



Prospects for Farmers' Support: Advisory Services in European AKIS
WP 4 – AKIS ON THE GROUND: FOCUSING KNOWLEDGE FLOWS SYSTEM | Topic 1
Final Synthesis Report

Advisory services for small-scale farmers: how effective is its response to farmers needs and demands?

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List of acronyms

AKIS	Agricultural Knowledge and Information System
BG	Bulgaria
CDR	Agricultural Advisory Centre
EU	European Union
AS	Advisory Service
FBO	Farmer Based Organisation
ICT	Information and communications technologies
MIR	Malopolska Agricultural Chamber
NAAS	National Agricultural Advisory Service
NGO	Non-Governmental Organisation
ODR	Provincial Advisory Centres
PL	Poland
PRO AKIS	Prospects for Farmers' Support: Advisory Services in the European Agricultural Knowledge and Information Systems'
PT	Portugal
R&D	Research and Development
RDP	Rural Development Programme
RSPB	Royal Society for the Protection of Birds
SCF	Scottish Crofting Federation
SFP	Single Farm Payment
UK	United Kingdom
WP	Work Package

Executive Summary

This synthesis report is one deliverable of the European project PRO AKIS (Prospects for Farmer's Support: Advisory Services in European AKIS). The project focus was to investigate the agricultural advisory services across Europe within the context of Agricultural Knowledge and Information Systems (AKIS). One of the project components (Work Package 4) was to explore and describe selected forms of advisory services and agriculture knowledge flows in Europe within the broader context of AKIS by focusing on three major themes (Topics 1, 2 and 3) through a case study approach. Topic 1 investigated the effectiveness of advisory services for small-scale farmer's needs and demands; Topic 2 the capability of AS to bridge research and knowledge needs of farmers; Topic 3 analysed how rural/agricultural networks enhance farmer's ability to innovate in cooperation with other rural actors. Research in each topic was based on a set of four case studies, and a total of 12 case studies were conducted in different European countries, including cases with regional and national scope. The selected case studies provide an overview of the diversity of situations across the European Union (EU) respecting the strengths and gaps of AS for each of the research topics covered by the analysis. Each case study was reported by the respective responsible team through a 'country report'. A total of 12 'country reports' were elaborated. The synthesis reports summarise in a comparative way the main findings for each of the three research topics, based on the country reports and including the contributions of stakeholders that have participated in the respective topic seminar. Three synthesis seminars have been organised, each one corresponding to a different research topic, and finally three synthesis reports were elaborated.

The report here presented a syntheses of the research conducted under the PRO AKIS project for the topic 1: the performance of advisory services to respond for small-scale farmer's needs and demands. It includes a brief description of the four case studies undertook under this research topic, which were: 1) newly established farms by young and semi-subsistence farmers in the South-Central region of Bulgaria; 2) agritourism farms led by small entrepreneurial farmers in the Carpathian mountains of Poland; 3) small-scale blueberry producers in the Central-North region of Portugal, mostly new-established young farmers; 4) new entrants and successors to Crofting on the West coast of Scotland (UK). The report highlights the diversity of small-scale farmers involved by the four case studies. There were young and inexperienced farmers in the cases of BG and PT, semi-subsistence farmers in BG, innovative entrepreneurial farmers, mostly women in the PL, and new entrants and the successors of crofting in the UK case study. The small-scale farmers in the cases of PT and BG dedicated to the agricultural production, while the agritourism farms in PL and the new entrants in Crofting in UK exhibited a diversification profile. This diversity reflects the large heterogeneity of small-scale farming across EU, which translate its geographical diversity of socio-economical contexts, but also the evolving nature of the small-scale farming by adapting to societal changes (e.g., unemployment) and their dynamic response to incentives (e.g., the rural development programmes aids to the installation of young farmers or to the diversification of activities).

The effectiveness demonstrated by the advisory services in responding to the small-scale farmer's needs and demands in each case was also different, reflecting their own profile and role within the different country or regional AKIS, meaning their capability to supply the advice sought by the diversity of farmers. In BG, PL and in the UK (Scotland) the public sector is the main actor and plays an important role by transferring knowledge and information, in particular respecting the RDP measures. Private advisory services, either provided by FBO or private consultants, are fundamental in the case of PT, and very important (together with the public sector) in the cases of BG (only private consultants in this case) and Crofting (UK), to supply technical and specialised advice (e.g. certification). NGOs play a role as advisors in all the case studies, with the exception of the PT case, while more supportive to specific aspects, such as Croft transmission, agri-environmental or marketing and business development. Informal forms of advisory, including peer-to-peer, local agronomists (in BG) and familiar support are very much used and valued by the small-scale farmers in all the case studies.

The cases with new entrants in farming activity, in particular the Crofting case, highlighted the importance of outside knowledge coming out from different professional experiences to the farming and other rural activities. This, together with the higher education profile of most of the new-established farmers, suggested new challenges to the advisory, given the diversity of knowledge and information sources mobilised by many small-scale farmers, along with their intensive resource to ICT, which is expected to growth in next years.

Best-fit advisory practices were found in some of case studies. For instances the monitor crofts and the village clinics in the case study of Crofting. Monitor crofts (included in the Scottish programme of monitor farms) provide a holistic format to deliver advice, through practical demonstration and by involving a network of different actors, farmers, researchers, advisors, private consultants, among others. The village clinics are mobile advisory services that move across villages to deliver advice to crofters in remote locations and with convenient schedules for part-time crofters. Agritourism case study of Poland provides an example of how advisory can be adapted to supply novel needs of farmers, showing a good support of training both to advisors and entrepreneurial farmers, coordination among different advisors components: public, private and NGOs, and the acknowledge of farmers ability to create and to mobilise knowledge from different sources by networking with other entrepreneurs and other rural and non-rural actors.

The conclusions of the case studies together with the stakeholder's contributions provided some key highlights and recommendations aiming at improving weaknesses encountered in the ability of AS to respond small-scale farmer's needs. Among these should be highlighted the following:

- There is a need to promote pluralist advisory services, able to cope with multiple topic needs of small-scale farmers and to support their strategic development, which might entail profile changes (e.g. from commercial specialised to diversified entrepreneurial).*
- Advice for small-scale farmers needs to be publicly funded, while it might be provided by public, private, no-profit sector, or by a mixed combination of those, given that fee-based advice providers are not interested in supplying pluralistic and expensive (given the lack of scale economies) advice.*
- The value of informal advice focused on problem-solving for small-scale farmers need to be acknowledged and advisory informality and problem-solving features must be promoted as much as possible (e.g. through multi-actor networks, proximity advice, broaden but systematic ICT forms of interaction).*
- Lifelong education and training both for advisors and farmers needs to be an AKIS priority to endow them with new skills and competences (for learning and innovating) that enable them to cope with evolving social contexts, changing legislation, consumers and markets dynamics, and the diversity of new entrants into the farming activity.*
- The applied research component of AKIS needs to be reinforced respecting their ability to bridge with the farmers knowledge needs, and to link with AS and other new actors, such as brokers or facilitators not necessarily linked with conventional AS (e.g., pluralist advice star ups), and also directly with farmers (e.g., through multi-actors networks or demonstration farms).*
- Tacit knowledge, both local and/or experimental, as well as outside-farming knowledge of new entrants, is very important for farming activities and needs to be recognised and appraised by advisors and other actors of the AKIS, in particular, researchers and new actors related with brokering innovation or facilitation networks.*
- There is room and advantages in increase ICT use and e-learning for all farmers and innovate on the classical forms of knowledge dissemination, such as farm visits, demonstrations and groups discussions, by promoting multi-actor networks, supporting monitor and demonstration farms and encouraging novel formats for delivering pluralist and proximity advisory.*

1. Introduction

This synthesis report is one deliverable of the European project PRO-AKIS (Prospects for Farmer's Support: Advisory Services in European AKIS). The project focus was to investigate the agricultural advisory services across Europe within the context of Agricultural Knowledge and Information Systems (AKIS). One of the project components (Work Package 4) was to explore and describe selected forms of advisory services and agriculture knowledge flows in Europe within the broader context of AKIS (described previously by the PRO-AKIS project at the individual country level), accounting for the diversity and demand conditions across different countries/regions and diverse types of farmers. Within this overall goal, Topic 1 focused on investigating the performance of advisory services with regards to small-scale farmers. This report presents a synthesis of the findings gathered on this research topic.

