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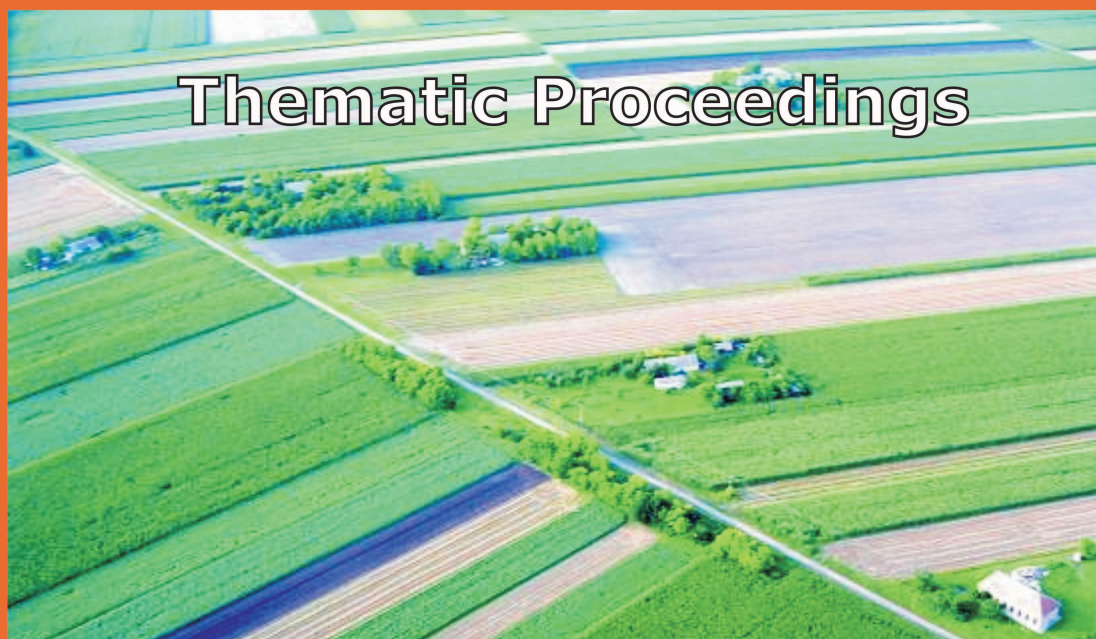
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# DEVELOPMENT OF AGRICULTURE AND RURAL AREAS IN CENTRAL AND EASTERN EUROPE



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## **AGRICULTURAL EXTENSION OF THE AKIS IN SERBIA/VOJVODINA**

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### **INTRODUCTION**

Agricultural extension for farmers in Vojvodina is a relatively new. In the Former Yugoslavia, as well as Serbia – Vojvodina, agricultural extension was mainly practiced on large socially owned farms, the so called “Agro-combinates”, which were established under the former socialist system. The network of agricultural stations (services, agro institutes) provided and charged for expert help for the Agro-combinates (with which they were even integrated for some time), agricultural cooperatives and other agricultural organizations. During that period, extension work relating to the farming community was minor and mostly done through winter lectures in villages and field days. With disintegration of the Former Yugoslavia and privatization of Agro-combinates, the network of agricultural stations have had to be transformed and in new conditions they have had to orientate their extension activities much more towards the farming community. As a result of transformation in 2007, the Agricultural Extension Service has been established in Vojvodina. In establishing a new and different Agricultural Knowledge and Information System, this extension service finds itself faced with plenty of demands and problems in its work. In this paper, we will demonstrate part of its reality and analyze role of extension service in Vojvodina’s AKIS.

### **THE IMPORTANCE OF AGRICULTURAL EXTENSION IN THE AKIS**

An Agriculture Knowledge and Information System links people and institutions to promote mutual learning and generate, share and utilize agriculture related technology, knowledge and information (FAO and World Bank 2000). The theoretical concept of the AKIS aims to explain and emphasize the importance of organized and systematic processes of creation, dissemination and application of scientific knowledge and the necessity of connecting and including of all the stakeholders in one agricultural system. The institutionalization of one such process implies an »open« social system and its readiness for modernization

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process. This also implies the significant participation of farmers and their local & indigenous knowledge<sup>1</sup> and their needs in creation of innovative knowledge, setting of research or extension priorities<sup>2</sup>, and evaluation of research and extension programmes.

