AgriLink

AgriLink. Agricultural Knowledge: Linking farmers, advisors and researchers to boost innovation

Deliverable 2.2: Synthesis Country Report (Version 1.0)
Partner: Highclere Consulting SRL, Romania

The role of advisory services in farmers' decision making for innovation uptake. Insights from case studies in ROMANIA

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List of acronyms

AgriLink	Agricultural Knowledge: Linking farmers, advisors and researchers to boost innovation
AKIS	Agricultural Knowledge and Innovation System
ANCA	National Agency for Agricultural Consulting
AOS	Advisory Organisation Supplier
APIA	Agricultural Payments and Intervention Agency
CAJ	Regional Agricultural Chambers
CLCA	Local Centres for Agricultural Consulting
DAJ	County-level Agricultural Directorate
DoA	Description of the Action
EU	European Union
ha	Hectares
HNV	High Nature Value
MADR	Ministry of Agriculture and Rural Development
MAKIS	Modernising Agricultural Knowledge and Information Systems
Micro-AKIS	Micro-level Agricultural Knowledge and Innovation System
NGO	Non-Governmental Organisation
NUTS	Nomenclature of Territorial Units for Statistics
OJCA	County Centres for Agricultural Consulting
RDP	Rural Development Programme
R-FAS	Regional Farming Advisory System
TCM	Trigger-Cycle Model
UAA	Utilised Agricultural Area
WP	Work Package

Executive Summary

The current AGRILINK report aims at understanding in a Romanian context (1) why, how and from whom European farmers and farm managers gather and exchange information to underpin their decision-making on development and /or implementation of different types of innovation; and (2) to analyse the role played by advisors in these processes accounting for the range of advisory services available in a series of focus regions across Europe.

Two case study regions have been chosen, alongside with a focus innovation in each in order to understand the role that advisory organizations played in its adoption. For Brasov, a mountainous HNV region in Southern Transylvania, retro-innovation in hay-making was taken as a focus, while for Giurgiu, an agricultural district neighbouring Romania's capital city, the emergence of direct marketing arrangements was studied. Overall, **the advisory landscapes of both regions reflect the weak and fragmented nature of the Romanian advisory system, with some differences based on the landscape characteristics of the region, and the type of innovation studied.**

In Brasov, farmers' compensate for the lack of coherent information about various hay-making innovations by relying primarily on their informal networks of neighbours and peers (some of which are able to transfer good practices from having worked in agriculture abroad), as well as on free information available on the internet. Depending on the active actors around their villages, farmers may have access to professional organizations that provide support on RDP AEM measures and adjacent innovations (such as possibility to buy new machinery) from local DAJ offices, independent consultants, NGOs, equipment resellers and farmers associations. These actors are quite focused on the possibilities offered by RDP funding, and do not respond to the broad range of informational needs of farmers regarding agronomical, technical and market information. The Romanian TV programs which they watch and the agronomical fairs often promote costly technological innovations, appropriate for bigger commercial farms, and do not cover the needs of smaller and medium farmers looking to upgrade production. One particularity of the region of Brașov is the active presence and involvement of NGO actors in informing farmers about retro-innovation and hay-making practices. This is likely because of the high value of the environment in the area, and not a consistent pattern to be expected in across Romania.

For direct marketing arrangements between farmers in **Giurgiu** and consumers in Bucharest**,** considering the fact that many of the adopters interviewed pioneered new markets, they rely primarily on advice from business contacts (including customers, supermarkets, contractors or traders). Nevertheless, farmers balance their commercial advice with advice from family members, or other members of the community, and, occasionally, from the public advisors of the agricultural directorate in Giurgiu (DAJ). Nevertheless, as mentioned in previous sections, few farmers have access to these commercial networks, and therefore a significant part of the farmers interviewed in Giurgiu were largely non-adopters (43%, n=16). Furthermore, the AKIS interviews revealed that public advisory services offer no services to help farmers to adopt the innovation. Direct marketing either online, through supermarket contracts or physical farm shops requires considerable knowledge about marketing, website ranking, quality standards, but also resources to build shops or be able to deliver products to consumers and supermarkets in the conditions warranted by them. Due to this, the great majority of adopters were able to adopt the innovation and be successful because they benefitted from the right personal knowledge with various types of expertise

(marketing, IT, design, agronomical, gastronomy), networks and resources that allowed their new business channels to be profitable.