The specific goals addressed by topic 1 were to: (a) Identify and describe the recognised and unrecognised knowledge gaps, skills and services of farmers; (b) explore how/if these type of farmers access traditional, as well as innovative, forms of advisory services; (c) describe the capacities of the supply side to respond to these types of clients' demands and; (d) determine the farmers' roles as active creators of knowledge.

Case studies, allowing for in-depth analysis, were the methodology adopted to gather qualitative data and information to answer the overall and specific goals of the PRO-AKIS WP4 topic 1. Four case studies were conducted in four different countries: Bulgaria (BG), Poland (PL), Portugal (PT) and Scotland in the United Kingdom (UK).

These case studies covered diverse types of small-scale farmers. They include new-entrants and semi-subsistence farmers in the region of Plovdiv in Bulgaria, small-scale agritourism farms in the Carpathian Mountains of Poland, newly established small-sized producers of small fruits in the central-north region of Portugal, and new-entrants to Crofting on the West coast of Scotland (UK).

The selected case studies responded to five specific research questions: (a) what are the challenges that new small-scale farmers pose to advisory services? (b) how does the provision of advisory services to small-scale farmers differ from the overall provision of agriculture advice? (c) have any novel advisory methods that address the specificities and needs of small farmers that have been developed? (d) how and why do small-scale farmers resort to ICT as a tool to obtain knowledge and information? and (e) are new small-scale farmers knowledge creators?

This final synthesis report is a comparison and synthesis that was enriched with the stakeholder's contributions at the learning seminar "Advisory Services for Small-Scale Farmers with focus on Bulgaria, Portugal, Poland and UK" that took place at Plovdiv (Bulgaria), in January 2015. It is a document built on the country reports elaborated by the teams responsible for each case study.

The report has been structured in order to introduce each of the WP4 case studies and describe the target groups investigated. A short comparison of the 4 case studies and the location within the specific country was completed. The main findings are listed and the final part of the report is devoted to discussion and recommendations based on the main findings of all the case-studies and the insights from the participants at the synthesis seminar held in Bulgaria.

2. Cases studies introduction

2.1 Small-scale farmers in Plovdiv (Bulgaria)

In Bulgaria, the selected region was Plovdiv. This is a traditional agricultural area with a sector for vegetable production. The majority of approved projects involving measures for Rural Development Programmes (RDP) were registered in this area. The agricultural producers who were selected included small farmers who perform their production operations in the district of Plovdiv. They are mainly newly established farms belonging to young farmers and semi-subsistence farms. The average area of the agricultural land used in the South-Central region is 4.2 ha.

The number of farms has been continuously decreasing in Bulgaria and during the period of 2005-2010 small-scale farms have reduced almost by half. Small-scale farms are the most important group for the development of the agriculture and rural areas. Historically, after the land reform and restitution of the ownership rights in Bulgaria a lot of small-scale agricultural farms were created. Many landowners decided to start working in the agricultural sector due to the low incomes they were receiving from non-agricultural activities, the opportunity to satisfy their family needs and restoration of agricultural traditions (Dirimanova and Ivanova, 2014).

Small-scale agricultural producers are represented as 1) young farmers (less than 40 years old) with newly created farms and 2) semi-subsistence farmers in full time activity. Young farmers have a high school or university level education, however may not have experience or prior knowledge of agriculture methods and techniques.

During the first programme period 2007-2013, the development of small-scale farms was supported by several measures of the RDP, like the encouragement for restructuring of small farms, establishment of young farmers, and facilitation of information, training and access to consultancy services.

The advisory services used by these small-scale farmers (both at local and national level) comprises the consultancy services provided by the regional offices of National Agricultural Advisory Service (NAAS), private consultants, accounting companies, trade companies for seeds and machinery, non-governmental organisations and municipal "Agriculture" offices. However, demand for informal advisory is an important resource to farmers. They obtain advice and support from family members with agricultural experience, from other farmers, and from agronomists working at the local agricultural businesses.

More detailed information on this case study can be obtained in the respective country report (Dirimanova and Ivanova, 2014).

2.2 Agritourism farms in the Carpathian Mountains of Poland

The Polish case study focused on agritourism in the Carpathian Mountains. Agritourism is not a recent phenomenon in Poland, but has gained ground and become undoubtedly the most important form of non-agricultural activity in rural areas. The family farms located on the Polish Carpathian Mountains are characterised by low profits, which forces the owners to look for additional income

sources outside agriculture. Considering the natural and cultural values of the Polish Carpathian Mountains, the agritourism farms are recognised as a successful endeavour (Bogusz *et al.*, 2014).

Agritourism farms were selected according to the following criteria: innovative character of agritourism business; cooperation with an advisory institution; a location in the area of the Polish Carpathian region and a minimum of 3 years of running an agritourism activity.

Development of agritourism in Poland in recent years is noteworthy, and is connected with the modernisation of technical and social infrastructure in the country which reduced the isolation of the rural population, and as a result, these rural communities became more progressive, modern and – at the same time – open to new challenges. In Poland the demand for agritourism services has been increasing year after year. There are many determinants fostering the development of agritourism businesses. One of the most important factors that guarantees the development of agritourism is the natural and landscape heritage of the countryside. Other factors that contribute to the development of agritourism in Poland are cultural customs, legal opportunities, marketing services for the tourism industry, establishing a complete set of tourist services and having support from the institutional environment.

The multifunctional farmers are pre-dominantly middle aged and the majority are women. They have experience in agriculture and have entrepreneurship skills in agritourism activities. However, most of them only have only at secondary level education qualifications. Agritourism activities are full-time, but younger owners are seeking to combine these with other professional activities.

In the Polish territory, the most important institutions involved in supporting agritourism are the semi-public agricultural advisory centres. In this case study, these centres are the most important actor for advisory services in agritourism within the Polish Carpathian Mountains where the three main actors are a semi-public institution - the Provincial Advisory Centres (ODR) - a government institution - the Agricultural Advisory Centre (CDR) in Krakow - and a farmer's organisation/agricultural chamber – the Malopolska Agricultural Chamber (MIR), also in Krakow.

More detailed information on this case study can be obtained in the respective country report (Bogusz *et al.*, 2014).

2.3 Small-scale farmers in blueberry production in the central-north region of Portugal

In Portugal, blueberry production is a new crop that has been introduced in the central-north region during the 1990s. The period studied (since 2006-2007), has been marked by a national economic and financial crisis which commenced with a high unemployment rate, namely among the young people. The return to farming, in particular the opportunity to use available funding for the establishment of young farmers (those less than 40 years old) led a significant number of people to enter farming by creating their own employment, or supplementing their current professional income. The support to the installation of blueberries, was encouraged by the local governments in this region (bottom-up strategy) who identified an opportunity to attract young people to their municipalities that were suffering from farm land abandonment. As a result, the studied region witnessed an expansion of small fruits production, mainly blueberries, mostly driven by young farmers (Madureira *et al.*, 2014).

The small-scale farmer sample was defined with the following criteria: blueberry production; less than 1,5 hectares in agricultural production area; earning less than 25.000 Euros/year from agricultural production; farm installation from 2007/2008 in small fruit production with at least one harvest. The sample in this study does not represent the national average in educational levels for the general population of farmers in Portugal. The average Portuguese farmer is 63 years old and has completed the 1st cycle of basic education and works exclusively in the agricultural sector. However, in the Portuguese case study, the small-scale farmer is about 40 years old (average age), and has an undergraduate degree or a secondary level diploma. The majority are qualified professionals with training in other activities. They are mostly part-time farmers taking advantage of underutilized family lands and labour and often their residence is outside the farm. They supplement their professional income with farm income. These new farmers, and particularly the younger farmers, are inexperienced farmers without any previous knowledge of agriculture.