Although there are many interpretations of AKIS (whereby this concept is used in organizations like the ISNAR, the World Bank, FAO – often as AKIS for Rural Development etc.), we will mention the concept of U.J. Nagel (NAGEL, U. J. 1980), who (basing his theory on that of Havellock) identified three basic subsystems of AKIS: research subsystem, dissemination subsystem and user subsystem, where he investigated the flow of knowledge and links that exist between these subsystems. The basic assumption was that knowledge and information flow in agriculture cannot be uni-linear (researchers → users)<sup>3</sup> and that the basic element that links those subsystems is actually knowledge or information that flows through subsystems. Nagel's approach to AKIS, rests upon the basic functions that such system has: identification of needs, generation of innovative knowledge, the operationalization of knowledge, the dissemination of knowledge, the utilization of knowledge and the evaluation of experiences (NAGEL 1979: 138-140). Essentially, farmer's needs determine this (although one should count with needs of all three subsystems and institutions outside the actual system), *i.e.* problem/client oriented knowledge has to be created and disseminated in a systematic and organised way, whereby the application and utilization of the innovative knowledge represents the *crucial test of the whole system*.

The Dutch author Rölling emphasizes the synergy of all the elements in the AKIS. He defines an AKIS<sup>4</sup> as: »a set of agricultural organizations and/or persons, and the links and interactions between them, engaged in such processes as the generation, transformation, transmission, storage, retrieval, integration, diffusion and utilization of knowledge and information, with the purpose of working synergically to support decision making, problem solving and innovation in a given country's agriculture of a domain thereof« (RÖLLING 1990:1). The aim of an AKIS, according to Rölling, is the »*synergy of its components*« whereby the indicators of unrealized synergy are, for example, research results that are not used, farmers who have no access to the extension services, extension services without links to

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<sup>1</sup> Some authors question the tension between the quality and validity of scientific and local or indigenous knowledge in farming, emphasizing the context of each type of knowledge and different epistemic communities or epistemic cultures (see, LEUWIS AND VAN DEN BAN 2004:105, 106).

<sup>2</sup> That again could be different from the point of view of the extension, researcher or farmer.

<sup>3</sup> Here we imply the approach of (already known) critics of Transfer of Technology (ToT), discussed by many authors.

<sup>4</sup> In order to be precise we emphasize that Nagel basically speaks about AKS (Agricultural Knowledge System) and Rölling about AIS (Agricultural Information System), meaning that only information can be transferred, not knowledge, which is a feature of mind.

research centres etc. »In later definitions, it is emphasised that the actors in such an AKIS do not necessarily work synergically, but have the potential to do so. This follows critiques that it was misleading to attribute a clear purpose to a »system« that consisted of so many actors with possibly diverging interests and perspectives« (LEUWIS, VAN DEN BAN 2004: 322).

The extension service needs to have important role in the AKIS of each society, but one should not emphasize its importance and functions which the extension could have in the absence of other factors, like markets for farm products, constantly changing agricultural technology, local availability of supplies and equipment, product incentives which make it profitable for farmers to produce more and not only for their landlords or middlemen, and transportation to and from the village (VAN DEN BAN, HAWKINS 1996:15, 16). Extension services of developed countries have used the advantages of progress in social and economic development and a relatively stable agricultural policy, gradually developing their AKIS. On the other hand, transitional countries like Serbia, which have huge problems with institutions in agricultural sector functioning properly, have unstable agricultural policies that do not create proper conditions for establishment of an efficient extension service that could answer the farmer needs. An uncompetitive agricultural sector, little cooperation between stakeholders in the system, weak links and the usual confrontation of the most stakeholders in the system, an unstable market and conflict between producers and buyers dominating the Serbian food industry, paint the reality in Serbia and hinder the development of the extension and its functions. The problems of state-organized and state-financed extension have already been discussed many times, but also problems in the financing, organisation and (re)establishment of an adequate extension system in Serbia, impede the fulfilment of extension functions. A period of preparation for EU integration and transitional agriculture creates many needs for an efficient extension system *i.e.* knowledge and information that would link the stakeholders in agriculture in a proper way. Problems in consistent links between research, extension and farmers, inadequate research and education policies in agriculture, (un)educated farmer population and lack of producers' cooperatives, inadequate agricultural policy that neglects the public interests in too liberal a way (food safety and health security, environmental protection, social policy for the rural poor and elderly rural population etc.), are only some of the problems faced by Serbia's AKIS.