The high reliance on informal networks, as well as the lack of tailored services for innovation support in Romania outside of the bounds of the RDP is largely caused by the lack of well-resourced extension services in the country. The restructurings of the former **National Agency for Agricultural Consulting (ANCA) since 2010 have crippled their ability to play a meaningful role for Romania's over 3 million farmers.** Currently, they have **low staffing and resource endowments**, particularly in what concerns their ability to travel to the field and be present in the proximity of farmers. Furthermore, considering their priority mandate of supporting the implementation of the RDP, the DAJ offices are also **limited in their ability to be responsive to farmers' actual needs** - which may lie outside the boundaries of what the RDP menu has to offer. Considering the low level of vocational education in agriculture in the country at the moment, significant efforts must be dedicated from the side of public advisory authorities in order to both respond to the existing gaps and invest in providing advice on innovation.

The regional and national network of **independent consultants** has managed to supplement current innovation advisory needs for farmers only to a very limited extent. This is largely because the vast majority are focused on supporting farmers with applications for various RDP measures, and, at times, also with implementation.

In this weak and fragmented advisory landscape, it is not surprising that **the single most important source of information for farmers across Romania is that provided through their trusted informal networks of family members and neighbour farmers**. While for higher-educated pioneer farmers in Giurgiu, these informal networks might involve innovation experts (such as marketing and website experts), for most other farmers the socio-economic limitations of their networks also limit their access to new information and maintain their path dependency. With the increasing 4G internet penetration in many rural areas, younger farmers in particular are increasingly accessing also online channels, triangulating information heard from neighbours with online offers and Youtube instructions in order to fill their knowledge gaps throughout the three phases of the TCM model. More commercially-oriented farmers attend larger agricultural fairs around the countries. However both these and the long-standing agricultural TV and radio programs (such as Viata Satului and Antena Satelor) followed by older farmers tend to promote equipment and innovations appropriate for larger commercial farmers and particular types of agribusiness models, to the detriment of the majority of small farms in the country who cannot afford them.

The lack of diversity and perspectives taken by the available advisory providers has been negatively affecting Romanian farmers, and in particular smaller farmers, and hampering their competitiveness in a landscape increasingly taken over by supermarket chains and big agri-business. While both the case study of Giurgiu and Brasov show that innovation is still possible in spite of these challenges, their narratives show that this has largely been due to the determination, solidarity and resilience of the farmers rather than to an enabling and diverse advisory environment, responsive to their full range of informational and innovation needs.

1. Introduction

The general goal of WP2 (Innovation case studies in Focus Regions: micro to meso analysis) is twofold. Firstly, WP2 aims at understanding why, how and from whom European farmers and farm managers gather and exchange information to underpin their decision-making on development and /or implementation of different types of innovation. A second aim of WP2 is to analyse the role played by advisors in these processes accounting for the range of advisory services available in a series of focus regions across Europe. The Focus Region is a key concept adopted by AgriLink and was defined as a farm census region supplying the socio-demographical and farm structural context that might help to explain the farmer's micro-AKIS diversity and its implications to innovation up-take and the role played by advisors.

The conceptual framework (**Deliverable D1.1**) underlying the implementation of these goals relied on three major assumptions. The first was that the diversity of farmers and farms leads to different decision-making processes and influences the type of advisors and the roles they play on them. Second assumption consisted in assuming that innovation might not be in convergence with the sustainable development purposes, meaning that innovation can affect negatively or be indifferent regarding the sustainability dimension. Hence our willingness to investigate both adoption and non-adoption situations. Finally, a third assumption establishes that the diversity and the transformation in advisory landscape in European countries and regions is a relevant variable explaining the role advisors play (or not) in the farmer's decision-making processes related with the innovation uptake.