The public advisory service is focused on overseeing the cross compliance programme (management and supervision) while in general the broader farmer advisory service supply is a mix of private enterprises (consultancy firms, up- and down-stream enterprises), other producers, farmer based organisations, sectorial agencies and public institutions (regional agricultural agencies, local governments, universities, polytechnic and research institutes). This inter-connected system resembles a commodity-based extension or advisory service that is predominately privatised (UNDP, 1991). And still, there is an insignificant number of farmers attached to this cross compliance programme.

More detailed information on this case study can be obtained in the respective country report (Madureira *et al.*, 2014).

2.4 New entrants to Crofting on the West coast of Scotland (UK)

In the United Kingdom, the research focused on 'crofting', a form of small-scale farming system common in the Highlands and Islands of Scotland where the poor quality of land and typically extensive grazing systems are key factors in the areas studied. Crofting is practiced throughout the Highlands and Islands of Scotland, which is a large geographical area (~750000ha). Two contrasting locations where crofting is widely practiced were selected; the Isle of Skye (closely linked to the mainland) and the Island of Lewis and Harris (the largest and most populated island in Scotland), targeting new entrants to crofting (those who took over a croft in the last 10 to 12 years).

Crofting is a key socio-economic component in both areas, however the two locations are quite different in terms of their crofting systems, with Skye much more diversified, multifunctional and gentrified than the 'traditional' type of crofting of sheep and cattle in Lewis and Harris. Historically, crofting has generally been pluriactive. In the last decade there has been a significant focus on promoting higher numbers of new entrants and successors, in an attempt to mediate ongoing outmigration and economic problems (Creaney *et al.*, 2014).

Two primary types of new entrants were evident in the study: new entrants and successors of crofting enterprises. Both could be of any age. While some new entrants are young (the majority fall in the range 30-40), others inherited a croft later in life or decided to become crofters as a form of semi-retirement. The croft size of the interviewees is generally less than 10ha, with a few between

10 to 20ha and one owning a number of crofts totaling 300ha. Successors are often more familiar with the practical aspects of crofting, but less accustomed to accessing advice on business diversification; new entrants to crofting are often less skilled in those practical aspects, but bring with them a range of skills from previous occupations. Most of them have a University degree and college level diploma. Many crofters are primarily part-time and/or hobby farmers and as such are often not primarily driven by profitability.

Scotland operates through a fully public-managed system, even though some of their services are outsourced to advisers accredited according to subject. In practice, the two major organisations providing advice to crofters are the Scottish Crofting Federation and the Scottish Agricultural College/Consultants. Other important sources of advice include independent advisors, local knowledge keepers, Scottish Crofting Federation, Woodland Trust, Royal Society for the Protection of Birds (RSPB), and the University of Highlands and Islands, although the roles of these organisations tend to be specialist, focusing on their main areas of delivery, such as advice on the environment and wildlife for the RSPB. Advice is also available locally through organisations that support crofting, such as the North Harris Development Trust, and through the providers of crofting inputs. In addition 'other crofters' and neighbouring crofters are often looked to for advice by newer and more inexperienced crofters such as some the respondents within the study.

More detailed information on this case study can be obtained in the respective country report (Creaney *et al.*, 2014).

3. Cross-country comparison of the cases studies

This section describes the data collected about the farmers profile (farmer' types, skills and experience in agriculture and other economic activities and resources) in the four country reports. For this purpose, Figure 1 shows a general overview of the regions studied in each country. Next, a short comparative description of the small-scale farmer is given as well as the comparative identification of the main stakeholders in the AKIS context.

This section ends with a general picture that tries to establish the main similarities and differences across the various types of small-scale farmers studied.



Figure 1: Localization of cases studies geographical areas, by country

Although only four case studies were undertaken, a diversity of small-scale farmers were involved: the young and inexperienced farmers of Bulgaria and Portuguese cases, the semi-subsistence farmers in Bulgaria, the innovative agritourism entrepreneurial farmers, mostly women in Poland, and the new entrants and the successors of crofting in the UK. In addition, in the Portuguese case, the new small-scale farmers participate in an international commodity-chain, given their production addresses mainly external markets, opposed to their Bulgaria counterparts that produce mostly for domestic markets.

Regarding the farming activity, the Portuguese case exhibits the more specialised profile in terms of the crops cultivated, whereas Bulgarian small-scale farmers focus on organic vegetable production but cultivate other crops, e.g. the semi-subsistence farmers in particular. The agritourism demonstrates diversified patterns of activities, which are also a trait for some of the new-entrants in crofting, opposed to the croft successors who tend to focus more on livestock grazing.

A profile of production specialization was identified in the cases of BG and PT, while in the case of the UK and PL a diversification profile was emphasized. Nevertheless, common ground for a number of these diverse types of small-scale farmers is their pluriactivity and/or pluri-income (part-time) strategies. In the cases of Poland, Portugal and UK the average percentage of income from agricultural activities is only about 20% of total income. The situation is different in Bulgaria, but probably due to the lack of non-farm activities. The need to reinforce the household income is the most likely reason for the multifunctional patterns which have been encountered.

- Agricultural production in the case of Bulgaria;
- The combination of traditional sectors (grazing, livestock) with new sectors (renewable energy, agritourism) in the UK;
- Agritourism in Poland, which highlights activities dedicated to specific groups (children or the elderly, for example) and;

- The emergence of a new agricultural commodity (blueberries), in Portugal, where the household income is supported by additional professional activities.

Most of the young small-scale farmers in BG and PT and new-entrants in crofting have qualifications at university level. However, their high qualification (e.g., engineering, veterinary, education, ICT.) diverges, in general, from their inexperience and lack of prior knowledge on agriculture matters. This is particularly visible in the cases of BG and PT. Also the UK highlights the case of inexperienced crofters that develop non-agricultural businesses on their crofts and lack experience with recent regulatory changes related with crofting institution. The case of Poland reveals a distinct profile, marked by the experience and skills in the agritourism sector, although in this case the secondary educational level stands out as the rule. Furthermore, for new entrants in the farming activity in UK and somewhat in PT, a search for a new lifestyle is also a common goal, given that some of these new farmers are looking for a 'rural lifestyle' connection.

Another common trait for most of the farmers comprised by the case studies is their activity within the rural development programmes. Many of the BG and PT young farmers benefited from funding for the establishment as new farmers; BG semi-subsistence farmers applied to the modernisation aids available at the Bulgarian RDP; Polish farmers investing in agritourism obtained funding from their RDP specific measure to support this activity; whereas croft farmers benefited from a diversified set of RDP measures, including agri-environmental and rural economy diversification.

The use of family labour is crucial in all case studies. Generational dimension is determinant in the case of young farmers.

The access to land shows different patterns. In PT and PL case studies, the lands are owned and in BG rented and in UK "crofted" (more a way of life and land use than access to land). In the Portuguese case, small-scale farmers seek to take advantage of abandoned family land, in order to be part of a new dynamic within rural areas.

4. Main findings

This section presents the main findings obtained from the comparative analysis of the country reports. First, a description is made from farmers' needs and demands for knowledge, trying to identify and describe the recognised and unrecognised knowledge gaps (section 4.1.). In section 4.2., actors, and methods are presented, with the aim of discovering how and/or if these types of farmers access classical as well as innovative forms of advisory services. Also in this section there is a short description of the main processes utilised by farmers to understand their roles in the AKIS. Next section, investigates the capacities of the supply side to respond to these types of clients demand identifying methods and contents used. In section 4.4., knowledge flows are depicted, for the main topics of each case study. To finish, in section 4.5., the performance of knowledge flows and best-fit practices for advisory services are discussed.

