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### INFORMATION FOR AUTHORS

Manuscripts should be prepared in English and sent via e-mail to the Editor-in-Chief at [studies@aki.gov.hu](mailto:studies@aki.gov.hu).



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## Foreword

The audience of *Studies in Agricultural Economics* is composed primarily of researchers, academics, policy makers and practitioners in agricultural economics and rural development, especially in eastern central and south eastern Europe. On pages vii-x of this issue of the journal we are very pleased to report the establishment of a new initiative of interest to the same audience, namely *BioEast*.

*BioEast* is a strategic research agenda with two themes. The first is *climate change challenges in the Continental and Pannonian Bio-geographical Regions*. These regions, which cover most of eastern central and south eastern Europe, are likely to be very sensitive to the impacts of climate change, with agriculture, forestry and freshwater aquaculture being particularly severely affected. The second theme is *policy and governance challenges in the economically less developed EU regions*. Much of the *BioEast* region is composed of post-socialist economies that are still undergoing transition, and these economies continue to face unique challenges.

The strategic research agenda has been developed through a range of events, including the Budapest workshop and conference described in this issue. It is to be submitted to the European Commission, which has indicated that it would welcome such an initiative for its EU-wide benefits.

The two themes of *BioEast* are broken down into 13 topics, and several of these are reflected in the papers included in this issue of *Studies in Agricultural Economics*.

Generation change in the agri-food sector is a major concern, and the determinants of farm succession in Polish agriculture are analysed by Dudek. He distinguishes three types of succession, inter-generational, intra-generational and reverse inter-generational, with the first type being the most common. The process has contributed to the balanced age of farmers and the preservation of the rural settlement network in Poland, but has limited land concentration.

Closely associated with generation change is the issue of knowledge-based farming. Bjerke analyses the performance of Swedish agricultural firms with a view to determining how different types of knowledge, internal and external to the firm, affect productivity. She concludes that knowledge matters for the Swedish agricultural sector. Formal education is important and has a higher value added if it is related to the sector itself.

Knowledge, and knowledge sharing, are strongly linked to the topic of cooperation between actors. In the first of

two Hungarian papers in this issue, Biró, Hamza and Rác evaluate the development of different forms of vertical and horizontal cooperation. Large integrator companies, in partnership with smaller ‘intermediate integrators’ that have local knowledge and direct links with farmers, play a major role in the organisation of agricultural cooperation in Hungary.

The second Hungarian paper is the first of two that addresses the issue of climate change impacts on agriculture. Potential yields of winter wheat and maize in Hungary for the next three decades were modelled by Fogarasi, Kemény, Molnár, Keményné Horváth, Zubor-Nemes and Kiss using representative Hungarian FADN data. A slightly decreasing trend in the yields of both crops is estimated, but precise impacts depend on the climate scenario adopted.

Singh and Narayanan studied the impact of the changing climate on cropping patterns in Andhra Pradesh, India since 1971. Winter temperatures, summer rainfall and annual rainfall distribution are among the factors that have influenced temporal and spatial shifts in cropping patterns at State and Regional levels. Measures such as improving cropping intensity and technology adoption can assist sustainable diversification of the crop sector in the State.

The final two papers were submitted by researchers from CGIAR. Adoption of improved cassava varieties is shown by Feleke, Manyong, Abdoulaye and Alene to have resulted in an approximately 10 percentage point reduction in the poverty rate in four African countries, with an estimated 24,309 households having moved out of poverty. Adoption of the technology has especially benefitted non-poor and female-headed households.

Achandi and Mujawamariya identify the factors affecting market participation by smallholder rice farmers in Tanzania. These include the cropped area on the farm, yield, distance to the market and type of variety grown. Reflecting the findings of the previous two papers, the importance of technology adoption, such as tractors and power tillers, for area expansion and yield improvement is identified.

*Studies in Agricultural Economics* is pleased to be aligned with the *BioEast* strategic research agenda and especially welcomes papers on *BioEast*-related research topics for future publication.

