

# METHODOLOGY OF TRAINING FOR AGRICULTURAL INNOVATION BROKER

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## Abstract

*The paper is focused in the first part on the evaluation of the current situation of the transfer of innovation in agriculture extension in the Czech Republic, finding strengths and weaknesses in the counseling system. The second part of the paper addresses the question of what skills and knowledges the agricultural innovation brokers should manage and what methods could help to acquire this knowledge and skills. The results of the paper are part of international project “KA2 – Cooperation for Innovation and the Exchange of Good Practices, Strategic Partnerships for vocational education and training“.*

**Keywords:** Agribusiness, Agriculture extension services, Agriculture Innovation Brokering, Innovation training, learning

**JEL Classification:** Q12, Q13, Q16, Q18

## 1 Introduction

Transfers of knowledge and information system in agricultural in the Czech Republic and most of the EU countries is dominated by public sector, where science is created by state universities and scientific research institutes with their experimental stations (MZE, 2016). The concepts emerging there are transferred to public advisory units to be finally passed by agricultural advisors to their recipients – farmers. According to (MZE, 2016) in the Czech system of agricultural

knowledge and information is the strongest relationships between farmers and various associations (Agrarian Chamber, Vegetable Union, Association of organic production etc.), whereas the links among the other subjects participating in this system are slight and sometimes even missing. The biggest gap is in the interconnection of research organizations (especially universities) and recipients of advisory services – farmers. Agricultural advisory as the main channel of information flow between the sphere of scientific research and agricultural producers, undertakes cooperation with various research centres to transfer knowledge to farmers, which leads to implementation of innovative solutions concerning organization of agricultural production, efficiency of applied technologies, development of farms and methods of their management. Persons engaged in the education system are responsible for updating the current knowledge and seeking new and original solutions to be used both directly by farmers as such and the units from the environment of agriculture. Owing to them it is possible to maintain and improve agricultural knowledge and information in the Czech Republic. The source of innovation is basically the problems emerging during the production process, which individual farms are unable to solve using the knowledge or technology they possess at the time. It is necessary to introduce some changes concerning the technology of production or organization of work or improvement of marketing and sales, or discovering new solutions. Taking into account the existing and constantly emerging new problems, there is an apparent need of transfer of modern and already known organizational or technological solutions and practical applications on a large number of farms.

## **2 Data and methodology**

Results of this research are part of international project “KA2 – Cooperation for Innovation and the Exchange of Good Practices, Strategic Partnerships for vocational education and training“ (Catalyst Project). At this part of research participated 17 respondents (10 farmers / agricultural companies) and 7 agricultural organisations, including Agrarian Chamber of the Czech Republic, Ministry of Agriculture of the Czech Republic. The survey was carried out through a guided interview in the period from 3<sup>th</sup> of March to 19<sup>th</sup> of May 2017. The results take into account also consultations and outputs of Multiple Event held on 13<sup>th</sup> of June 2017 at FRRMS MENDELU. On the Multiple Event participated in addition to farmers also Innovation Broker, Experts from three Czech universities and

Experts on the transfer of technology transfer in agriculture in the Czech Republic. Representatives of individual groups were asked open questions:

- How the process of agricultural innovation takes place in the Czech Republic / organization,
- Examples of agricultural innovation in the Czech Republic / organization,
- Information about the knowledge and skills farm advisors and consultants need.,
- The training and support available to Czech farmers / respondents,
- The future of agricultural innovation in the Czech Republic / in case of organization.

The level of innovation in the Czech agriculture has been estimated as medium (in comparison with Western Europe – Netherlands and United Kingdom). The results of the interviews for individual groups were entered into the following tables (see results). Based on findings from the survey, methods of training of innovation brokers in agriculture (Quick decision making, Beer Game, Teamwork, Mind Map) were proposed. Subsequently, the relevance of each method has been evaluated during second Multiple Event on 8th of March 2018 at FRRMS MENDELU. At this event cooperated 20 External Participants (Farmers, Food processors and representatives of research institutions), each participant tried and tested each method and then evaluated it. The evaluation was carried out by evaluating the following queries:

- How much the training contributed to the desired skills,
- How useful did you find this training,
- To what extent do you think the exercises were thought-provoking,
- How effective were the discussions during the event,
- Rate the atmosphere of the training,
- Rate the organisation of the training.