4.1. Small-scale farmer’s needs and demands for knowledge

Table 1 shows the major topics of knowledge identified by farmers trying to solve their agricultural problems. The responses indicate that in particular they require information on European Union (EU) applications or support schemes matters. This is true within all countries. Technical production support is also transversal, except in Poland that also identifies management, marketing/selling and legal regulation needs although these might also be considered in some sense important for all small-scale farmers. The topics identified in Poland might be explained by the sample that considered innovative cases and experienced individuals in agritourism. The cases of Portugal and Bulgaria demonstrate knowledge needs related to support for installation and technical production assistance, as a consequence of being farmers without experience and knowledge in the sector. In the Portuguese case the need for technical production knowledge is justified by the recent installation of farmers in a non-traditional sector where no related prior knowledge and experience exists. Furthermore, in the Portuguese case study farmers have additional advisory needs due to the commoditisation of their production which in turn obliges the farmers to adopt particular certifications of the production — mostly Global Gap. This is a multidimensional certification which requires a compliance with norms in the areas of environment, food safety and fruit quality. The crofters undertaking multifunctional patterns emphasise the importance of obtaining advice on business development such as the activities for diversification; in this case, the sample includes experienced farmers with production means already installed and with a consolidated production phase in process, as well as other crofters with ideas within more innovative sectors.

Table 1: Major topics of knowledge needs

Bulgaria	Poland	Portugal	United Kingdom
<ul style="list-style-type: none"> - Plant protection and adaptation - Fertilization - EU application - RDP measures 	<ul style="list-style-type: none"> - Legal regulation - Marketing and selling - Management - EU application - RDP measures 	<ul style="list-style-type: none"> - Fertilization - Certification - EU application- RDP measures 	<ul style="list-style-type: none"> - Technical production support - Diversification opportunities - EU application- SFP and/or RDP measures

In Portugal, the unattended needs – e.g. needs the farmers have that are not being satisfied by the AKIS – for example there are AKIS gaps, in the research component, surrounding the genetic improvement of the blueberry plant. Producers indirectly identified this need when they search for information at websites of universities and related internet resources outside of Portugal. The unattended needs indicate the importance of strengthening the cooperation process with the research component of the AKIS and the advisory services. The AS and farmers are indirectly requesting assistance from agricultural research to consider genetic improvement projects for the blueberry sector. There seems to be a gap in the AKIS and AS for Portugal. Others examples of unattended needs were, for example, marketing and selling (Bulgaria), services segmentation (Poland) and development and support for non-traditional activities (UK).

All small-scale farmers require problem-solving skills, where advisory services have an important role to build the inclusive learning networks involving the additional entities within agricultural research to contribute to solving on-farm problems.

Table 2 describes the small-scale farmers’ demands for services. In most situations the demanded services are associated with marketing information, consultancy, training and technical support from

advisory suppliers. The AS continues to have an important role in the transfer of information to these small-scale farmers.

Table 2: Small-scale farmer’s services demands

Bulgaria	Poland	Portugal	United Kingdom
<ul style="list-style-type: none"> - Technical production support - Consultancy services - Accounting 	<ul style="list-style-type: none"> - Specialized services to promote new agritourism concepts - EU application - RDP measures 	<ul style="list-style-type: none"> - Technical production services - Consultancy services - Certification (GlobalGap) - EU application - RDP measures - Marketing and selling - Training 	<ul style="list-style-type: none"> - Marketing - EU application- SFP and/or RDP measures - Training

4.2. Processes, actors and methods to obtain and use knowledge

Table 3 identifies the principal actors, the methods and tools for the exchange of information and knowledge for the small-scale farmers. In all case studies, public sector actors play a role in the AS, especially in Bulgaria, while in Poland semi-public agricultural advisory centres are more important. In Portugal, Farmer Based Organisations (FBO) are the main actors, along with local level private sector businesses. The latter are the most important in UK.

Actors also include agricultural research and educational institutions in Poland and the UK. More importantly, other farmers and family members in all the WP4 case studies are involved in sharing knowledge with the small-scale farmers. Other farmers could be an important link in strengthening social learning networks in order to develop and encourage knowledge transfer. The social learning network would be further strengthened by active participation by other actors from the public sector and research and educational institutions.

The most important knowledge process is the exchange between farmers. Farmers are quite involved in the exchange and much less in co-creation processes. The process for the exchange of knowledge and information by actors is documented in all of the WP4 case studies. Only Poland has some farmers that have an active role as knowledge creators. In all the other case-studies, the co-creation of knowledge by small-scale farmers is less relevant, while the interaction between farmers entails the creation of tacit knowledge related to cooperation for problem-solving and by sharing outcomes of empirical trials on their own farm enterprises.

The major methods and tools to obtain information and knowledge were face-to-face or one-to-one visits by the actors in the AS, training courses, workshops and ICT. In general ICT is widely used amongst many young farmers in Portugal and UK for instance. However, ICT is not yet being used to its full potential as it is still used mainly as a medium to present information rather than in more innovative ways (Creaney *et al.*, 2014). Table 3 shows a broader picture of methods and tools for the exchange of information and knowledge among small-scale farmers.

Table 3: Actors and methods to obtain and use knowledge

	Bulgaria	Poland	Portugal	United Kingdom
Actors	<ul style="list-style-type: none"> - Public sector - Private consultancy sector - NGO - Others farmers - Family members - Local agronomists 	<ul style="list-style-type: none"> - Semi-public agricultural advisory centres - Research and education institutes - Others farmers - Local actors 	<ul style="list-style-type: none"> - Farmer based organisation - Private sector - Others farmers - Public sector 	<ul style="list-style-type: none"> - Private sector - Public sector - Research and education institutes - Farmer based organisation - NGO - Others crofters
Methods and tools	<ul style="list-style-type: none"> - Seminars - Face-to-face visits - Open days - Consultation of specialized magazines and literature - Telephone - Exchange of tacit (experimental) knowledge among farmers 	<ul style="list-style-type: none"> - Training courses - Workshops, conferences, seminars, symposiums - One-to-one advice - Study visits - Fairs and tourism markets - Exchange of experiences among farm owners 	<ul style="list-style-type: none"> - Training courses - Workshops, seminars - Face-to-face visits - Group study visits - ICT - Databases, excel spreadsheets - Among farmers advisors and input suppliers technicians 	<ul style="list-style-type: none"> - Training courses - Face-to-face visits - One-to-one advice - ICT - Croft meeting/monitor farm - Databases, excel spreadsheets - Between crofters and with advisors

4.3. Supply of knowledge to small-scale farmers

The function of the advisory service in transferring information to the target group demonstrates an active role by the AS entities found within Bulgaria, Poland, Portugal and the United Kingdom. These countries have a diverse mix of public and private entities involved in the transfer of information. For example, Table 4 identifies FBO, governmental entities and non-governmental organisations. Despite the mix, Bulgaria and Poland mainly show the public sector supplying knowledge to the small-scale farmers. While in Portugal, FBO and private consultancy companies are the more relevant, whereas in the UK the private and public sectors are the main suppliers.

Table 4 also identifies the predominant methods and tools. These methods and tools represent the traditional extension means for transferring information to farmers (training courses, dissemination events, demonstrations and farm visits). E-learning was only identified in Poland as an innovative tool. The implication is that more work is required to develop European E-learning platforms for the AS in general in areas such as farm record keeping and farm management.