**Andrew Fieldsend**  
Budapest, July 2016

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JUHÁSZ Anikó

# BioEast: Central Eastern European Initiative for Knowledge-based Agriculture, Aquaculture and Forestry in the Bioeconomy

## Introduction

Over the last ten years the resources of the Common Agricultural Policy have helped the Central and Eastern European (CEE) regions of the European Union (EU) to improve their agri-food sectors, environment and rural areas, thus increasing economic and social cohesion. However, in order to achieve further progress in the sustainable growth of agriculture, aquaculture and forestry in the bioeconomy, much more emphasis on research, innovation and transnational cooperation for knowledge-based development is needed. BioEast is a new strategic research agenda for achieving this greater emphasis that is to be submitted to the European Commission (EC). The EC has indicated that it would welcome such an initiative as it recognises that the imbalances in research, innovation, cooperation and lobbying between the regions are hindering the sustainable growth in the whole EU.

The proposed actions under the BioEast initiative are as follows:

- *Initiate cooperation*: establish a multi-stakeholder network to facilitate joint actions;
- *Provide an evidence base*: establish data-driven support for implementation of policies;
- *Focus on research*: map specific challenges for a Strategic Research Agenda;
- *Improve skills*: train a new generation of dedicated multi-stakeholder actors;
- *Develop synergies*: promote regional, national, EU and international funding opportunities;
- *Increase visibility*: draw attention to specific challenges of the CEE regions of the EU.

In summary, the aim of BioEast is to address agricultural, bioeconomy and rural policy and governance challenges in the less developed EU regions that form part of the Continental and Pannonian bio-geographical regions of Europe.

## The Continental and Pannonian Bio-geographical Regions

A biogeographical region can be defined as an area of animal and plant distribution having similar or shared characteristics throughout. The EU has nine terrestrial biogeographical regions (Alpine, Atlantic, Black Sea, Boreal, Continental, Mediterranean, Macaronesia, Pannonian and Steppic). Most of the territory of the CEE regions of the EU belongs to the Continental and Pannonian Bio-geographical Regions. As is already the case for the Mediterranean Bio-geographical Region, Region-specific research topics and coordination and support actions are needed which reflect the climate specificities. Specific and extreme changes in the weather resulting from the very nature of these Regions can be expected in the

near future, and adaptation in agriculture and the bioeconomy is a challenge. Key areas include crop production, animal husbandry, forestry, aquaculture and food processing, and topics such as cooling and heating, pest and disease control, risk management, and knowledge transfer. The identification and implementation of specific research areas would not compromise the principle of excellence in research, on the contrary it would enhance it. Similarly, it would not mean the exclusion of other Regions from the research: the experiences of other Regions (e.g. Mediterranean drought and Atlantic storms) would be essential for reaching relevant results.

However, in many of these CEE regions the current levels of research, innovation, cooperation and lobbying are substantially below the EU average, and this research and innovation divide in Europe hinders both the unlocking of excellence in these regions and the appearance of specific research topics relevant to the Continental and Pannonian Bio-geographical Regions in the EU's Horizon 2020 work programmes. In turn, the low performance and topic representation block the realisation of the European Research Area and the promotion of synergies with the European Agricultural Fund for Rural Development (EAFRD), the European Maritime and Fisheries Fund (EMFF) and the European Structural and Investment Funds (ESIF).

## Policy and governance challenges in the less developed EU regions

The economically less developed regions of the EU, which predominantly belong to CEE Member States, have several social challenges in common, all of which directly affect the development of their agriculture, bioeconomy and rural areas. Once again, the research and innovation divide in Europe hinders the appearance of research topics in Horizon 2020 work programmes that address specific needs of these regions. Research is needed on how to overcome such common economic and social challenges as the low uptake of innovation and modern technologies, the low level of cooperation, the consequences of the ageing population, the difference between the employment rate in predominantly rural regions and predominantly urban regions, and the extremely low level of consumer awareness. Once again, targeted topics would not mean the exclusion of other regions from the research; in fact, the experiences of the more developed regions would be essential for reaching relevant results.