### **3 Results**

The following Table 1 – 4 represent the results of the interviews for individual groups. The main focus was on the following three criteria:

- Innovation and trainings,
- Innovation capacity,
- Innovation and partnerships.

These three criteria are evaluated in each table from the point of view Weaknesses and Strengths. The last two fields in the table represent very important

knowledge about the desired skills of farm advisors and consultants and knowledge of farm advisors and consultants.

Table 1 **Farmers / farmer organisations**

	<b>Innovation and trainings</b>	<b>Innovation capacity</b>	<b>Innovation and partnerships</b>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>- Important is the choice of the term (seasonality plays an important role with farmers).</li> <li>- If the training is outside the production season, there is a higher chance of participation.</li> <li>- Motivation for participation can be: foreign experts, affordable price, benefits, practical demonstrations, cultural program, etc.).</li> <li>- Little access to capital.</li> <li>- An aging population of farmers (low share of young farmers).</li> </ul>	<ul style="list-style-type: none"> <li>- Many innovations do not get to practice. There is still a barrier between academia (universities) and practice.</li> <li>- There is a general lack of innovative experts, often foreign consultants are invited, which leads to higher costs.</li> <li>- The counseling system is not so flexible.</li> <li>- Farmers often do not have the exact clue how to get innovative advice (they often use contacts acquired during University studies).</li> </ul>	<ul style="list-style-type: none"> <li>- Many farmers would like to participate in an innovation partnership, but perhaps only a minority would be willing to contribute financially.</li> <li>- There is a general expectation that the outcomes of innovation will be provided to farmers free of charge.</li> <li>- Language barrier for farmers in the case of an international partnership.</li> </ul>

	<b>Innovation and trainings</b>	<b>Innovation capacity</b>	<b>Innovation and partnerships</b>
<b>Strengths</b>	<ul style="list-style-type: none"> <li>- Each agricultural sector has its own professional associations that provide advice and organize meetings of farmers at different levels.</li> <li>- The long tradition of union functioning, the organization of trade fairs, including professional lectures and training.</li> </ul>	<ul style="list-style-type: none"> <li>- There are already projects (such as the Czech Technology Agency, the Ministry of Agriculture, the Ministry of Industry and Trade), which directly support or condition cooperation on innovation.</li> <li>- If the proposal of innovative character (assessed by an expert commission), the cooperation of the agricultural enterprise and the academic sphere is financially supported.</li> <li>- "Innovation" is one of the points of the rural development program in the Czech Republic in 2014-2020.</li> </ul>	<ul style="list-style-type: none"> <li>- Generally, there is an increasing interest in innovation, which is also financially supported.</li> <li>- There are successful innovations that serve as good advertising that makes sense.</li> </ul>
<b>Desired skills of farm advisors and consultants</b>	Ability to speak to farmers in their "language", to listen to their needs, to transform the scientific output into a comprehensible and applicable form. Openness to innovations emerging in the world of science and business. Readiness for upgrading their knowledge concerning introducing innovation-driven systems of agricultural production or farm management.		
<b>Desired knowledge of farm advisors and consultants</b>	To have agricultural education, to understand current problems in agricultural practice, to participate in educational activities (training, courses), reading professional journals. To have knowledge about the processes occurring on the domestic and international agricultural markets. Understand the principle of commercialization of science and research from the academic environment into practice.		

Source: Interview with interest groups, Catalyst Project (2017).

Table 1 summarizes the results of the interviews with representatives of Farmers and farmer organizations.