Table 4: Supply of knowledge to the small-scale farmers

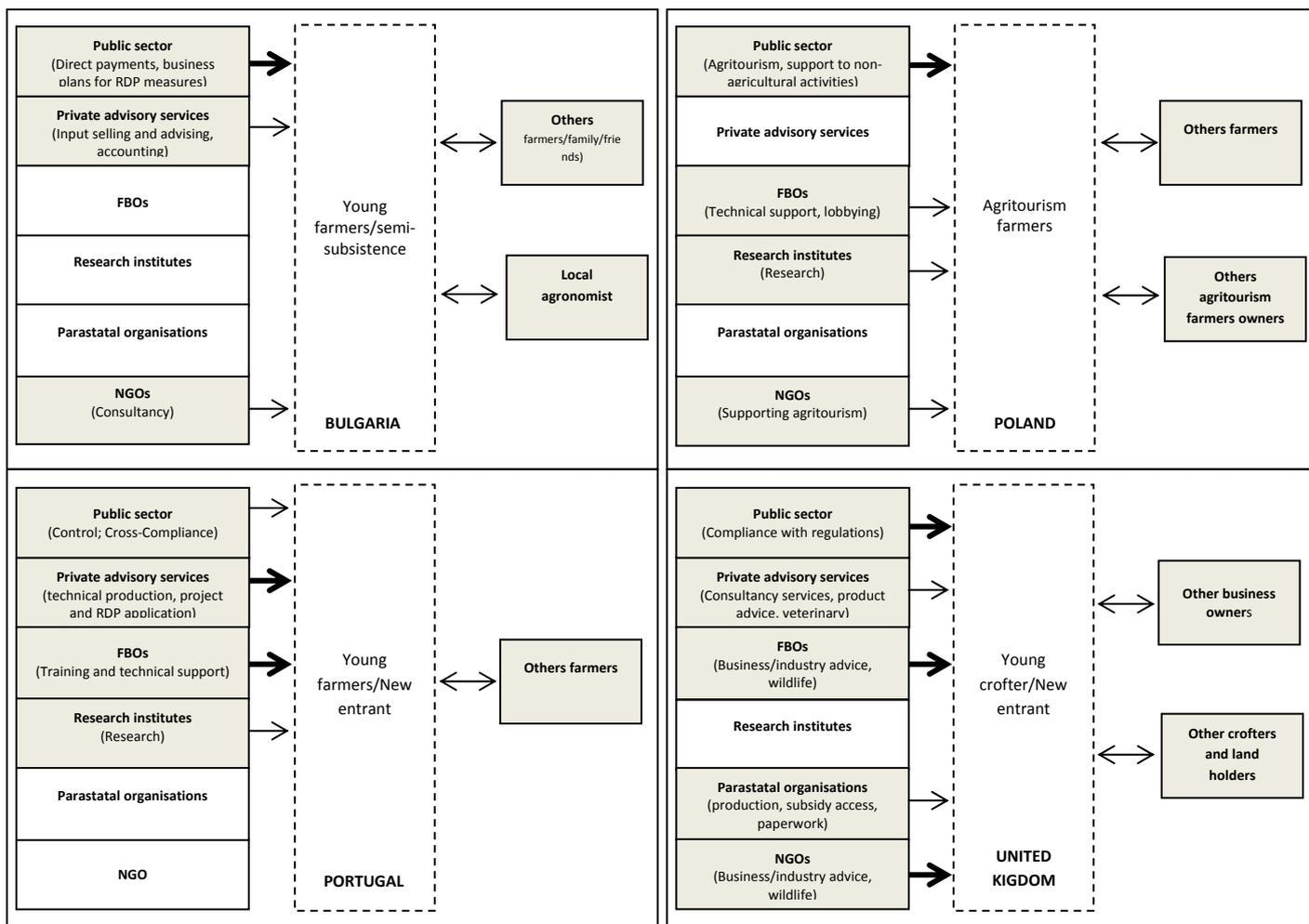
	Bulgaria	Poland	Portugal	United Kingdom
Advisory services	<ul style="list-style-type: none"> - Regional office of NAAS in Plovdiv - Private consultancy companies - Non-governmental organisations (like Land Source of Income Foundation) - Others: experienced or acting local agronomists family members; accountants or accounting companies; scientific institutes 	<ul style="list-style-type: none"> - Agricultural Advisory Centre - Agricultural Chambers - Provincial Advisory Centre - Associations 	<ul style="list-style-type: none"> - FBO - Private consultancy companies - Public sector (regional agencies and national research institute) 	<ul style="list-style-type: none"> - Private sector - Public sector - Parastatal organisation - Research and education institutes - FBO - NGO

	Bulgaria	Poland	Portugal	United Kingdom
Methods and tools	<ul style="list-style-type: none"> - Training courses - Seminars, workshops - Demonstrations - Farm visits - Thematic meetings - Contact by telephone / email 	<ul style="list-style-type: none"> - Training courses - E-learning - One-to-one advisory - Farm visits - Workshops, seminars, conferences, symposiums - Fairs, tourism markets - Telephone / e-mail contacts 	<ul style="list-style-type: none"> - Training courses - Workshops, seminars, conferences, symposiums - Result and method demonstrations - Farm visits - Fairs - Contact by telephone / email 	<ul style="list-style-type: none"> - Training courses - One-to-one advice - Monitor farms - Croft visits - Croft events - Mass-media advice
Contents	<ul style="list-style-type: none"> - Funding and support national and EU programmes - Support and transfer/application of agricultural scientific knowledge - Training 	<ul style="list-style-type: none"> - Funding and support - Legal regulations - Marketing - Training in narrow subjects 	<ul style="list-style-type: none"> - Technical production - Funding and support - Legal regulations - Certification (GlobalGap) - Marketing - Training 	<ul style="list-style-type: none"> - Technical production - Training and advice - Funding and support - Legal regulations - Business development

A transversal issue is the supply to funding and support for national and EU programs and training. Other content is observable only in some countries. For example, technical production problems are common in Portugal and UK, while the supply of information on legal regulation is universal in Poland, Portugal and UK. To meet the farmers' needs the supply side in some countries has made more specific advice available such as business development (UK), certification (PT), and marketing (PT and PL). The offer of support and transfer/application of the scientific and practical achievements in the field of agriculture is only cited in the Bulgarian report.

4.4. Knowledge flows for small-scale farmers

Figure 2 depicts the general knowledge flow schemes for each case study. These schemes offer a general view of the stakeholders supporting the supply of information and knowledge to small-scale farmers in each country and the respective processes involving the exchange and transmission of knowledge. Stronger links are highlighted in bold. The schemes show unidirectional and bidirectional arrows. Each knowledge flow has specific linkage patterns valuing the informal connections mainly as a facilitator for exchange of information and knowledge between the supply side and farmers.



LEGEND:

— Stronger link

Figure 2: Knowledge flows for small farmers in each country case

In **Bulgaria** the most important actors offering advisory services are the public sector that includes experts from Agricultural Municipal Services and NAAS, who mainly provide information and knowledge related to direct payments and support related to the development of business plans for the various RDP measures, respectively. They also offer specialized services, but the number of such consultancies used by the small-scale farmers is not high because there are fees (the exception for this concern is the application to RDP measures).

Another relevant actor is the private advisory sector that includes private consultancy companies and upstream companies (formal links) providing and selling inputs, advice and accounting services. An important source of advice for small farmers is local agronomist and family members or friends (informal links).

Finally, NGOs are also among the main actors identified. Such organisations offer a wide range of services, for example, they often provide consultancies related to potential programs for small-scale

farmers, and specialized consultations and protection of the agricultural farmers' interests. In most cases, farmers have formal relations with such organisations and consultancies are free-of-charge.

The major actors in **Poland** are the Provincial Advisory Centres (ODR), the state Agricultural Advisory Centre Division (CDR) in Krakow and the Malopolska Agricultural Chamber in Krakow (MIR).

The formal knowledge and informational transfer scheme in Poland is led by the Agricultural Advisory Centre (a governmental institution subject to the Minister of Agriculture and Rural Development). This organisation is responsible for collecting and processing knowledge, and then transferring it to advisory institutions that directly cooperate with farmers. The Branch of Agricultural Advisory Centre in Krakow is responsible for rural tourism and agritourism. Information related to agritourism and innovative activities is first of all transferred to specialists from the Agricultural Advisory Centres, as well as to specialists and representatives of Agricultural Chambers, agritourism associations and Local Action Groups.

