THE SELECTED ISSUES OF AGRICULTURAL EXTENSION SERVICE IN SLOVAK REPUBLIC

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Abstract

The primary objective of submitted article is to evaluate the current tendencies in agricultural advisory services, to analyze its education, knowledge and innovation pillars. In frame of the research was conducted a questionnaire survey in primary agricultural business entities, as well as in the companies providing services to agricultural business entities. The questionnaire survey was carried out in 161 companies. The content of the survey was focused on the basic data about the services provided to agricultural business entities, on knowledge and innovation penetration, to the main barriers for introduction of new technologies, as well as to the issues linked to the education of farm/company's owners or managers. The end of the article is devoted to issues connected to the enhancement of the education of farm managers, status of the agricultural advisory services in Slovak Republic, as well as to the innovation matters.

Keywords: agricultural extension, agricultural innovation system, agricultural knowledge system, knowledge and technology transfer in agriculture

JEL Classification: Q13, Q16

1 Introduction

Management Consultancy belongs in frame of the world, as well as in the EU among the most intensively developing sector. The above mentioned is partly
linked also to the agricultural advisory services, especially in the EU-15. The assumed expectations in relation to this entrepreneurial activity have been met only partly after the EU accession in some states. From the V-4 states the agricultural advisory services are dynamically developing, first of all in Hungary and in Poland. In the Czech Republic this activity starts to be successful, however in Slovak Republic its results are still lagging behind of the most developed EU states. With intention to discover the real status of advisory services, as well as their impact on the implementation of innovation and new knowledge into the agricultural primary production entities, we carried out the questionnary survey into which have been involved 161 farms/agricultural companies.

Anderson and Feder (2004) define agricultural advisory services as the scientific subject oriented on the information transfer, demonstration of innovations and the education of new economic methods, as well as on the provision of professional advices to agricultural entities. Analogical definition was formulated by Berglunda and Dworak (2010). According of these authors, the agricultural extension is understood as verbal, written advices provided by advisors in agricultural entities with provision of direction how to resolve the practical problems.

The new trend in management of advisory services is knowledge brokering. Billington and Davidson (2010) claim, that during the last decade the firms underwent in the whole world through numerous innovations, thank to the rapidly developing technologies, which are offering more rapid and better solutions on various strategic, operational and organisational problems. Roos and O’Connor (2015) state that technological innovations are driving force in permanently changing economic world. Technological innovation is often creating temporary monopolies, which can bring significant profits, which are in certain period taken by competitors and imitators. These temporary monopolies enable to innovative firm to develop new products and processes. Trigo, Ekong and Chowdhury (2015) describe agricultural innovation as the dynamic interaction between more actors, which are participating on the cultivation, processing, distribution, consumption, or by the other way utilised agricultural products, together with researchers, providers of agricultural extension service.

As it is claimed by De Pinto and Ulimwengu (2016), among the CSA mechanism /intelligent agriculture with regard of the changing climate is the stronger capacity and the extended number of agents/advisors at the provision of agricultural advices.

According Buček, Rehák and Hudec (2010), the new knowledge is the result of the knowledge process in frame of research activities, as well as stemming from practical experience. In the sense of system theory approach, we can understand the complex of knowledge as a system and in the case of individual knowledge...
we can speak about the system's units. Logically, then knowledge as a system is
the result of the research activity in the science, and more complex systems as the
society, economy are giving the names to knowledge, as the knowledge society,
knowledge economy, or knowledge management.

The key topics which are driving the business in this sector of entrepreneurship,
are first of all innovations, which can in meaningful way support the growth
of sustainable agroecological production in meeting the requirement of consist-
ently increasing number of people in the world, that agribusinessmen will be able
to produce sufficient amount of food.

In this respect, the agricultural extension, education, research and innovation
with knowledge society are becoming the key pillars for feeding the world pop-
ulation in 2050 which according of prognoses will reach the number 9, 2 bill.
people.

2 Data and Methodology

The objective of submitted article is the evaluation of the recent status of agricul-
tural advisory service, as well as to undertake analysis in relation to the knowl-
edge and information pillars.