Table 2 **Researchers / research institutes**

	<b>Innovation and trainings</b>	<b>Innovation capacity</b>	<b>Innovation and partnerships</b>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>- Many researchers end their project by writing an article or final report. (only a small part of them has an overlap in practice).</li> <li>- Sometimes there is a strong barrier between the academic environment and the business sector.</li> <li>- Lack of interest among researchers in the problems which farmers must solve and reluctance to share the obtained results.</li> <li>- The technology transfer system is not sufficiently well-known for some employees.</li> </ul>	<ul style="list-style-type: none"> <li>- The primary objective of the university is pedagogical and scientific research. (these outputs are mostly financed).</li> <li>- So far, there is little interest in working directly with practice or training companies. Sometimes money is missing to protect and transfer the intellectual property product into practice.</li> </ul>	<ul style="list-style-type: none"> <li>- Partnerships between the university and business organizations are mainly based on a common project plan (Often the grant provider is required to cooperate).</li> <li>- The interest of companies in direct, project-free cooperation with the university is rare.</li> <li>- Agricultural knowledge is sometimes created away from the real needs and expectations of farmers.</li> </ul>

	<b>Innovation and trainings</b>	<b>Innovation capacity</b>	<b>Innovation and partnerships</b>
<b>Strengths</b>	<ul style="list-style-type: none"> <li>- The university has the latest technology, knowledge and equipment to make it an interesting partner for the business environment.</li> <li>- The number of protected outputs of intellectual property is rising sharply.</li> <li>- The university presents its outputs at various events and fairs, raising the awareness of MENDEL.</li> <li>- There is a wide range of graduates who still have contacts at the university and can now use them for potential collaboration.</li> <li>- Majority of academic teachers have enough competences to act as innovation brokers in agriculture.</li> </ul>	<ul style="list-style-type: none"> <li>- An important advantage is the establishment of a central workplace - Mendel Technology Transfer Center, which is concerned with the protection of intellectual property, analysis, development and utilization of the commercial potential of intellectual property of the university.</li> <li>- The aim of the Center is to extend and intensify the cooperation of the University with companies interested in using the special instrumentation and laboratory equipment or the knowledge potential and scientific results of the University.</li> <li>- Regularly organized seminars on various topics of technology transfer are gradually increasing the awareness of researchers in this field.</li> </ul>	<ul style="list-style-type: none"> <li>- The already implemented application of the intellectual property product of a university (eg patent) in practice serves as a good example and motivation for researchers. There are a number of licensed licenses for inventions, procedures, or know-how.</li> <li>- Companies that buy these products will not only get innovation on their own, but will be able to benefit from the collaboration with the university within their PR. The existence of a proof-of-concept project that has been implemented since 2016 is directly geared towards bringing the interesting and potential output of science and research into practice.</li> <li>- Newly established cooperation with Louisiana State University, which has long experience with technology transfer, can bring many benefits.</li> </ul>

	<b>Innovation and trainings</b>	<b>Innovation capacity</b>	<b>Innovation and partnerships</b>
<b>Desired skills of farm advisors and consultants</b>	To have an overview of current outcomes in various fields of the university environment (Be able to transform these outputs into a comprehensible form). Be aware of what are the topical issues that businesses are addressing, the challenges they face, and the ability to connect them.		
<b>Desired knowledge of farm advisors and consultants</b>	Possessing not only theoretical but first of all practical knowledge about agricultural production process (Having knowledge of agriculture and product processing). To understand the principle of commercialization of science and research from the academic environment into practice.		

Source: Interview with interest groups, Catalyst Project (2017).

Table 2 summarizes the results of the interviews with representatives of Researchers and Research institutes.

Table 3 **Farm advisors/Agricultural VET providers**

	<b>Innovation and trainings</b>	<b>Innovation capacity</b>	<b>Innovation and partnerships</b>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>- Not directly linked to agricultural education system, with universities and research institutes (Innovation brokers are organized by Ministry of Agriculture),</li> <li>- Advisory services are focused primarily on obtaining funding through EU projects, whereas far less on helping framers to overcome other problems,</li> </ul>	<ul style="list-style-type: none"> <li>- Not enough specialists suitable for current advisory service,</li> <li>- Poor equipment in modern technologies (IT, GPS),</li> <li>- Insufficient financing and Short-term objectives based on the current program (The support is based on the European Innovation Partnership initiative "Productivity and Sustainability of Agriculture").</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of collaboration (it should be emphasized that the relationships between farm advisor and farmer are close to ideal).</li> <li>- Limitations appear connected with weak links between the elements of agricultural knowledge and information,</li> </ul>