The advisory services activities provided by Provincial Advisory Centres (ODR) are mainly related to applications for finance support from the EU funds to develop agritourism businesses, promotion of sustainable activities and organising dissemination events. The state Agricultural Advisory Centre Division (CDR), in Krakow performs consultancy tasks on rural tourism, local environmental issues, countryside cultural heritage concerns and traditional regional products and also, on the support to non-agricultural forms of economic activities for farmers and their families. The Agricultural Chamber is the self-authority for farmers, operating to solve agriculture problems and representing interests of its members (Bogusz *et al.*, 2014).

The information and knowledge flow also occurs by informal channels through cooperation among agritourism farms and other actors including advisors, representatives of science, representatives of other institutions and farmers.

The Polish case highlights the role of farmers as knowledge creators. These are predominantly the members of agritourism associations that cooperate with different institutions, and have the certificate for "farms of innovative nature network". The owners of these farms are also the so-called rural leaders who by their operations give good examples to others.

In **Portugal**, the small-scale farmers are assisted by an advisory system that is a mix of non-governmental and private institutions, where the public sector still has a role. The main actors supplying advisory services are FBOs, private sector enterprises, research institutes, public sector institutions and other producers. This inter-connected system resembles a commodity-based extension or advisory service that is predominately privatised (Madureira *et al.*, 2014).

Activities, such as training, information and consultancy are currently mostly in the hands of farmers' organisations (FBOs). The transfer of these functions from the State to these organisations started in the early 1990s. Today, a small set of major national organisations, comprising of a network of local and regional entities have mostly residual structures and human resources dedicated to these fields of advisory services. Training is their key area of intervention, along with a range of others tasks in areas such as farm investment plans and management of CAP related farm subventions (Baptista *et al.*, 2013). FBOs play an important role in exchange knowledge, especially on technical production support.

The private sector includes consultancy companies and up/down stream enterprises. Private consultancy companies are important to support farmers on project installation development, applications for RDP programmes and certification, for example, GlobalGap. Up and down stream enterprises include mainly phyto-pharmaceuticals, irrigation, agricultural equipment and machinery, nurseries and laboratory networks in areas such as hygiene and food quality.

Public sector organisations and public national research institute try to maintain their support activities mainly by maintaining active remnants of experimental farms to transfer information and knowledge associated with plant and variety testing adaptation, irrigation and fertilization. In public sector the cooperation and informal linkages with farmers are faintly visible. Nowadays, the public advisory services have more to deal with bureaucracy and legislation control (cross-compliance). And yet, they played an important bottom-up role in promoting RDP for new entrants into the blueberry production system.

Despite the fact that the blueberry is a new commodity in Portugal (as with small fruits in general) farmers, and especially new entrants, look for support with more experienced producers, early adopters at the national level or even at the international level.

Crofters, in **United Kingdom**, utilise a range of advisory services and advice platforms to obtain information and knowledge. In terms of the major actors involved in exchanging knowledge, they are: SAC Consulting, the Scottish Crofting Federation, the Crofting Commission, Business Gateway and crofters themselves.

The Crofting Commission is the official regulator for crofting overseeing the registration of crofts, transfers of ownership, de-crofting (when crofts or parts thereof are converted into private property) and lettings. This organisation does not formally provide advisory services, but does provide information specifically addressing compliance with crofting regulations, both through its website and a telephone helpline. SAC Consulting provide a range of formal interactions with the crofting community including a programme designed to engage with new entrants directly. In terms of its provision of advisory services to the crofting sector it undertakes a range of advice and assistance on a commercial (fee-paying) basis including technical production support, subsidy access and paperwork.

The Scottish Crofting Federation (SCF) is a member-led organisation founded to promote crofting. It is the largest association of small-scale food producers in the UK. The SCF offer a number of services to its members (and sometimes non-members) such as one-to-one advice at their offices or on the crofts and group training on a variety of topics. They also produce a website, a newsletter and a comprehensive handbook.

Business Gateway is an advisory service provided by the Federation of Small Businesses who are the UK's largest campaigning pressure group promoting and protecting the interests of the self-employed and owners of small firms (FSB website; Business Gateway website). With many of the potential income streams comprising rural businesses distinct from traditional agricultural provision (a key example being holiday accommodation on crofts) this organisation offers a wide range of advice to its subscribers including developing business plans to help secure finance.

The importance of crofters themselves as conduits for knowledge flows between each other and in their interactions with the various institutions is hard to over emphasise. All the crofters interviewed stressed the importance of speaking with their neighbours and of learning from established practices. Innovative practices often derived from seeing other crofters already implementing new ideas (i.e. learning by example). Where new entrants were successors there was more likely to be a generational dimension to the knowledge flow. Younger crofters benefited from experienced crofters and conversely shared new ideas acquired through college (including SRUC and UHI). New entrants without family connections in crofting were likely to bring with them transferable skills resulting in innovations that inspired or encouraged others such as construction skills or business and administrative skills (Creaney *et al.*, 2014).

Main cross-country similarities and differences

In Poland, Bulgaria and the United Kingdom the public sector is the main actor and plays an important role in transferring information and knowledge, in areas such as supporting the applications to RDP program measures and/or defining strategies in the sector. In Portugal, the public advisory services have a more residual role and are mainly connected to the farmers through cross-compliance management and supervision.

In the United Kingdom the main advisory services actors are also FBOs, as is the case in Portugal. These organisations mainly perform consultancy services and technical production support. In Portugal, the private sector is important in the case of young farmers, especially in project installation development, application to RDP program and technical support.

All farmers from the different countries highlight the importance of informal relationships in the exchange of information and knowledge between different actors. In this matter, more experienced farmers are conduits of information, skills and knowledge cooperating with others farmers and with the other advisory services actors, learning from established practices.

4.5. Performance of knowledge flows and best-fit practices for advisory services

Performance of knowledge flows

Figure 3 identifies and synthesizes in a rough manner the performance of knowledge flows in the four cases studies by, analyzing the following AKIS components; Research and Development (R&D), AS, Education and Training and Support System (inputs, stakeholders and RDP investments) (adapted from Rivera *et al.*, 2005). The scheme also highlights the links between those components and the performance for each noting those that are not performing well and should be improved (in red), those who show a moderate performance and require some adjustments (in yellow) and those who are performing well (in green).

Due to weak cooperation and linkages with farmers, R&D is in all countries the component that reveals greater importance for improvement, especially in Bulgaria, Poland and Portugal. R&D does not meet the empirical knowledge needs of farmers. The country reports indicate a demand for information and knowledge with other sources, particularly at local level among experienced farmers (tacit knowledge). However, R&D articulates and transfers knowledge mainly with AS and in some cases with the support system, especially in PL and UK. In contrast, the support system is the

component that reveals a better level of performance despite Bulgaria and Portugal, showing moderate performance.

AS and Education & Training reveal the same pattern, highlighting the performance for Poland, due to their dynamism and cooperation between all stakeholders, in which farmers are included. In the UK, AS also reveals interesting performance due to some best-fit practices such as clinic villages and mentoring farms. But the fact that other crofters are the primary source of advice reveals a gap possibly explained by the difficulty for some crofters to link up with advisory services when they cannot afford to pay for formal advice or alternatively formal advice may not always be targeted to the appropriate level (e.g. too basic or too complex). However, these two later components (AS and Education & Training) show different scenarios regarding farmers. Educational and training supply is somehow disconnected from the needs of farmers while AS shows close proximity, in particular in UK.