## The thematic scope of BioEast

BioEast has two themes and, within these, 13 topics. Topics 1-7 are part of Theme 1, *Climate change challenges in the Continental and Pannonian Bio-geographical Regions*,

and topics 8-13 fall under Theme 2, *Policy and governance challenges in the economically less developed EU regions*. The specific challenge, potential output, scope and expected impacts envisaged for each topic are as follows:

**Topic 1:** *Sustainable intensification by maintaining soil conditions and improving water management*. The intensity of agricultural production in the CEE regions has been lagging behind that of the other parts of the EU for many years. For example, farms are smaller, fertiliser application rates are lower and cereal yields are also lower. Targeted research is needed on how the intensity of agricultural production could be increased through sustainable land use, soil conservation and cost- and environment-sparing methods i.e. by ensuring adequate water and nutrient management taking into account the possibilities offered by the bioeconomy and the circular economy. A monitoring system is required that evaluates the economic and environmental performance of various tillage systems and precision agriculture under various climatic and soil conditions (e.g. drought) and under different cropping patterns. This system would analyse and monitor the impact of conservation tillage and precision agriculture systems on soil water storage capacity, precipitation storage efficiency, soil degradation processes, yields and input costs. The analyses and databases would support farmers in making decisions about the application of new agro-technology that facilitates the adaptation to climate change, to avoid soil degradation and economic difficulties.

**Topic 2:** *Sustainable extensification by maintaining biodiversity and ecosystem services*. While there is an increase in the demand for genetically homogeneous crop and animal species, the genetic diversity of cultivated species has been dramatically reduced. There is a need for the maintenance and enhancement of biodiversity of cultivated plants, domesticated animals and cultures of microorganisms, strengthening of natural self-regulating processes, protection and maintenance of the biological status of soil, and a reduction in unfavourable environmental impacts arising from inadequate nutrition management. These are essential measures to protect the environment, the farmers and the health of consumers. Research would show how to ensure most efficiently the preservation of biodiversity and the production of sufficient food through combining extensive production and green infrastructure elements (integrated land use, green corridors, creating habitat patches etc.). Green infrastructure is a concept linked to several EU policies and a tool to tackle biodiversity loss while contributing to smart and sustainable socio-economic growth. It provides us with solutions for a better quality environment, a healthier society and a more prosperous economy. This work would promote the movement of species between Natura 2000 areas; establishment of connections between natural sites through green corridors; mitigation of habitat fragmentation; increasing the ecological value of landscapes; and multifunctional agricultural land use.

**Topic 3:** *Improvement of organic farming in terms of production technology*. In many CEE regions, technologies, decisions and support that hinder the development of the organic sector are not consistently recognised. The implementation of effective organic production requires awareness-raising and the reduction of post-harvest crop (food)

losses. Research is needed on how to improve the unbalanced production structure, the low rate of use of organic seeds and manure, the small extent of processing and the low levels of market organisation and coordination. Eco-functional (organic or integrated) production systems should be designed and applied that provide, in addition to optimal resource utilisation and low environmental (load) effects, high and reliable quality food products. New production systems (agro-ecological provisioning plants, intercropping, ground cover plants) that exploit plant diversity and variability to meet agronomic and environmental (agro-ecosystem) demands should also be developed. Such integrated agro-ecological systems and organic production contribute to the maintenance of the nutrient cycle, to the increase of soil productivity, to weed suppression and to the maintenance of indigenous insect species. This work will enhance the functioning and efficiency of market organisations, increasing market coordination, and promote the development and implementation of ecologically important organic production systems and technologies and achievement of efficient resource use and minimised amounts of waste.