	<b>Innovation and trainings</b>	<b>Innovation capacity</b>	<b>Innovation and partnerships</b>
<b>Strengths</b>	<ul style="list-style-type: none"> <li>- Free advisory services of high quality,</li> <li>- The results of the innovation process are free and available to everybody,</li> <li>- farmers' trust an official infrastructure, a network of units taking into account administrative division of Czech Republic,</li> </ul>	<ul style="list-style-type: none"> <li>- Qualifications and experience of farm advisors,</li> <li>- Organizational background,</li> <li>- Ability to use modern means of communication and transfer of knowledge in contact with farmers and rural inhabitants</li> </ul>	<ul style="list-style-type: none"> <li>- Qualified advisory staff, highly experienced in work with farmers and rural inhabitants.</li> </ul>
<b>Desired skills of farm advisors and consultants</b>	Ability to understand and accept real needs of farmers, Flexible approach and mobility of the advisors, Openness to cooperation with farmers and good communication skills with farmers and rural inhabitants		
<b>Desired knowledge of farm advisors and consultants</b>	Knowledge about legal aspects of running a business but also operating in the EU Technological knowledge connected with the process of production, Knowledge about agricultural farm management, Some knowledge about finances and bookkeeping.		

Source: Interview with interest groups, Catalyst Project (2017).

Table 3 summarizes the results of the interviews with representatives of Farm advisors and Agricultural VET providers.

Table 4 **Chamber of Agriculture**

	<b>Innovation and trainings</b>	<b>Innovation capacity</b>	<b>Innovation and partnerships</b>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>- Low flexibility to receive innovations and small openness to changes,</li> <li>- Little cooperation with universities.</li> </ul>	<ul style="list-style-type: none"> <li>- Insufficient budgetary grants,</li> <li>- Poor equipment in IT and modern telecommunication appliances.</li> </ul>	<ul style="list-style-type: none"> <li>-Poor connection between the elements of agricultural knowledge and information system.</li> </ul>

	<b>Innovation and trainings</b>	<b>Innovation capacity</b>	<b>Innovation and partnerships</b>
<b>Strengths</b>	<ul style="list-style-type: none"> <li>- Cooperation with research institutes,</li> <li>- Respect in the farmer community,</li> <li>- Political force in negotiating and promoting the interests of farmers</li> <li>- Transfer of knowledge and experiences corresponding to real problems,</li> <li>- openness and willingness to participate in trainings and study visits,</li> <li>- promoting new solutions among farmers (members).</li> </ul>	<p>Support of members to get their product to market (Farmers markets),</p> <ul style="list-style-type: none"> <li>- Opening markets for regional and traditional Czech producers,</li> <li>- Competition from large and economically strong farms enforces cooperation and consolidation of small producers, who in this way are able to compete on the market.</li> </ul>	<ul style="list-style-type: none"> <li>- Strengthening cooperation with advisory units, particularly concerning obtaining EU funding and specialist technological solutions used in production,</li> <li>- Strengthening the contacts and building partner relations with universities and research centres,</li> <li>- signaling needs and expectations of agri-producers at various meetings with representative of science, government and local government administration.</li> </ul>
<b>Desired skills of farms advisors and consultants</b>	<p>Ability to transfer knowledge to agri-producers,          Ability to cooperate both with farmers and academic staff, openness to innovations appearing in the world of science and business,          Readiness to upgrade their knowledge on introducing innovative systems to agricultural production or farm management,          Communication skills and ability to accept real needs of agri-producers.</p>		
<b>Desired knowledge of farm advisors and consultants</b>	<p>Knowledge about business project management,          Knowledge about the processes occurring on the domestic agricultural markets,          Knowledge of technology (basic practical knowledge),          Knowledge of agricultural production and agricultural economics,          Knowledge concerning legal aspects of financial support for agricultural activities and operating within the EU structures.</p>		

Source: Interview with interest groups, Catalyst Project (2017).