#### **AGRICULTURAL EXTENSION SERVICE IN THE PROVINCE OF VOJVODINA**

In Serbia there are 34 agricultural services organized through a system of agricultural stations (agricultural institutes). The Provincial Secretary of

Agriculture, Water Management and Forestry is in charge of thirteen of the services on Vojvodina territory, whereby the agricultural stations have specific status at present, namely, they are dominantly *socially* owned and still not transformed into some other legal form (state or private). Apart from that, within its competence in those thirteen stations, the Provincial Secretary has established the Agricultural Extension Service of Vojvodina (PSS APV). A network of 66 advisors has been established from amongst 200 employed personnel and financed by a special programme.

Within each agricultural station there is organisational unit of extension service with all together 66 agricultural advisors. These advisors are specialists, having graduated in agricultural faculties, with a minimum of three years' work experience in agriculture. Their structure regarding the type of specialisation is shown in the table below:

Table 1 Extension agents according to their education

<b>Education of extension agents</b>	<b>Number</b>
Field and vegetable crops	22
Plant protection	18
Animal science	18
Fruit and Viticulture	2
Water management	2
Agricultural Mechanisation	2
Agricultural Economics	2
<b>TOTAL</b>	<b>66</b>

Source: Provincial Secretary of Agriculture, Water Management and Forestry

The aims of the PSS APV are defined as following: income enhancement of farms, increasing farmers' potential for effective farm management, help by solving problems regarding production, economic and organisational issues regarding farm development, local community development, environmental protection and sustainable development, directing and adjusting production with natural resources and market needs, development of entrepreneurship in agriculture and rural areas and supporting creation of farmers' cooperatives and associations and other social groups in rural areas.

The extension's activities are financed 100% from the state budget which means that extension services are free of charge for farmers. One of the main concepts applied in extension work is extension support for „*selected farms*“. Selected farms represent more successful and commercially oriented family farms that gain

systematic extension support for a certain period. Although the extension's efforts were oriented towards selected farms even before 2007, by the establishment of PSS APV it has been decided that extension activities have to cover around 2500-3000 farms, meaning around 50 farms per advisor and extension work with other farmers who ask for advice as well. The *selected farms* concept has already been implemented, but complete coverage of 2500-3000 farms has not yet been accomplished partly because of the small number of advisors and lack of local extension services. The intentions of Provincial Secretary are to intensify extension work with producer groups, to establish permanent monitoring and evaluation of extension work and to establish certification of agricultural advisors. Agricultural advisors working with selected farms use specific methodology for registration of advisory work and social and economic indicators about the farm that gains advisory help. This methodology provides a very good data base for analysis of extension activities in Vojvodina, as well as social and economic features of selected farms. This methodology has been developed in cooperation with the Provincial Secretary of Agriculture and Faculty of Agriculture and its Centre of rural development, training and education of agricultural advisors.

The PSS APV is insufficiently financed in order for it to work efficiently. Also, problems that the extension service in Vojvodina faces are following: inadequate employee structure (insufficient number of advisors, problem of their systematic and permanent education, weak motivation etc.); inadequate territorial organization of the extension service in Vojvodina and the non-existence of a local extension service; unwillingness of agricultural stations alone to introduce changes in their work; lack of extension programmes, proper management and planning of extension work; lack of adequate extension policy and adequate solving of legal status of agricultural stations that are still „*virtually*“ *socially owned*.