**Topic 4:** *The reduction of high dependence on non-renewable energy sources*. Agriculture in CEE regions tends to be highly dependent on fossil fuels, and it should improve its energy efficiency by using its energy production capabilities to cover its own energy needs as much as possible, thereby contributing to increasing energy security and improving competitiveness. Long-term viability of on-farm green energy production in many cases depends on the level of farm energy consumption. In order to judge investments and to monitor the impact of Common Agricultural Policy (CAP) measures, it is necessary to get to know the typical electricity use of different farm types and the amount needed to produce one unit of product. Presently available CAP indicators are based on estimations, or macro-level models. Additionally, no background analyses and no research documents have been published to support CAP legislation concerning this area. As research outputs, baseline estimations will be given for the electricity consumption of the major sectors of agriculture and the strongly integrated processing activities. Daily, monthly and the seasonal distribution of consumption will be supplied. Methodological problems of measuring specific consumption will be identified and recommendations will be made for their resolution. The long term viability of an on-farm energy production concept will be evaluated.

**Topic 5:** *Exploiting the potential for protein crop production*. Protein crops have a marginal position in EU cropping systems and the EU is dependent on imported protein. CEE regions have the necessary conditions to produce more protein crops but there is a lack of suitable varieties, profitability and nutrient contents are low, market mechanisms are underdeveloped, there are barriers to uptake in livestock feed and no non-GMO premium. Knowledge sharing systems that help farms to increase their production efficiency are also missing. After the examination of soil and climatic conditions, the research will provide a portfolio of improved protein crop varieties suited to specific agro-ecosystems along with region-specific farming practices and the results of the nutritional analysis of protein crops. A representative set of farms will provide data

regarding their entire protein crop production practices. From these data, recommendations for specific production practices will be prepared for each production region and published in a form of a guide. A consultancy network will be established and operated on the basis of the results. The network, which covers recommendations on production practices adapted to the place of production and data of representative farms, will facilitate, in parallel with the improvement of profitability, the wider spread of protein crop production.

**Topic 6:** *Strengthen the Regions as buffer zones against emerging and evolving pathogens.* There is insufficient understanding of the synergetic effects of climate change, European integration and globalisation. Trade liberalisation facilitates the trade of living and processed animal and plant products (and their packaging materials). Economically beneficial trade liberalisation increases our vulnerability from the animal health and phytosanitary point of view (e.g. African swine fever, bovine besnoitiosis). Moreover, the impact of climate change increases the possibility of modified disease behaviour, making disease spread easier and causing a European level problem (e.g. grape and apricot phytoplasma). Our understanding of the synergetic effects of these two trends (increased trade and climate change) on animal and plant health will be enhanced with the help of a ‘buffer zone scientific network’ to support monitoring and stopping these transboundary pathogens in the CEE regions, and where possible saving the rest of Europe from the economic losses.

**Topic 7:** *Sustainable, efficient and competitive freshwater fish production.* Freshwater aquaculture represents 21 per cent of all EU aquaculture production and is located mainly in the Continental and Pannonian Bio-geographical Regions. Limited resources such as water scarcity and the demands of ecosystem services represent increasing challenges to the competitiveness of fish farmers, as do the consequences of the changing climate. Research is needed on how to improve the economic viability of freshwater fisheries while increasing environmental sustainability, in order to unlock the potential in freshwater aquaculture of promoting the rural economy and providing ecosystem services. This will involve building detailed, standardised databases and analysing production performance by evaluating potential fish production and efficiency under various pond conditions, taking into account the expected effects of different climate scenarios and sustainability. These databases on aquaculture will enable long-term, comprehensive analysis of production data and factors of climate change. Based on the results, guidance can be offered on how to reallocate input resources and improve technical efficiency, and how to adapt to changing climatic conditions. This will support farmers in making decisions on implementing improved management practices to adapt to climate change and market conditions in a sustainable manner. It will also help the creation of multi-functional systems (including angling and tourism).

