-food sector and jobs in rural areas, food quality and nutrition and, implicitly, to the health of the population.
2. Development of new products, practices, processes and technologies in the horticultural sector, by exploiting the native horticultural genofond and the use of sustainable technologies throughout the horticultural production chain.
3. Adaptation of the zootechnics, veterinary medicine, fisheries and aquaculture sector to the

challenges of the 21st century by developing and diversifying innovative systems and technologies that can ensure the production increase and the obtaining of animal products with high biological value, with the minimization of the negative impact on the environment.

4. Sustainable development of field crop production adapted to the impact of global climate change in order to diversify the national supply of varieties specific to the temperate climate, to increase international competitiveness, to adapt to the rules and market of the European Union.

5. Sustainable development of the forest sector and increasing its competitiveness, which can contribute to ensuring stability, biodiversity and increasing the functional efficiency of forests, generating resources and services, and increasing the role of the European Technology Platform for the Forestry Sector.

6. Use of bioenergy sources, biogas, biomass, biofuel, by exploiting the significant potential of wood and agricultural biomass for obtaining cheap and clean energy in various forms: biogas, biofuels and combined combustion of biomass and fossil fuels in cogeneration.

7. The use of agro-food biotechnologies, having as main objectives the development of biotechnological methods, means and products for increasing the quality and quantity of bioresources, in the context of climate change and the increasing demand for quality food products.

For Romanian rural environment, encouraging new, innovative products and introducing them into new internal or external markets would be a constant for the coming years. New products, practices and processes are drivers of innovation and diversification of agricultural activities, as well as for improving the competitiveness of the rural economy.

#### 4. Conclusions

Support under Measure 16 - "Cooperation" will contribute to the establishment of short supply chains by promoting cooperation in the agri-food sector, including the fruit sector, as well as cooperation between producers, processors, traders and restaurants, accommodation units, institutions education, public authorities and other consumers.

Marketing foods produced locally by short chains

and local markets must become an important component of the food sector in Romania. It will also be possible to develop links between the agri-food and tourism sectors by supplying them with local food products. For a large number of small farmers, direct sale of fresh produce can be a significant source of income.

Encouraging new and innovative products and introducing them into new internal or external markets would be a constant for the coming years for the Romanian rural environment. New products, practices and processes are drivers of innovation and diversification of agricultural activities, as well as for improving the competitiveness of the rural economy.

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