Primary data have been obtained from the questionnaire survey. This was de-
livered to the agricultural primary production's entities and to the agencies deal-
ing with agricultural extension. The questionnaire survey was completed by 161
top managers from farms/agricultural companies. The survey was carried out in
the period from October to December 2017. The questionnaire was distributed
by electronic way to the selected group of respondents. The data received from
survey had been processed by the table calculator and by Microsoft office 2010,
as well as by statistical software SPSS 25.0. In addition to this, we set up the two
hypotheses which are closely connected to the objective of this article.

3 Results

3.1 The Description of the Selected Group of Farms/Agricultural Companies

According of the time when companies were establishment, 63, 4 % of them have
been created less than 10 years ago, resp. 11-20 years ago. From 161 farms/agri-
cultural companies, 40 of them were founded 21-30 years ago, and more as 30
years ago have been created 19 entities. This is documenting that into the research
have been included farms/companies, which have been created to the end of the transition process, respectively after its accomplishment, prior to EU accession.

At the survey participated first of all farmers (47.2%), then managers of limited liability companies (29.8%), followed by agricultural cooperatives with 16.8%. The lowest rate in the survey was achieved by the shareholding companies (1.9%), as well as the trade companies (3.1%).

With regard of the size according of the employees’ number, into the questionnaire survey have been involved mainly farms/agricultural companies with number of employees up to 10. This refers to the 118 entities (73.3%), while on the second place are situated small companies with number of employees from 11 to 49. In our survey this is about 35 companies (21.7%). Among the middle companies have been involved only 6 surveyed subjects (3.7%) and the requirements of large company had been met only by two business entities with more as 250 employees. The results of these characteristics document, that current status according of employees’ number, in the overall structure are prevailing small and micro-enterprises, which usually do prefer seasonal employees.

The fact that into the survey have been involved mainly smaller agricultural entities is documented by data referring to acreage of the cultivated land. Less as 500 hectares are cultivated by 68, 3% enterprises (110). 28 (17, 4%) of them are operating on the size between 501-1000 hectares. The first and second groups together do represent 89, 6%. Only 9 business entities are operating on the size from 1001 to 1500 (4, 3%), and finally 9 entities are doing their business on the size higher as 2000 hectares (5, 6%).

3.2 The Employees’ Education

The qualified working forces, which are increasing their qualification and extend their knowledge sources, skills and capabilities, are represent significant source of enterprise’ success. The employees knowledge are perceived as the assets of the companies at the achieving the reasonable profit. The level of human capital is possible to improve through the formal education, or through various educational forms and professional preparation. The education is the important investment into the human capital.

The key employees are the competitive advantage for each firm, but especially these advantages are represented by employees, who are very important for their knowledge and skills and their eventual separation from company could cause to the business entity the serious problems. The result of our survey confirms that only 23, 6% farms/agricultural companies are organising regular educational programmes, and 54, 0% entities deal with this important activity only sporadically. In total, this represents 77, 6% firms. On the other side even 50% (80 answers
with “definitely yes”) farms/companies consider employees education as the very important. “Preferably yes” in favour of education expressed 17, 5 % entities.

With regard, of preferred educational form, the answers of respondents are portrayed in figure 1. The most popular form is participation at the excursions, followed by open days focused on agricultural technologies, and then exhibitions. In total 78 % farms/companies are favouring the last mentioned form. Individual education is organised in 68 % of cases and the participation on the educational programmes outside of the company is representing 62 %. Dual education so far is not listed among the preferable educational forms in the 73 % of cases.

Figure 1 Preferred Education Form in the Farm/Company

![Preferred Education Form in the Farm/Company](image)

Source: Own research.

### 3.3 The Utilisation of Agricultural Extension

Only in 43 % cases the managers benefited from professional advisory services in 2017, and 58 % business entities did not utilise this activity. Commercialisation – payment for consultations is clearly dominating form, not only in the private extension services, but also those in state sector. The business entities with lower level as 1000 Euro of payments for advisory services represent 68, 1 %. Companies with the finances volume in range from 1001 up to 5000 Euro, represent 26, 1 %. Those with higher payments from 5001 to 10 000 Euro and beyond of 15 000 Euro achieve the equal share 2, 9 % of each.

The largest interest was about the advisory services in the crop production, horticulture, orchards and viniculture, where 23, 04 % enterprises have benefited from this kind of extension services. The sector of animal production and
veterinarian services do represent 17, 43 %, and extension service in agricultural machinery is on the same level with 17, 97 %. In the field of economics, accounting and management are required the services of advisors in 14, 75 % of cases. The advisory services in the area of cross compliance is at the level of 13, 36 %. The significant is also the field of organic farming and environment, where the advisory services had been provided to 5, 53 % enterprises. In addition to this, 3, 69 % of farms/companies were looking for advices in the fields of rural development and alternative energies. The lower interest about the advisory services appeared in the irrigation, just 0, 92 % companies benefited in this area.