AgriLink developed an integrated research framework (Deliverable D2.1) aimed at gathering empirical data for the micro-scale concept of AKIS (Agricultural Knowledge and Information System), the farmer micro-AKIS, and for the mesoscale concept of R-FAS (Regional Farming Advisory System), in relation with the up-take processes of diverse types of innovation by farmers across the EU. This deliverable (D2.2) prepared by the 13 partners involved in WP2 offers a synthesis of the qualitative insights on the farmer's micro-AKIS and the role played by advisors in the selected case studies. These were delimitated at the census region level and focused on a group of farmers representative of a specific innovation (e.g. biologic pest control), comprising both adopters and non-adopters.

1.1 Introduction to the selected innovations and AKIS in Romania

Romania is a predominantly rural country. The rural space is richly endowed with natural resources and rural areas play an important role in the national economy. The overall pattern of land use and agricultural production in Romania is not significantly different from that observed across the EU. However, the **defining characteristics** of Romanian agriculture are: i) its **highly polarised structure**, and ii) the **huge number of small-scale farms**.

Another defining characteristic of Romanian agriculture is the very weak 'enabling environment' for innovation.

According to the European Innovation Scoreboard (EIS)[1] which rates the performance of national innovation systems according to 27 key performance indicators, Romania has the **lowest level of innovation performance amongst all EU-28 Member States** – well below the EU average and decreasing annually (European Commission, 2019). The EIS is not sector specific and only provides a very general indication of innovation performance, but the trends identified by the EIS for Romania (e.g. falling R&D expenditure in the public sector, declining public-private collaboration, lack of SMEs innovating in-house etc.) are all **very clearly reflected in the continuing poor state of the country's Agricultural Knowledge and Innovation System (AKIS)** – an AKIS system commonly characterised as "weak and fragmented" in comparison with other EU-28 Member States (e.g. Prager, 2015).

According to Rusu (2014), the particular weaknesses in the Romanian AKIS – which also act as **barriers to the fostering, creation and transfer** of relevant technological and social innovations for agriculture (including the dissemination and uptake of good practices) – are that:

- Romania has one of the lowest levels of public funding in the EU for **agricultural research** which results in very low wages for researchers and technicians; minimal upgrading of research facilities; low efficiency in the implementation of the research work that does receive funding, and; limited capacity to participate in international research projects;
- The Romanian **agricultural education system** is struggling to adapt to the evolving needs of the agri-food sector. Curricula remain very theory-oriented as both universities and agricultural high schools have difficulties providing practical on-farm demonstration and training facilities;
- On-going weaknesses in the **public agricultural advisory system** continue to persist with little prospect of improvement. The advisory system has undergone a series of re-organizations over the past 20 years, but these have consistently failed to deliver a better service - to the point that a survey of commercial farmers undertaken in March 2013 revealed that many farmers are confused about where exactly to ask for information and knowledge (Stefanescu *et al.*, 2013).

Against this background we chose two innovation case studies associated specifically with small farms in two contrasting regions of Romania:

- **Hay-making** in the hilly-mountain areas of Brasov county in central Romania, and;
- **Direct / local marketing** by small farmers (mainly vegetable growers) in the lowland areas of Giurgiu county in southern Romania.

Brasov county case study

Hay-making in Romania has traditionally been manual with large amounts of labour used for the cutting, turning and turning of hay by hand. Over the last 10-15 years there has been a revolution in hay-making techniques, especially in the hilly and mountain areas, with mechanised hay-making techniques for mowing, turning and collecting hay rapidly replacing traditional hay-making by hand. The technologies used vary

[1] The European Innovation Scoreboard provides a comparative analysis of innovation performance in EU countries, other European countries, and regional neighbours. It assesses relative strengths and weaknesses of national innovation systems and helps countries identify areas they need to address. See: https://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en

from small motor scythes that are pushed by hand for mowing grass to full-size tractor drawn equipment for mowing, turning and baling (both small and large bales – round and high density).

The use of "bales" is a completely new phenomenon in the hilly mountain area and effectively represents an entirely new product made from meadow grass. Hence, we have positioned this case study under the general heading of retro-innovation.

Giurgiu county case study

Giurgiu county is very close to the capital city of Bucharest and vegetable growers in the county have a long tradition of supplying the city via many formal marketing channels – including both direct sales ("free markets") and the wholesale trade – and informal networks. Sales via unregistered and unregulated intermediaries are a major problem but continue to thrive.