Table 4 summarizes the results of the interviews with representatives of Chamber of Agriculture. From the results of interviews (Table 1-4), specifically from the last two fields “Desired skills of farms advisors and consultants” and „Desired knowledge of farm advisors and consultants”, have been proposed basic concept of Tasks and responsibilities, Required knowledge and skills for Agriculture Innovation Broker (hereinafter AIB).

The role of AIB means to manage following tasks (GODA, 2017):

- Find a suitable source of funding: cooperation in developing business plans for the undertaken investments, feasibility studies and seeking the sources of funding for them.
- Creating links between business + cooperative cooperation: understand the functioning of vertical integration mechanisms in agribusiness and be able to identify opportunities for the actor in this respect.
- Understand the functioning of the entire supply chain: identification of partners in the environment in which the AIB operates. Owing to the identification of potential partners, who wish to work for innovations in the areas of agriculture, forestry, food production and carry out measures to activate rural inhabitants, the broker is able to suggest solutions adequate to the needs.
- Teamwork + Formal documents: participation in creating teams of partners with a common goal and to be able to develop activity plans for the teams / groups. The AIB should possess adequate skills to be able to help prepare formal documents necessary for the group functioning (agreements).
- Monitoring and final evaluation: monitoring of the team / group function / outputs and how the project goals are achieved (continuously and at the end of the project).
- Membership in stakeholder’s organization: participation in the meetings important from the point of view of interested stakeholders (Local Action Groups, Chambers of Agriculture, fairs, exhibitions).

In order to make possible realization of the above mentioned activities, the role and position of AIB should be clear. AIB must reveal a set of personal characteristics, including (Klerkx, L. P., et al., 2016):

- To understand the sociological links in agriculture and to be able effectively communicate with people in the rural areas.
- Ability and willingness to work in a team / group.
- Knowledge about the partners within the created teams / groups and the sector supply chain in which they operate.

- Understanding and acceptance of the attitudes of all partners from different branches and areas of activity.
- Ensuring the transparency of the process of partner relationships forming (e.g. cooperatives).
- Ability to identify the main goals and issues that need to be addressed (briefly and clearly) acceptable by all stakeholders at simultaneous striving for the greatest possible share of the partners in the process of their formulating.
- Avoid asymmetry of information between individual partners, make sure that they understand each other and accept their decisions and the need for cooperation.

### **3.1 Selected methods of training and their evaluation**

Requirements for position of AIB are very wide and they can't be all fulfilled within certain time options and predispositions of future training. In principle, it is more about the requirements for creating a functioning network. This process of innovation involves: embedding, dissemination, realisation, development, planning, inspiration and thus initial idea (Wielinga, H.E., 2009). For this reason, attention was focused on the most important and most frequently requested skills and abilities for AIB. The following 4 methods of training AIB were proposed for the first phase of training.

#### **Quick decision making**

This is an activity that encourages participants to make their ideas become creative and share it with others. Participants will learn the values of quick thinking and quick judgment, because sometimes it is necessary to rely on good instinct and quickly decide and thus save time to find solutions. If the participants are familiar with each other or they are from the same organization, a common issue can be chosen as the main topic that will be solved in the brainstorming exercise (Clawson, 2006).

Tables 5, 8, 11 and 14 show the results for the question "How much the training contributed to the desired skills". Impact of the results (no impact, low, medium, high) is designed according to frequency of points for each answer. Respondents rated each question in the following way 1 point = no impact, 2 points = low, 3 points = medium, 4 points = high.

**Table 5 How much the training contributed to the desired skills?**

a – Networking	HIGH
b – Communication	HIGH
c – Project management	MEDIUM
d – Innovation management	MEDIUM
e – Data management	HIGH
f – Marketing, Innovation promotion	NO IMPACT
g – Problem solving	HIGH
h – Concept thinking	HIGH
i – Analytical thinking	MEDIUM
j – Critical thinking	HIGH
k – Leadership skills	NO IMPACT

*Source:* Interview with interest groups, Catalyst Project (2018).

Tables 6, 9, 12 and 15 show the results of questions:

B1 - How useful did you find this training?

B2 - To what extent do you think the exercises were thought-provoking?