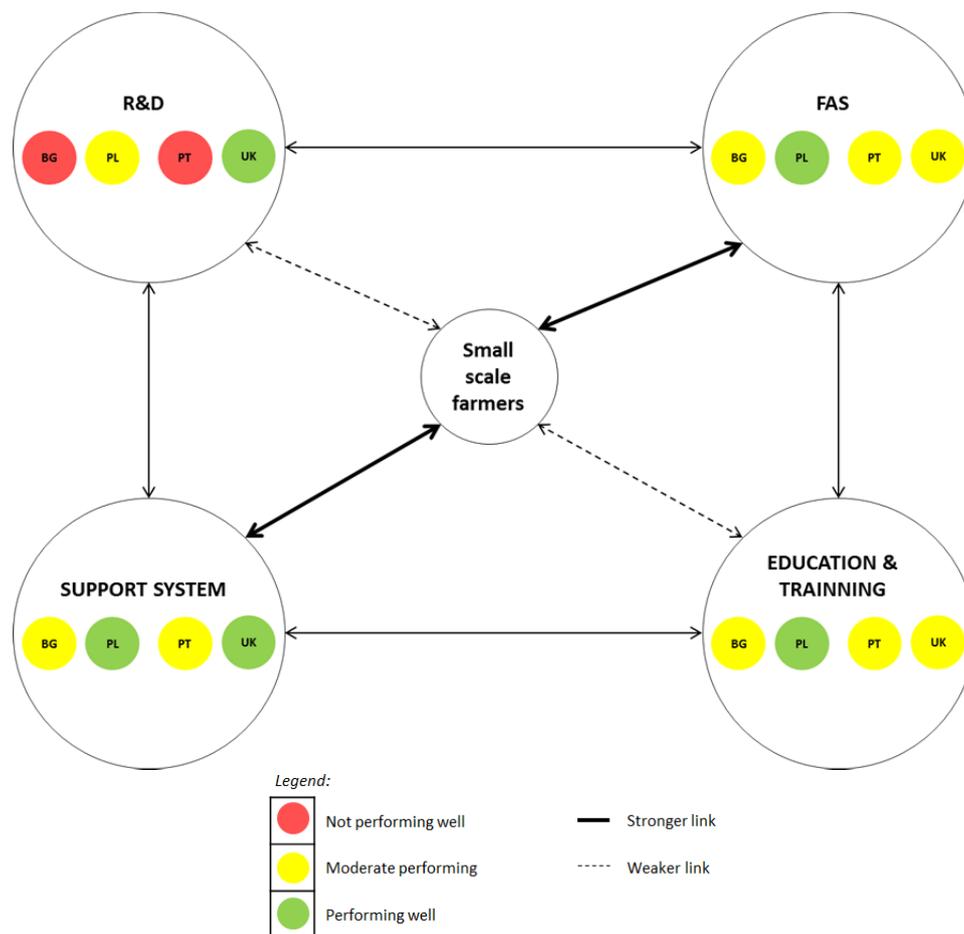


Figure 3: Advisory services performance

Source: Adapted from Rivera *et al.*, 2005.

Best-fit practices for advisory services

The best-fit practices in each country are presented and detailed below. The best-fit is what works for the situation and context found in Bulgaria, Poland, Portugal and United Kingdom. The best-fit practices reflect the concerns and issues in each of the WP4 case studies.

The best-fit practices for **Bulgaria** are represented by the on-going construction of an AKIS with both a public and privatised AS. The AS is concerned with educational work and with linking these NAAS to the agricultural support programme such as RDP. Informal advice delivered by the local agronomists is also a best-fitting advisory practice given the farmers benefit from it quickly and without mediation, due to their proximity to the farmers.

In **Poland**, the development of agritourism led to the appearance of novel services that configure best-fit advisory practices. It is represented by both a public and privatised AS that includes FBO and non-governmental organisations. The organisational changes within these entities are having an impact on recognizing the value of natural resources in transferring information as well as a greater concern in developing new tourism packages and products. There is also multidimensional support in the process for the standardization and certification of agritourism services. The system does not limit the informal linkages between different rural actors and is concerned with the construction of small-scale farms networks to exchange knowledge and information.

In **Portugal** the knowledge and information flows are basically top-down as the new small scale-farmers lacked knowledge capacities and skills to produce, harvest and sell a high quality product without rigorous control in the advisory services. The AS adapted to the present system in order to maintain control in the quality of fruit sold in the international and national market. The commodity extension system (best-fit practices) guaranteed a quality product for the competitive international market as well as assisting the young farmers to produce and harvest high quality fruit.

The AKIS, in general, has benefited the region, through strong and vibrant leadership in both private and public organisations to support new entrants with both advice and RDP. The small-scale farmers benefit from experienced farmers (early adopters) who share their positive and negative experiences in establishing blueberry orchards. Some small-scale farmers convert ICT information from international university platforms outside of Portugal and the Portuguese AKIS.

In the **United Kingdom** case study the access to advice is subsidized through a government grant to the major advisory entities. This funding helps to offset the costs of providing services to a dispersed population of crofters. The state also subsidises targeted training for new entrants to crofting, which has seen good up-take. Provision of training by experienced crofters (i.e. trainers with both tacit and scientific knowledge) has been appreciated. Courses are held at times convenient for crofters, but require travel and overnight stays.

There is demand for more advanced level and refresher training courses. There also appears to be a gap in that long term experienced crofters are not accessing training. Holding advisory service clinics in villages (i.e. mobile advisory services) has been successful at reaching the more remote crofters and increasing access to advice. Practical demonstrations on crofts have also been successful (e.g. 'monitor crofts').

Other crofters, particularly family and neighbours are the primary source of advice. There is demand for more formal mentoring services, and increasing the competence of knowledge sources at local level. ICT is an increasingly important tool by new entrants to crofting. This includes internet searches, websites, Facebook and social media, and YouTube videos.

5. Discussion and recommendations

Main challenges small-scale farmers pose to advisory services?

The challenges small-scale farmers pose to advisory services are mainly related to the wide range of topics and specialised knowledge demanded for business diversification and innovation of products and services. There is a need for available local services and financial sustainability of the advisory services at affordable prices. The need to update and adjust the information and knowledge supply as well as engaging local tacit knowledge (which may not be up to date) and minimising farmers fears of not complying with regulations.

In **Bulgaria**, the new entrants to farming require assistance with the RDP measures. Project writing competencies are difficult to learn without assistance from other entities or actors. In addition, there is a difficulty in keeping up-to-date with the different RDP measures and being aware of who can and cannot participate in these measures.

The AS actors also require training in order to keep up with the specialized knowledge and techniques in the management, production and commercialization of the farm products for these farmers.

As the farmers in **Poland** are involved in multi-functional activities, the advice for many of them is not only associated to technical farm production information. They also require tourism information for their farm enterprises. The consultancy process is often related to other non-agricultural activities. In this case, the knowledge network involves inter-organizational communication with entities outside of the AKIS. The AKIS and AS require actors willing to cooperate outside the agricultural sector in order to promote and facilitate multi-functional innovation processes.

In the **Portuguese** case study a major concern is that the commodity extension system requires a transformation in order to sustain the small fruit production system. The system was essential for the control in production and marketing of a quality product. Future challenges in maintaining a quality product and continuing to be competitive in the marketing of blueberry products at a price that covers production and advisory costs and continues to ensure profitability for small-scale farming need to be addressed.

The commodity extension system is maintained when the price for the commodity covers all the costs for the producer and the various entities. It becomes less sustainable when the blueberry price declines below production and commercialization costs. For this reason a highly controlled top-down advisory service is not sustainable without some adaptations. The actual challenge to overcome is the inexperience of the new small-scale farmers and also in the future those who survive will require not only advanced and specialized knowledge, but also group problem-solving skills.

In **United Kingdom** the challenge for the AS is the need by Crofter to consider a wide range of topics and next the sustainability of this production and social system. The questions that need to be addressed for the financial sustainability involve who will pay the fees and the costs to provide the AS and maintain the AKIS. Others aspects referred are the distance between crofts and advisory services (remote rural areas); lack of awareness of services/training available; subsidy dependence

and regulations lead advisors to spend most of their time addressing these issues, rather than practical production or business development advice; high degree of reliance on local tacit knowledge, which may not be up to date; specificity of knowledge needs to remote conditions (generic production advice is not fit for purpose); and fear of losing access to the croft limits efforts to access information from regulators.