Meanwhile the market is changing. There is a retail revolution underway. Sales of fresh fruits and vegetables are increasingly dominated by the supermarkets and discount stores. Consumer tastes are also changing – with incomes steadily increasing in urban centres such as Bucharest, consumers are increasingly prepared to pay extra for local products of known origin and of high quality.

Many new market opportunities exist and there are an increasing number of innovative and successful farm-based businesses in Giurgiu engaged in serving the needs of urban consumers in Bucharest. These range from successful farms shops to on-line delivery services to supermarket-led co-operatives involving networks of small-scale suppliers bound together by trust.

2. AgriLink key concepts and research questions

Four key AgriLink concepts have been relevant for data collection in WP2. These concepts were established in the AgriLink DoA and elaborated further in the project's conceptual framework (see Deliverable D1.1).

A **Focus Region** is a farm census region that establishes the boundaries of the case study for data collection on the **farmers' micro-level Agricultural Knowledge and Innovation System (micro-AKIS)** and **meso-scale Regional Farm Advisory System (R-FAS)**. The preferred geographical scale for a Focus Region is NUTS 3, which is in certain cases replaced by NUTS 2 to achieve a better case study delimitation.

The **micro-AKIS** concept describes the micro-scale knowledge-system that farmers personally assemble, including: i) the range of individuals and organisations from whom they seek service and exchange knowledge with; ii) the processes involved, and; iii) how they translate this into innovative activities (or not). Empirical uptake of this concept entails answering two questions: a) who influences farmers (and farm households) in decision-making on adopting or choosing to not adopt innovations; and, b) how, i.e., what are the processes describing the knowledge assemblage by the farmers and role played by the different sources involved (see Deliverable D2.1)

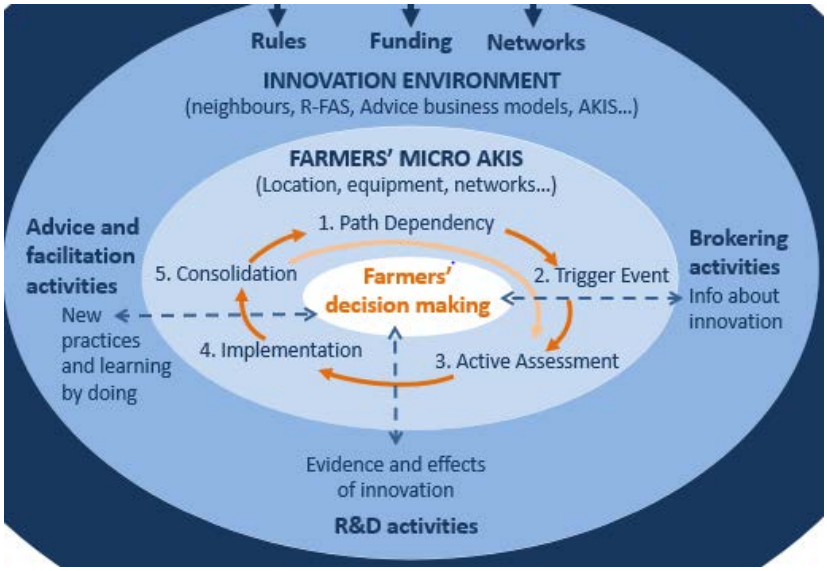
AgriLink defines the **R-FAS concept** as the set of organisations that enable farmers to develop farm-level solutions, enhance skills and coproduce knowledge with advisors. These are envisaged by AgriLink in a pluralist view, including **traditional advice providers** (chambers of agriculture, public bodies, etc.); **farmer-based organisations** (unions, associations, cooperatives, etc.); **independent consultants**; **NGOs**; **upstream or downstream industries**, and; **high-tech sectors**. The R-FAS concept covers the full range of these organisations in a given region, plus their connection to wider AKIS organisations and the full range of AKIS services (including research, advice and brokering) – all of which can be active at different stages / steps of the farmers' decision-making processes, as well as using different methods at these different stages / steps.