**Topic 8:** *Motivating knowledge-based modern farming and cooperation among farmers.* Family, small and young farmers in less developed EU regions generate much lower levels of agricultural production value than do their western European counterparts. The reasons include the limited flow of information, and lack of knowledge and cooperation. Research is needed on how to involve young farmers in the

adaptation of good practices, boost innovation and cooperation, create possibilities for expanding farming and support knowledge sharing. The same shall apply to both data usage and adequate machine service. The deepening of cooperation is crucial and the understanding and overcoming of trust barriers is important. A pool of scientific and practical resources will be collected and analysed regarding the processes of knowledge sharing among farmers in the less developed EU regions. As an output, a detailed list of problems and potential solutions will be identified in consultation with the relevant stakeholders. This work will give important input to improving the agricultural knowledge and innovation system in the less developed regions, especially in CEE countries, and encourage the development of knowledge-based, modern farming and the more effective cooperation between relevant stakeholders from the research, government, business and civil spheres, the so-called ‘quadruple helix’.

**Topic 9:** *Supporting the generation change of the first entrepreneurs in the agri-food sector.* In many CEE regions, agricultural workplaces are unattractive due to the physical work, low wages and seasonality, and the age structure of the farm managers is characterised by the high and increasing share of the older generation. Succession is made extremely difficult by the fact that there are no family or social patterns to follow as this is the first significant generation change since the regime change. If the issues of generational renewal in an enterprise and the labour reinforcement are solved, the probability of longer-term profitable and large-scale investments increases. Therefore, effective generational change in the agri-food enterprises has a key role in the future of the whole sector. It is necessary to map adaptable, innovative and complex government interventions promoting generational change, and systematise and disseminate good practices in which exemplary generational change has been carried out. Examples include the cooperation of young, start-up enterprises in the agri-food sector, projects implemented under the European Innovation Partnership ‘Agricultural Productivity and Sustainability’, and their participation in networks. Through the long term generational renewal in agriculture and the food industry, the number of farms operated by young entrepreneurs open to innovative solutions and the sustainable use of natural resources can increase.

**Topic 10:** *Improving supply chain efficiency and increasing its added value.* Supply chains in the less developed EU regions have lower efficiency and added value. How can the effectiveness of these supply chains be improved? Where and how can the value added be increased? Which special consumer needs have to be met? Why are these regions lagging behind in terms of innovation financed by own resources? What are the brand potentials? How can vertical cooperation be strengthened? Can by-products and waste materials produced at any stage contribute to the supply chain sustainability and competitiveness? Research is needed on the following areas: better satisfying the consumers’ needs, increasing value-adding through innovation, trademarks, enforcing the connections within the value chain both vertically and horizontally, and increasing the effectiveness of the value chain by reducing waste and other unnecessary costs. With special regard to the most difficult value chains with many stakeholders, the research will identify the barriers to the effective

operation of supply chains, and will pay special attention to the cooperation, integration and the buyer power within the value chain. As a result, the value chain will be more effective, the products will be more marketable and the food waste and environmental pollution will be reduced.

**Topic 11:** *Increasing consumer awareness despite a significant lack of confidence and price sensitivity.* Consumers in the less developed CEE regions have low willingness to remunerate environmental services etc. provisioned by agriculture when they have different preferences and lower purchasing power than consumers in more developed EU regions. Most households are very price sensitive, and research is needed on how to improve nourishment in these circumstances. Individuals need to have access to sufficient and good quality food and they need an understanding of what constitutes a good diet for health, as well as the skills and motivation to make good food choices. It is necessary to investigate how big a price premium CEE consumers will pay for healthy food, to analyse how the production side can produce healthy food with a smaller price premium which is acceptable to CEE consumers, and to explore the knowledge level of the consumers about healthy products and the most important barriers to consumption of healthy food. An investigation of the main reasons for the lack of confidence and a set of recommendations on how to increase consumer awareness, unified information and a promotion programme for consumers are needed. Based on this information, recommendations can be made in order to increase the knowledge and awareness of the consumers.