In the context of reforming the staff structure and better territorial organization of the extension service, a local extension service could be established by putting to work unemployed agricultural experts. According to the National Employment Service in 2006, there were 20,328 unemployed persons who have agricultural education, where for the local extension service the most valuable is group of *1 768 unemployed persons graduated on the Faculty Agriculture and with higher education in agriculture*. Most of these unemployed persons live in villages and small towns in rural areas, so a local extension network of 80-160 people could be established by employing these persons (including adequate training), with relatively lower costs of salaries and fixed costs. Supported with proper mentor work of experienced advisors, with adequate extension programmes, monitoring and evaluation of the whole concept and inclusion of the National Employment Service and other relevant institutions, this project, in the authors' opinion, could have great chances for success.

## FARMERS' KNOWLEDGE AND EXTENSION NEEDS IN AGRICULTURAL PRODUCTION

Among other issues in the empirical sociological research that comprised all the experts employed in agricultural stations („*The role of agricultural stations in agricultural extension in Vojvodina*“ 2002), authors surveyed the estimation of agricultural experts regarding the knowledge of the farmers they are cooperating with. If we assume that opinions of the staff from the agricultural stations (as the referent group with great experience in agriculture) are relevant, the results presented in both tables clearly point out lack of farmers' knowledge in several areas where advice had been given to farmers, as well. The results are presented in the following tables:

Table 2 Extension agent's estimation about farmer's knowledge  
in the following areas

Farmer's knowledge	Have enough knowledge	Have partial knowledge	Do not have enough knowledge	Missing Cases
1. Weed protection	1.5 %	52,3 %	26.1 %	20.1%
2. Protection against pests and diseases	1.5 %	44,2 %	34.2 %	20.1%
3. Ploughing and soil preparation	33.2 %	39,7 %	1.5 %	25.6%
4. Application of mineral fertilizers	11.6 %	48,7 %	20.1 %	19.6%
5. Selection of adequate seeds	16.1 %	49,7 %	11.1 %	23.1%
6. Selection of planting material	8.0 %	45,2 %	17.6 %	29.1%
7. Sowing	32.7 %	40.2 %	2.5 %	24.6%
8. Planting	24.1 %	40.2 %	7.0 %	28.6%
9. Irrigation	4.0 %	31.7 %	39.2 %	25.1%
10. Animal fed	6.5 %	47.7 %	12.6 %	33.2%
11. Animal health protection	2.5 %	31.7 %	33.7 %	33.2%
12. Food safety and security	1.0 %	21.1 %	52.8 %	25.1%
13. Quality of agricultural products	4.5 %	35.2 %	35.2 %	25.1%

Source: Empirical survey “The role of agricultural stations in agricultural extension in Vojvodina“, 2002.



Table 3 Problems (for) which farmers sought for advice

PROBLEMS	FREQUENCY OF ADVICE REQUESTS			Missing Cases
	Most frequent	Rarely	Did not seek for advice	
1. Protection against pests and diseases	28.1 %	12.6 %	47.7 %	11.6%
2. Weed protection	31.2 %	8.0 %	49.2 %	11.6%
3. Strain selection	39.2 %	12.1 %	37.2 %	11.6%
4. Selection of planting material	11.1 %	16.6 %	60.8 %	11.6%
5. Provision of production equipment	13.1 %	16.6 %	60.8 %	11.6%
6. Soil cultivation	23.1 %	19.1 %	46.2 %	11.6%
7. Soil fertilization	38.2 %	1.6 %	38.7 %	11.6%
8. Planting (sowing)	31.7 %	15.1 %	41.7 %	11.6%
9. Harvesting	17.1 %	19.1 %	52.3 %	11.6%
10. Irrigation	8.5 %	16.6 %	63.3 %	11.6%
11. Storage of agricultural products	18.1 %	26.1 %	44.2 %	11.6%
12. Planning of agricultural production	21.6 %	23.6 %	43.2 %	11.6%
13. Selling of agricultural products	10.1 %	24.1 %	54.3 %	11.6%
14. Animal production	18.1 %	4.0 %	66.3 %	11.6%

Source: Empirical survey “The role of agricultural stations in agricultural extension in Vojvodina“, 2002.