The **trigger-cycle model (TCM)** asserts that farmer's decision-making regarding innovation uptake is driven by a triggering event that initiates a path-dependency break cycle comprised of three main phases (each with different roles for advisors):

a) farmer's awareness of the innovation, encompassing brokering activities developed by advisors to disseminate the innovation and to (co-)create trigger events influencing farmers' decision-making processes;
b) active assessment of the innovation entailing advisors' assemblage of information on the innovation costs, benefits, and side-effects by developing and involving in R&D activities;
c) supporting farmers in innovation implementation by delivering advice and carrying out facilitation activities.

offers an integrated view of the four key concepts that have been implemented in WP2 and which are referred to in this report.

Figure 1 - Integrated view of the AgriLink key concepts (Source: AgriLink conceptual framework)



The research questions to be answered with the empirical approach of WP2 are synthesised in **Box 1**. The research questions aim at responding the WP2 goals through the empirical approach delineated in D2.1 build on the AgriLink conceptual framework (presented by the deliverable D1.1).

Box 1 - AgriLink empirical research questions for WP2 (Source: AgriLink)

1. ***What roles do advisory services play in the cycles of farmers' decision making?***
   - The advisor's role is investigated at three phases of the trigger-cycle model developed by the AgriLink conceptual framework model to understand farmers' decision-making processes regarding the up-take of innovation: a) Farmer's awareness of the innovation, encompassing brokering activities developed by advisors to disseminate the innovation and to (co-)create trigger events influencing farmers' decision-making processes; b) active assessing innovation entailing advisors assemblage of information on the innovation costs, benefits, and side-effects by developing and involving in R&D activities; c) supporting farmers in innovation implementation by delivering advice and carrying out facilitation activities.
2. ***What is the relationship between different types of farmer and advisory suppliers in the decision-making process?***
   - Comprising heterogeneity in farmers profile, farm structural features and farm business models; the nature of the innovation; regional context; R-FAS landscape and business models (including models associated to digitization of agriculture); role of advisory in different stages of farmers' decision making cycles and if these are creating new advisory supply opportunities and /or new functions, and as well as new forms of path dependency
3. ***How does the transformation of advisory suppliers landscape influence farmers' decision making and uptake of innovation?***
   - Accounting for R-FAS history and on how new configurations of R-FAS (generally depicted as more fragmented and pluralistic) play on the relation between farmers and advice, and respecting this relation: a) allow for more creativity, triggers, and a diversity of knowledge and information channels for farmers; b) influence farmers' access to information and knowledge, and equity on farmer's information access.

3. WP2 case studies overview and methodological approach

3.1 WP2 case studies selection

The case study delimitation in AgriLink was built through two dimensions. One of the dimensions was the spatial delimitation of the R-FAS boundaries at the focus region level, and the second the farmers selection in relation to the innovation type. Table 1 presents the selected innovation according to the respective innovation type and the sustainability challenge addressed by innovation.

Table 1 - Selected innovations and sustainability challenges (Source: AgriLink)