B3 - How effective were the discussions during the event?

**Table 6 How useful and effective is the training?**

B1	HIGH
B2	MEDIUM
B3	MEDIUM

*Source:* Interview with interest groups, Catalyst Project (2018).

Tables 7, 10, 13 and 16 shows the results of questions:

C1 - Please rate the atmosphere of the training!

C2 - Please rate the organisation of the training!

**Table 7 What is the atmosphere and organisation of the training?**

C1	HIGH
C2	HIGH

*Source:* Interview with interest groups, Catalyst Project (2018).

## Beer Game

The intention of the game / simulation of the Beer Game is to provide a direct experience with the effects of system dynamics in commodity chains of agribusiness. Beer Game is one of the most significant management games in system dynamics and supply chain management. The participants of the game (individuals, groups) have the task of managing (inventory management, ordering) the assigned enterprise that is part of the customer-supply chain. Through this method of learning the participant has the opportunity to learn how the structure of the chain and the lack of coordination between the actors influence the choice of actors' actions and, ultimately, the performance of the company. Through this direct experience, participants have the opportunity to understand the interdependence between businesses and to understand the need to find solutions based on coordination and cooperation with other businesses in commodity chains (Mayer, 2008).

**Table 8 How much the training contributed to the desired skills?**

a – Networking	NO IMPACT
b – Communication	LOW
c – Project management	NO IMPACT
d – Innovation management	NO IMPACT
e – Data management	NO IMPACT
f – Marketing, Innovation promotion	NO IMPACT
g – Problem solving	HIGH
h – Concept thinking	HIGH
i – Analytical thinking	HIGH
j – Critical thinking	HIGH
k – Leadership skills	NO IMPACT

*Source:* Interview with interest groups, Catalyst Project (2018).

**Table 9 How useful and effective is the training?**

B1	HIGH
B2	HIGH
B3	HIGH

*Source:* Interview with interest groups, Catalyst Project (2018).

**Table 10 What is the atmosphere and organisation of the training?**

C1	HIGH
C2	HIGH

*Source:* Interview with interest groups, Catalyst Project (2018).

## **Teamwork**

The main purpose of this methodology is to suggest how important and effective teamwork is. The main objective of this methodology is to analyse the differences between individual and team decisions (Clawson, 2006).

**Table 11 How much the training contributed to the desired skills?**

a – Networking	HIGH
b – Communication	MEDIUM
c – Project management	HIGH
d – Innovation management	HIGH
e – Data management	HIGH
f – Marketing, Innovation promotion	HIGH
g – Problem solving	HIGH
h – Concept thinking	HIGH
i – Analytical thinking	HIGH
j – Critical thinking	HIGH
k – Leadership skills	HIGH

*Source:* Interview with interest groups, Catalyst Project (2018).

**Table 12 How useful and effective is the training?**

B1	HIGH
B2	HIGH
B3	HIGH

*Source:* Interview with interest groups, Catalyst Project (2018).

**Table 13 What is the atmosphere and organisation of the training?**

C1	HIGH
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C2	HIGH
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*Source:* Interview with interest groups, Catalyst Project (2018).

## Mind Map

Mind mapping is a creative and logical tool to record and create notes that “mapped” ideas. Its purpose is to convert monotone information into a colorful and highly organized chart. Thought map can be compared with city map. The center of the city is the main idea, the main roads leading from the center are key ideas in the thought process, the secondary paths (branches) are secondary ideas, etc. Special pictures or shapes can be indicative points of interest or particularly important ideas (Clawson, 2006).

**Table 14 How much the training contributed to the desired skills?**

a – Networking	MEDIUM
b – Communication	HIGH
c – Project management	LOW
d – Innovation management	LOW
e – Data management	NO IMPACT
f – Marketing, Innovation promotion	NO IMPACT
g – Problem solving	NO IMPACT
h – Concept thinking	MEDIUM
i – Analytical thinking	NO IMPACT
j – Critical thinking	NO IMPACT
k – Leadership skills	NO IMPACT

*Source:* Interview with interest groups, Catalyst Project (2018).