Are small-scale farmers knowledge creators?

In three of the WP4 case studies involving Bulgaria, Portugal and United Kingdom the small-scale farmers did not have adequate experience in farming to be strong knowledge creators. They do however have the capacity to identify problems and concerns and next try to find information from other farmers, ICT or local entities in the AKIS system to solve local problems. The networks or exchanges in these processes for problem solving are often not complimented by the appropriate actors. As some of these new entrants come from other professions, some attempt to use transferrable knowledge from their life experiences to undertake social learning. However, there are problems identified that require greater participation by the research component in the AKIS. The AS needs to strengthen these linkages and facilitate the interactions of farmers, researchers and farm advisors to solve production problems. The present farmer interactions or exchanges lack a greater research component for the creation of knowledge. In the Polish case study, there was creation of knowledge with farmers when looking at the multi-functional activities of the farm within the tourism sector. This sector falls outside of the traditional AKIS and AS, when speaking about creating new knowledge.

In the **Bulgaria** case study most of the small farmers are trying to solve their problems and create different ways to do it. All knowledge, namely non-agricultural related, which they hold, helps them to effectively organize their farm production.

In the **Poland** case study many small scale farmers are knowledge conduits, and it's reported that most of the actors (including farmers) involved in the advisory services are creating new knowledge and ideas and developing innovations.

In the **Portugal** case study new small-scale inexperienced farmers, in particular very small and part-time farmers are not active knowledge creators, and hence have limited engagement in experimental knowledge development. However, this situation is already starting to change, and will evolve in the future, given increased experience in the field most of these farmers will be forced to dedicate more time for agricultural activities, and thus to involve more deeply in knowledge process, namely the creation and co-creation with other farmers and other actors in AKIS.

In the **UK** case study new entrants introduce ideas and skills from previous professions. Personal interests are developed into business diversification opportunities. Some new entrant crofters bring transferable skills from other professions and are establishing new, diverse knowledge networks and activities; some new entrants simply aim for a traditional lifestyle, and continue to produce traditional commodities using traditional methods.

Main differences between overall and small-scale farmers advisory services provision?

The small scale nature and low financial condition sets a tighter access to sources of information and knowledge by the small-scale farmers. Economic sustainability of AS is therefore questionable under such low financial conditions. Small-scale farmers are less significant for the advisory services that have fees, forcing some farmers to seek other sources to information and knowledge that they need.

Small-scale **Bulgarian** farmers receive knowledge and information from diverse advisory providers, while large commercial farmers, use consultants from private companies and trade organisations.

In **Poland** case study differences were noticed between general advisory services and advisory services for small-scale farmers, which are less significant for agricultural advisory providers.

In **Portugal** the AS is provided by FBO or privatised entities, while the remaining vestiges of the public advisory service involve bureaucratic issues and cross-compliance activities such as management and supervision.

Small-scale crofters, in **UK**, are less significant for the advisory service providers due to their small scale nature and their low profits. As described previously, crofts are spread over a large geographical area, making them difficult for advisors to adequately reach them. Small-scale crofters often work full time and are therefore not available during business hours. However, the state directly subsidises advisory support and training for crofters (SFC or SAC members).

What types of novel methods addressing the specificities and needs of small farmers have been developed?

Different methods were identified in each country: workshops, benchmarking, farm visits, training courses and demonstration. Nevertheless, these are traditional methods. Novel methods were reported in Poland and in the United Kingdom. Some examples are: e-learning, monitor crofts/ farms set up on the poorest quality land; social media by and for crofters; advisory clinics held in villages rather than the central office; advisors also attend social gatherings as a way to meet crofters.

In Bulgaria, new methodological and technical approaches of farm production are used. New production methods for solving technical problems, propositions for different structure of breeds of livestock and livestock technologies, implementation of new trends in mechanization and irrigation equipment, etc. although these are not extension and educational methods.

In the other countries farm visits, training courses and demonstration plots, workshops, benchmarking, study visits are all relevant tools, but these are not novel methods. Novel methods reported are e-learning (PL), advisory clinics held in remote villages, social media by and for crofters, and monitor farms/farm open days set up on the poorest quality land (UK).

Small-scale farmers resort to ICT? What for?

Overall, small farmers use ICT to search for information from different sources and on different issues, to exchange information between them and/or with advisory services, interact in social

networks and attend training in e-learning systems. Access to the worldwide web is highly important as an information source, but still variable in some remote regions.

Young **Bulgarian** farmers are actively using the Internet to search information related to their production activities. They also visit regularly the web page of State Fund "Agriculture" looking for information related to all programs that are proposed and the web page of NAAS. As the age of the agricultural producers goes up, the Internet space is rarely used or is not used at all.

In **Poland** agritourism farmers use ICT technology first of all to: (a) promote their activities; (b) manage their tourism activities such as booking rooms; and (c) communicate with tourist-customers via e-mail. They also use ICT technology to search for information (training and financial resources) and contact advisors and other service providers. They also participate in e-learning courses.

The **Portuguese** small-scale farmers mainly use social networks and e-mail exchanges. They use ICT to search for information about blueberry varieties, pruning and fertilization.

In **UK**, the ICT systems exist in the context of crofting both to facilitate the flow of knowledge and information to crofters and to capture information from them. SAC Consulting reported that many crofters seek assistance completing on-line IACS forms such as excel spreadsheets and medical type records for their animals. They also use GPS to keep track of crop spraying and ICT for soil analysis. There is a SCF website that advertises croft accommodation and food services. Social media (e.g. Facebook) and blogging are becoming more common (e.g. Air an lot crofting blog); Access to the internet is highly important as an information source, but variable in some remote regions.

Recommendations

These recommendations represent an analysis of the work found within WP4 topic 1 case studies and the contributions from the invited advisory service stakeholder guests at the synthesis seminar in Bulgaria:

- Lifelong learning and training for both advisors and farmers (new skills and competencies, knowledge recycling, new social contexts, networking) need to be developed and include other rural actors that supply advice;
- Need for pluralist advisory services (multiple topics; tackle unattended needs to fit trends in the sector/market); develop strategic, medium term approaches for small-scale farm development;
- Small-scale farms will not disappear, and to maximize efficiencies, a local AS should be available, free or at a low cost, to this group, that includes women, new entrants and young farmers;
- Promote the involvement of small-scale farmers and new entrants in the governance of advisory entities;
- Engage all farmers to participate in local level decision making concerning environmental, social, economic and political issues, uncertainties and future challenges;
- The need for R&D (interface with science) re-activation to feed the evolving and growing knowledge and information needs and demands of small-scale farmers;
- Establish brokers/facilitators in network construction to enhance learning between advisors and farmers/crofters valuing their experiences and tacit knowledge;

- Strengthen inter-organisational communication and bridge the key components (Research-AS-Farmers) in the AKIS;
- Additional and continuous training to public and private advisors on new CAP and RDP regulations that include a diverse representation of rural actors;
- Lighten bureaucratic activities that burdens the public administration and other stakeholders limiting the supply for targeted advisory services within management and technical advice, while still empathizing monitoring and evaluation of rural and agricultural development programmes; Introduce and maintain advisory methods that draw on and enhance local and tacit knowledge and strengthen, appreciate and make use of knowledge held by local people (leaders); There is a need for target group best-fit services;
- Recognize and appraise informal advice between agricultural and rural stakeholders;
- Develop and implement specific support for the information and knowledge demands of new entrants within agricultural and non-agricultural activities while simplifying the procedures for RDP application's;
- Increase ICT use and e-learning for all farmers complementing the classical forms of knowledge dissemination, such as farm visits, demonstrations, group discussions.

These recommendations reflect the view of the authors and not those of the European Commission, and for this reason cannot be considered the perspective of the EU.

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