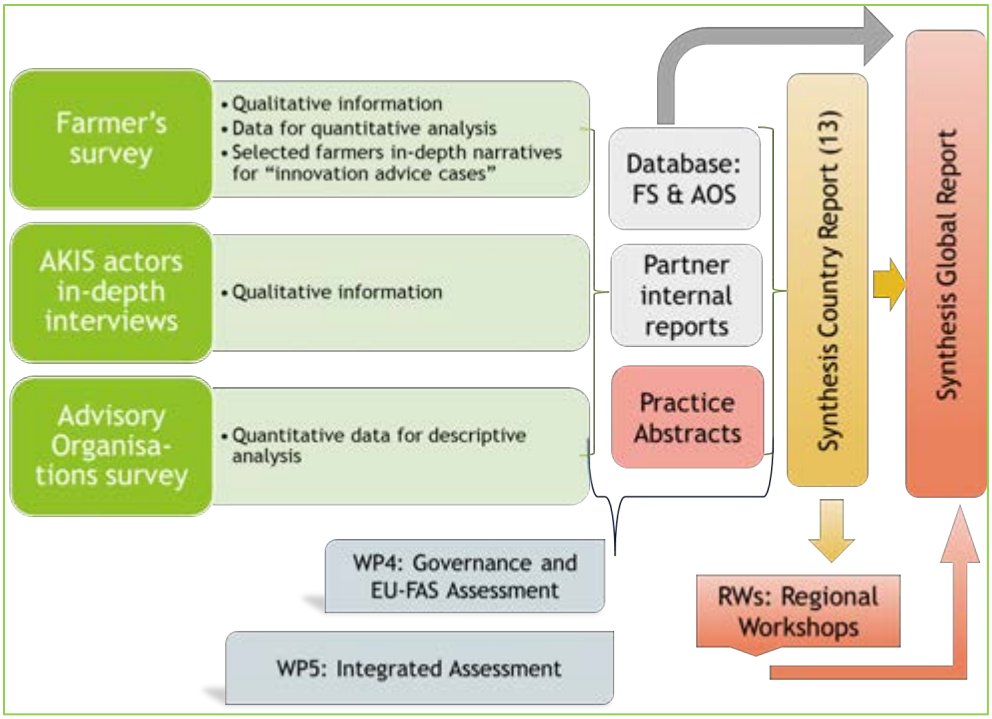
Type of innovation	Innovation cluster	Selection focus	Sustainability challenge addressed
Technological	Autonomous vehicles, robots, drones, intelligent sensors/Precision Farming	IT (Information technologies)	Climate change, Eco-efficiency, Pests & diseases
			Growth and jobs – Digitalization
			Food security – Biodiversity, Food provision
Process (farming practices)	Biological Pest Control	Integrated ecological farming	Climate change, Eco-efficiency, Pests & diseases
	Soil Improving cropping systems		Food security – Biodiversity, Food provision
Marketing and financing	Retro-innovation	Diversification	Growth and jobs – Business diversification, Social cohesion
	Introducing new crops		
	Direct marketing		Eco-efficiency
	Developing new activities		
Social and organisational	Natural resources common management	Collaborative organisations	Growth and jobs – Social cohesion, Digitalization
	Labour Innovative arrangements		Food security – Biodiversity
			Eco-efficiency, Pests & diseases

The farmer's selection in each case study built on targeting groups of farmers amongst whom the innovation is already widespread, so that it would be possible to characterise the micro-AKIS supporting innovation up-take of adopters, as well as the micro-AKIS of non-adopters.

3.2 WP2 methodological framework

The methodological framework implemented in WP2 consists on mixed-method strategy (for a detailed description see the WP2 research protocol in D2.1) combining a case study approach with quantitative survey-type data collection. It is implemented in three steps. Firstly, the case studies selection (already described) followed by two major surveys: a) to farmers to collect the data for describing the micro-AKIS and the role the advisory providers play on it; and, b) to advisory providers to enable describing R-FAS in relation with the innovation addressed by each case study. Figure 2 gives an overview of the WP2 data collection strategy, highlighting the intermediate outputs and the outcomes to be generated from the data analysis, including the inputs to subsequent WPs.

Figure 2 - Overview of WP2 data collection and reporting (Source: AgriLink)



The farmer's survey was conducted through a question-guide comprising both open-ended and closed-ended questions intended to gather quantitative data on whom and how type of questions (who are the advisory services providers and how these are provided), along with qualitative data on the why and how type of questions allowing for in-depth understanding of farmers' micro-AKIS. Quantitative data from the farmer's survey (FS) were entered on a database, while qualitative information and narratives descriptions were recorded and analysed in order to provide the descriptive and analytical insights. This country synthesis report presents the outputs of both the data analysis and description and the qualitative insights for each case study.

The farmers' survey was implemented through face-to-face interviews, conducted by members of research teams or duly trained students, following a question-guide including open, mixed and closed questions to collect data on the trigger events, the farmer's innovation evaluation, knowledge and information sources, flows and social networks, farmer profile and demographics, business model and farm structure. The survey comprised a set of matrixes to gather data to describe farmer micro-AKIS for the three main stages of the TCM (awareness, active assessment and implementation of the innovation), and on the micro-AKIS used by the respondent for farm management in general, and as optional the household micro-AKIS for the family farms when family members show to be influential actors for information and knowledge flows assembled by farm decision-maker(s).

Detailed information on the farmer survey and respective question-guide is available in Deliverable D2.1.

The advisory organisation supplier's (AOS) question-guide builds mainly on closed-ended questions and addressed formal providers of advice (see **Box 2**), excluding informal providers. Formal advisory suppliers comprise organisations providing advisory services as a secondary activity and /or providing them for free (e.g. associated with the supply of inputs or software). In-depth information on the R-FAS is gathered

through complementary in-depth semi-structured interviews delivered to a small number of regional AKIS actors.