**Topic 12:** *Increasing the value added use of agricultural and forestry biomass.* There are several critical points to improving the use of agricultural and forestry biomass in less developed EU regions. Economic viability often conflicts with ethical and sustainability aspects. Research is needed on how to unlock the great and mostly unutilised potential for biomass production and added value utilisation in the less developed EU regions while respecting the sustainability requirements and increasing the economic benefits in the production regions. Since biobased industries and especially non-traditional higher value added biomass utilisation will depend on financial support at least in the mid-term, policies must find solutions for the conflicting aspects. Some sort of hierarchy of use must be developed for particular biomass forms, and for various conversion platforms adaptable to different conditions. From this work, guidelines will be developed for biomass utilisation, and different platforms will be evaluated from various aspects.

**Topic 13:** *Experiences of less developed EU regions in social integration challenges such as food, energy and social care security.* Internal migration from rural to urban areas of the EU has resulted in a concentration of undercapitalised population in peripheral rural areas, and now international migration to the EU is accelerating. Owing to these migration processes, the EU, and especially its developed regions, face several challenges, such as population growth, changing consumer habits, and rising global demand for food and public goods. Comprehensive examination of challenges originating from the intensification of international migration will enable the most sensitive issues from the point of view of food, energy and social security to be identified, both at the

EU and regional levels. It is necessary to collect good local and regional policy and governance practices and develop underlying strategies and action plans to manage new security needs efficiently and enable the sustainable development of food, energy and social care provision capacities and skills to exploit the supply and employment potential at a higher level. A comprehensive analysis will contribute in the long term to the satisfying production of the EU's agricultural, bioeconomy and rural stakeholders according to the changes in the number and composition of the population, making it easier to increase their income generating ability and their standard of living.

## Implementation of the BioEast strategic research agenda

In the last year and a half, the lead organisers of BioEast have been doing fact-finding and organisational work with the active involvement of stakeholders, and have become increasingly actively involved in the policy work at EU level through bodies such as the Standing Committee on Agricultural Research Strategic Working Group on Agricultural Knowledge and Innovation Systems and the Programme Committee for implementing Horizon 2020 Societal Challenge 2 *Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy*.

Several successful events have been organised, during which topics and challenges specific to the region were identified by agricultural stakeholders, for example the workshop 'Policy Guidelines for Agricultural Research' (see *Studies in Agricultural Economics* volume 117 number 3) and the workshop and conference described in this issue. The topics listed above have been identified as a result of these activities. They are in line with the targets of Hungary's National Smart Specialisation Strategy (S3 Strategy), contribute to the long-term agricultural and innovation strategy of the EU's Directorate-General for Agriculture and Rural Development (*Towards a long-term strategy for European agricultural research and innovation by 2020 and beyond*) and are connected with the bioeconomy strategy. The topics are currently undergoing regional validation, a process which demands close professional and political cooperation among countries of the region. In the case of the topic *Strengthen the Regions as buffer zones against emerging and evolving pathogens* a regional cooperation agreement has already been signed by a large number of participating actors.

For further information about BioEast, see [http://eip.fm.gov.hu/?page=pages&page\\_name=bioeast-kezdemenyeztes](http://eip.fm.gov.hu/?page=pages&page_name=bioeast-kezdemenyeztes). To turn BioEast from a strategy into reality, what is now needed is to develop further such examples of cooperative action. In order to achieve synergies and significantly improve the performance of the CEE regions in agriculture, aquaculture, forestry and bioeconomy, these should encompass different groups of stakeholders (such as farmers, researchers and policy makers). *If you and/or your organisation is interested in supporting BioEast, please contact Juhász Anikó PhD, General Director of AKI, at [juhasz.aniko@aki.gov.hu](mailto:juhasz.aniko@aki.gov.hu).*

## Workshop and conference report

### FM-NAK-AKI Agricultural Research Strategy and EIP-Agri Conference

Budapest, 14 January 2016

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This workshop and conference was organised jointly by the Hungarian Ministry of Agriculture (FM) and the Hungarian Chamber of Agriculture (NAK) with the assistance of the Research Institute of Agricultural Economics, Budapest (AKI). The aim of the event was to provide information to Hungarian farmers on innovation and cooperation based on tender opportunities in agriculture. The conference helped farmers to identify specific problem areas and research topics of relevance by offering them the opportunity to express their opinion on the main strategic areas of research outlined by the national agricultural research workshop held on 10 November 2015 (see *Studies in Agricultural Economics* volume 117 number 3). The event was well attended: 84 persons participated in the workshops and 252 in the public conference.