The most preferable form of the extension service was the face-to-face meeting in the company with average of 4, 08 % and inclination of 0,970. The proffered forms are also the trainings in small groups with average 3, 97% with standard inclination 0,975. The least favourable form of extension service is the training in larger groups, then through the publications, broadcasting or TV.

The most frequent initiator on the utilisation of extension service is the management of the farms/agricultural companies, even in 66, 7 % of cases. The reasonable role is played also by the extensionists, who initiated the implementation of extension service activities in business entities in 24, 6 % cases. Combination of both initiatives appeared in 7, 2 % situations.

### 3.4 Innovations in Agriculture

The enterprises most frequently are drawing information about the innovations from the professional journals and newspapers. This is representing 18, 2 % of responses (table 1). This is followed by electronic mass-communication means as TV, broadcasting and internet (in the case of 17, 5 % of farms/companies). 16, 7 % business entities mentioned that exhibitions are good source of information. They also indicated seminars and conferences as important sources for innovations. Presentations and demonstrations have been supported by 13, 5 % respondents. In addition to this, the suppliers and traders provide information about innovations in 12, 0 % of cases. From this angle of view, the daily news represent only 6,2 % of information which provide information about innovations.
Table 1  The Information Sources about Innovations in the Farms/Agricultural Companies

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>Percent</th>
<th>Percent of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>daily press</td>
<td>38</td>
<td>6.20%</td>
<td>24.20%</td>
</tr>
<tr>
<td>professional press</td>
<td>112</td>
<td>18.20%</td>
<td>71.50%</td>
</tr>
<tr>
<td>television, radio, internet</td>
<td>108</td>
<td>17.50%</td>
<td>68.80%</td>
</tr>
<tr>
<td>seminars and conferences</td>
<td>98</td>
<td>15.90%</td>
<td>62.40%</td>
</tr>
<tr>
<td>exhibitions</td>
<td>103</td>
<td>16.70%</td>
<td>65.60%</td>
</tr>
<tr>
<td>presentations and practical demonstrations</td>
<td>83</td>
<td>13.50%</td>
<td>52.90%</td>
</tr>
<tr>
<td>suppliers of inputs</td>
<td>74</td>
<td>12.00%</td>
<td>47.10%</td>
</tr>
<tr>
<td>Total</td>
<td>616</td>
<td>100.00%</td>
<td>392.40%</td>
</tr>
</tbody>
</table>

Source: Own research.

The largest group of business entities 53.9%, in the case of evaluation of their own capability to introduce new knowledge, responded that their capacity is “more than satisfactory”. The responses in the category – “stronger”, have been indicated by 20.8% enterprises. In contrary 11.7% respondents evaluated their capacity to utilise new knowledge as “partly satisfactory” and 7.8% of them consider it as “non-satisfactory”. However, the 5.8% of enterprises evaluated their capacity in this field as “very strong”.

The biggest barriers at the improvement of innovation systems according of the farms/agricultural companies are in first line linked to the costs to which they have to face in the case of insufficient financial resources; the great challenge is linked to the long investment return in the case of innovations; legislation; regulations; and then taxation. Secondly, it is about absence of qualified people on the side of producers, insufficient production capacity of the science and research, lacking collaboration, weak protection of the ownerships rights, the resistance against the changes, difficulties with control of innovation’s costs, non-satisfactory structure, missing clients’ interest about new products and processes.

In third line, it is about missing market information on the producers’ side, absence of information about technological opportunities, lack of information about technologies on the side of producers and high risks connected to the innovations.

3.5 The Tests of the Hypotheses

In frame of this research, we set two following hypotheses.

**Hypothesis 1:** Large and middle-size enterprises invest into the agricultural advisory services more financial resources than small-sized companies.
The objective of the first hypothesis was to find relationships between the size of enterprise on the one side, and on the second side on the invested financial resources to the agricultural extension. Both variables are stemming from the questionnaire survey. We selected them from the written responses in connection to the size of company and the amount of financial resources invested into the agricultural extension.