A brief analysis points out the presence of principally technical & technological advice in extension work with farmers, and lack of farmers’ knowledge mostly regarding irrigation, animal health protection, food safety and security and agricultural products quality. Farmers needed help mostly by strain selection, soil fertilization and for advice regarding planting (sowing). Observed individually, results show that help from the advisors for plant protection (protection against pests and diseases and weed protection) has a slightly smaller share, but observed together we can conclude that farmers’ needs in plant protection issues are somehow more dominant than others, which correlates with the experts’ opinion about lack of knowledge in that field. Advice regarding the planning of the production, storage of agricultural products and irrigation are pretty rare, partly because of lack of advisors in that field, partly because farmers neglect to make proper plans regarding the selling of agricultural products on the market, but also because of unstable market conditions that cause insecurity and situations in which it is very hard for advisors or anybody else to advise someone regarding that issue. Irrigation is a specific problem in Vojvodina/Serbia because only an extremely small amount of land is irrigated, there is the pressing problem of number and size

of the plots of land, and the fact that current irrigation systems are pretty old; but we must not neglect to also note the utilization levels of existing irrigation systems and water resources are low.

In the second empirical survey that was conducted by Provincial Secretary of Agriculture, Water Management and Forestry in cooperation with Centre for rural development at the Faculty of Agriculture (this questionnaire was conducted by post in 2005), the response of the farmers was quite high with 390 questionnaires returned. The results of this survey showed that 80.7% of the farmers were satisfied with the quality of extension service; 66.2% considered mutual cooperation to be great, 33.3% as relatively good and only 2.3% as bad; 66.2% of the farmers would be ready to even pay for the extension services, whereas the group of those unwilling to pay would not pay either because of lack of money (72.5%), or because they could gain such information from other sources free of charge (13.8%); 47.5% of farmers follow the advice of extension entirely and the same number follows advice just partially (61.3% because of lack of money, 8,1% because there were no experts to seek advice from and 9.7% found advice inappropriate and that was the reason not to apply them). It is interesting that 85.8% of farmers judge the production on their farm better since they have cooperation with extension service. 21.8% of farmers sought advice regarding the problems on the farm but could not get it, whereby over 50% of this latter group sought advice and information regarding loans, subventions, economic analysis, business plans, market conditions, prices, products selling etc.

## CONCLUSIONS

Briefly, analysis of the results of the surveyed farmers' needs shows that besides a very positive evaluation of the extension work, there is a lack of advisory offer regarding economical issues that very often dominate in the extension in developed countries (see, BOLAND 1999). The non-existence of other extension suppliers and lack of competition among extension services makes it very hard for farmers to evaluate properly the quality of the extension services (the existence of which they are sometimes not aware). At present farmers are relatively satisfied with any expert help they can get (especially free of charge). Readiness to pay for extension mostly comes from the fact that the surveyed farms are *selected farms* which are more commercial in their production and that those farmers had already got used to extension help and, observing from that point of view, they estimate their own readiness for payment of extension services. It is our considered opinion that bearing in mind a culture of transitional agriculture, an insecure market, and an unstable agricultural policy, most of the farmers would not be ready to pay for the extension service, especially those who do not have prior experience with the extension service. Lacks of money, no habit of paying for such services and the

lack of favourable financial result from the selling of farm products in an unstable market, contribute even more to the lack of readiness to pay for extension services.

On the other hand, lack of advisors from the field of agricultural economics (see Table 1) coincides with the results pointing out that farmers need this kind of advice and that they have no knowledge and information from that field, and that the extension service cannot provide them this kind of information and knowledge. This deficit of agricultural economists in the extension service unfortunately points out insufficient professional role of agricultural economists in extension services in Serbia, regardless of the reasons that led to this situation and the extension service, that cannot provide all the information and knowledge needed, has to reconsider its place in the AKIS.

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