In the first presentation of the plenary session, Kránitz Lívía from FM explained how Hungary has formulated its agricultural research and innovation policy guidelines. Then Juhász Anikó, General Director of AKI, identified the areas of Horizon 2020, the European Union's research and innovation programme, that are of particular relevance to applicants from central and eastern European countries. The plenary session ended with the presentation of Kovács Barna, from the European Commission's DG Research and Innovation. He pointed out that financial support to agricultural research is increasingly becoming a priority for the EC. Research funding available during the 2014-2020 programming period is double that of the previous period.

As an introduction to the workshop, the moderators introduced the most important problems, research questions and directions, and project ideas, and the participants were asked to complete them. In the second round, topics that are of importance to producers and that could be addressed through actions under the new EU European Innovation Partnership 'Agricultural Productivity and Sustainability' (EIP-Agri) were gathered. For the 3-4 most significant topics, sources of research support were identified as technical assistance to implement specific ideas. In addition, farmers were invited to commit themselves to participate actively in a research project. Furthermore they were asked to define the possible users and the beneficiaries of potential research results. As a conclusion, the participants stated whether they were or are currently in contact with research centres and, if so, with which ones.

The topics discussed were:

- Managing challenges caused by the continental climate and its change:
  - The reduction of dependence on non-renewable energy sources;
  - Exploiting the potential for protein crop production and livestock feeding;
  - Central and eastern Europe as an east-west/south-north buffer zone for pathogens;
  - Preservation of the quality of natural resources, ecosystem services and biodiversity.

- Adaptation to the challenges of social and economic changes:
  - Opportunities for promotion of modern management in agriculture;
  - Efficiency of the supply chain, increasing the added value, bio-economy;
  - Alternative effects on consumer attitudes.

The farmers played an active role in all of the groups. They supported most of the focus areas identified by researchers. They extended these areas in every case and contributed to the discussion with practical and helpful examples. Altogether the attendees produced 60 project ideas that offer solutions for the problems identified. In addition, almost all group members showed high interest in joining the proposed research projects. Actually, many of the farmers have already had some links with research institutes, almost all of the institutes received positive feedback in this regard according to the questionnaires. The interest of the attendees in the event serves as an indicator of the openness of the market players for research, development, innovation and collaboration. But it is important to mention that this positive attitude does not yet exist in the whole agricultural sector. Therefore, one of the most important tasks is to encourage farmers currently without an open mind towards such projects to participate. NAK will play a key role in this task.

In the first presentation of the afternoon session of the conference, Mezei Dávid, the Deputy Minister of State for Agriculture, Rural Development and Strategic Affairs at FM, reviewed the possibilities for innovation projects in the field of agriculture, food processing and forestry. Feldman Zsolt, Deputy Secretary of State for Agriculture at FM, then described the development of the agri-innovation network in Hungary. FM is responsible, with the support of NAK, for setting up the Hungarian network of the EIP-Agri, the aim of which is to stimulate progress in the sectors and provide bases for long-term development. Papp Gergely, the Technical Deputy Director General of NAK, talked about the contribution of his organisation in setting up the network. Then, Vásáry Viktória from AKI introduced the new Hungarian EIP-Agri website which has been developed by AKI, with assistance from NAK, on behalf of FM. This website is a Hungarian-language portal for EIP-Agri that provides dynamic content management and entitlement-based access, based on the example of the EU's own EIP-Agri website (<http://ec.europa.eu/eip/agriculture/>).

Finally, two best practices were presented, one on developing environmentally-friendly plant protection technologies in fruit production systems, and the other on organic farming.

*More information about the planned agri-innovation network is available by email from Dr. Juhász Anikó at [juhasz.aniko@aki.gov.hu](mailto:juhasz.aniko@aki.gov.hu).*

## Studies in Agricultural Economics

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