**Table 15 How useful and effective is the training?**

B1	HIGH
B2	HIGH
B3	HIGH

*Source:* Interview with interest groups, Catalyst Project (2018).

Table 16 **What is the atmosphere and organisation of the training?**

C1	HIGH
C2	HIGH

Source: Interview with interest groups, Catalyst Project (2018).

## 4 Conclusions

Innovations are widely accepted in particular by large agriculture holdings. In this regard, the Czech Republic has the advantage compared to other EU countries (Due to its largest average size of farm). The production core of agriculture in the Czech Republic belongs to enterprises which are operating on 500 – 1000 ha. These holdings have usually no problem with the acceptance of innovations and are able to provide innovative processes on a long-term basis by their own means. Other smaller businesses, especially the smallest family farms are very flexible in decision-making, but the innovation process is very costly for them, so there is a considerable dependence on subsidies and public sector assistance for these businesses. This creates a strong diversification depending on the farm area or their economic strength – high level of innovation on large farms and very large farms (of several hundred hectares and larger) but very low on the smallest farms whose farm area does not exceed 5 ha.

In the Czech Republic, there has been a long-term system for the dissemination of innovation in agriculture provided by the Ministry of Agriculture in cooperation with Institute of Agricultural Economics and Information. Support for innovation is also based on the European Innovation Partnership initiative “Productivity and Sustainability of Agriculture”. Thanks to this initiative are trained and working innovation brokers in agriculture in the Czech Republic. This program focuses on the following objectives:

Increased agricultural productivity, economic viability, sustainability, output and resource efficiency, Innovation to support bio-economy, Biodiversity, ecosystem services, soil functionality and sustainable water management, Innovative products and services for an integrated supply chain, Opening new product and market opportunities for primary producers, Quality and food safety and a healthy lifestyle,

Reduction of post-harvest losses and waste of food. However, through innovative brokers is supported only the first objective (Increased agricultural productivity, economic viability, sustainability, output and resource efficiency) of this initiative in the Czech Republic. Thanks to this the innovative system through innovative brokers is not complex. Innovation brokers are working only at the

primary production level (only with farmers). They do not interfere with other parts of the commodity chain. There is also missing is the link with science and research, innovative brokers are being trained by the Ministry of Agriculture in cooperation with Institute of Agricultural Economics and Information. However, there is no comprehensive study program at universities in the Czech Republic that would focus on issues of technology transfer in agriculture and innovation advices.

The other reasons for these problems in innovation process in Czech agriculture are lack of awareness of introducing innovations perceived among farmers as such, which was a direct effect of small development needs voiced by the owners of the smallest agricultural holdings.

Problem with availability of funding offered on preferential terms, without which any investment demanding considerable financial outlays in the eyes of the surveyed persons presented too much risk or even was impossible to realize. Lack of knowledge about modern solutions applied in agriculture, small openness of farmers to changes and low level of collaboration between the science and practice. Economic advisory services for agriculture supported by the public sector currently do not exist, mostly technological and technical consultancy.

From the survey conducted, have been discovered the required assumptions for position of AIB. Position of AIB denotes focussing on very wide area and following issues:

- establishing contacts and suggesting partnership agreements comprising agro producers, science and business representatives operating on the basis of agricultural production, distribution and logistics,
- presentation of needs, which emerge in the area of agricultural production to research workers of universities and research institutes,
- seeking sources of funding for the investments realized in the area of agricultural production to increase its effectiveness including developing of a project proposal,
- innovation broker should be involved in a good innovation project development, his/her knowledge may improve the chance to obtain proper funding for this project.
- discovering innovative patents and technologies, which are created or have been implemented in the economic sphere by universities and research institutes.

Therefore, from the above-mentioned requirements following were selected for which the appropriate training methods were selected: Networking, Communication, Project management, Innovation management, Data management, Marketing, Innovation promotion, Problem solving, Concept thinking, Analytical

thinking, Critical thinking, Leadership skills. These requirements have been tested in all selected methods (Quick decision making, Beer Game, Teamwork, Mind Map). It has been verified, that the selected methods meet the selected criteria, i.e. they are therefore suitable for inclusion in innovative training of AIB.

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