The null hypothesis: The size of company has no relation to the financial resources which have been spent on the agricultural extension service in 2017.

The alternative hypothesis: The size of enterprise has relation to the amount of financial resources spent by the farm/agricultural company on agricultural extension service in 2017.

Testing statistics $\chi^2$ is equal to 24, 808, respective p-value is equal to 0,000. Also the other tests (correction by function, or probability rate) confirm the result of $\chi^2$ test, whereas their p-value is also 0,000. Upon the basis of these results we reject the null hypothesis and we do accept the alternative one. Upon of this we conclude that hypothesis 1 is confirmed, what virtually means that the larger farms/agricultural companies spend on the agriculture extension more financial resources as the smaller ones.

Hypothesis 2: the larger amount of financial resources spent by farms/agricultural companies on the agricultural extension is coming up from integrated advisory services which provide the inputs to agribusiness companies.

In the questionnaire survey, the respondents have been requested to indicate, that how much they spend on the advisory services provided by the individual inputs ‘suppliers. Respondents had to express the value from 0 to 100 %. In frame of second hypothesis we compare the given values for both variables. Whereas, the both values have been provided by same respondents, for comparison purposes we used non-parametric test.

Null hypothesis: The volume of extension services implemented in the agri-business companies in the form of integrated advisory services provided by the inputs suppliers is equal to the volume as it is provided by the professional advisors.

Alternative hypothesis: The volume of extension services implemented in the agri-business companies in the form of integrated advisory services provided by the inputs suppliers is higher than the volume provided by the individual professional advisors.

Respondents mentioned that in average, the share of advisory services provided by the inputs suppliers achieves the level of 42,50 %, while the extension services provided by the professional advisors reach the level of 57,50 %. Hence, the difference is visa-versa as have been assumed in hypothesis. With the aid of
Wilcoxon’s one selection test, we verified whether this result is statistically significant.

From the calculated data stems that 18 respondents mentioned higher volume of services provided by the inputs suppliers, 27 of them indicated that higher volume is provided by the services carried out by professional advisors. Furthermore, 19 respondents evaluated that they receive services from both groups on the same level 50 percent of each. However, this difference was not confirmed as significant. P-value of the test is 0.056, what is slightly below the level of significance. Hence, we have to accept the null hypothesis. **Hypothesis 2 was not confirmed.**

4 Discussion and conclusion

The agricultural extension services are the key issue between commercial and non-commercial subjects, which is providing important information flows, with its aid to farmers can improve their own welfare and to support the rural development. In addition to this ordinary function, they do provide new progressive knowledge on the improvement of productivity in agriculture. Furthermore, it is expected that agricultural extension services will fulfill various new functions, as e.g. represent the support of small farmers, the support to the sustainable ecological production technologies, and successful management of other issues, which are influencing the agricultural practice and the life on countryside.

The results of survey are corresponding with conclusions of Kapsdorferova (2014) in the field of education meaning at the perfection of the information and knowledge in agriculture, despite that our results contain the annoying fact linked to the farmers, when 5, 61% of them have no interest about further education and another weakness is in the high number of enterprises (35), which are not supporting the continuing education of their key employees. The institutionalisation of agricultural extension service is not yet perfectly complete, this has negative impact on better harmonization on cooperation between individual actors and also on the possible higher performance of agricultural and food production. Our results are analogical with authors Agbama (2000) and Kadlecíková et al. (2014).

In the field of the largest barriers for improvement of innovation systems, it was confirmed the research carried out by Fáziková and Mariš (2010), that even after 10 years development, the most significant barriers for innovations are the high costs on the own innovations, absence of financial resources, lack of qualified working forces, risks linked to the sale of the new products and administration connected to the procurement of licenses and insufficient protection of the owners rights. Sabadka (2009) writes about six basic units of the innovation
system, which have the impact on the innovation penetration via the support of financing procurement of technologies, as it was mentioned in the results of our survey, referring to the largest innovation barriers and between farm/agricultural company, due to lack of financial resources.

The main message of this article is that agricultural extension service is recognised by the larger agricultural companies, who have sufficient resources for buying the agricultural services. Both professional agricultural advisors and inputs suppliers provide almost identical share of agricultural services. In the field of innovation numerous barriers are existing and great political and institutional support have to be provided in this respect, otherwise the production, economic and social performance of agriculture will be behind of the most developed EU states.

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References