Box 2 - Definitions on advisory for R-FAS survey (Source: AgriLink)

Advisory services

- A service activity that enable farmers to develop farm-level solutions, enhance skills and coproduce knowledge with advisors.

Advisory suppliers

- Any organisation that delivers advisory services to farmers.

Advisory organisations

- Traditional suppliers specialized in the supply of advisory services to farmers. This corresponds to former 'extension suppliers'

The question-guide for advisory organisations comprised mostly closed questions and addressed data collection to:

a) describe the organisation, including its ownership status, action level, advisory services supplied, funding resources and in-house R&D facilities;
b) characterise its human resources, their distribution according to front-office and back-office activities, qualifications, certification and training, plus the methods they use for supplying advisory services;
c) describe the type of advisory services clients and the main topics of these services;
d) identify the national and regional public support to the advisory organisation, including funding and other type of support to back-office activities (training, R&D and networking activities);
e) assess organisation benefit from current EU level policy instruments, such as EU-FAS, EIP-AGRI, and rural development programmes;
f) describe the organisation advisory services supplied in relation with the innovation at stake in the case study, and the back-office activities undertaken by the organisation to support the supply of these services; and;
g) collect the organisation's vision regarding the major challenges to be faced in the next years by the advisory suppliers, in the focus region, regarding the innovation development.

The in-depth interviews to AKIS key actors collected their knowledge on the innovation path in the region, on major innovation triggers, and on their evaluation on the farmer's knowledge and information needs and demands along the various stages of the innovation TCM and to what extent R-FAS is responding to these demands. The target number of interviews to key actors was established as five, whereas they can be lesser depending on the number of relevant actors is each case study.

The data analysis and qualitative insights obtained in each case study are also part of this deliverable, the synthesis country report. Detailed information on the advisory organisation supplier survey and respective question-guide is available in **Deliverable D2.1**.

In addition, this deliverable comprises the description and the insights gathered from detailed narratives of farmer's decision-making processes regarding the uptake of the innovation build on the TCM and addressing the advisory supplier's role. Three narratives per case study was included in the data collection conducted by WP2 to generate information for the integrated assessment to be carry on by WP5.

3.3 WP2 sampling strategy

The target population for sampling purposes was a group of farmers with similar technical-economic orientation amongst whom the innovation is already widespread, enabling to identify adopters and non-adopters that choose to not adopt the innovation. Hence the target population to be sampled is defined by two criteria: a) innovation adopters and (informed) non-adopters; with, b) a similar technical-economic orientation, whilst addressing farm structural heterogeneity among the targeted group of farmers, which might lead to the inclusion of farmers with different farm styles and/or business models. In addition, specific categories of non-adopters, such as droppers, or of adopters, such as partial adopters, were accounted for sampling purposes when found to be relevant in the targeted population.

A sample of 40 to 50 farmers was required by each case study. A snowball-type sampling procedure was adopted relying on the support of key-informants ('gatekeepers') familiar with the targeted group of farmers, which might include farmer associations, researchers, and other AKIS actors and experts. To avoid selection bias, different information sources need to be used and cross-checked (See Deliverable D2.1 for a detailed description of farmers sampling strategy).

The advisory organisations were sampled through a snowball process relying on diverse sources to ensure that the complete spectrum of advisory organisations supplying (or that could supply) advisory or related services are included in the sample. A minimum of 20 organisations was established for the cases were sampling was needed to cover the advisory diversity. In other cases, with little formal suppliers on the ground the strategy was to interview the maximum of existing organisations.

4. Country case-studies, farmers groups and advisory suppliers

4.1 The case studies and focus regions

4.1.1 Case study 1 – Hay-making in Braşov county, Romania

According to EUROSTAT (2019) data there are approximately 4.40 million ha of permanent grasslands (pastures and meadows) in Romania, representing some 33.6% of the total Utilized Agricultural Area (UAA). Approximately 50% of these are species-rich semi-natural grasslands which are found in the more marginal, mountainous and sub-mountainous areas of Romania where agricultural productivity is limited by high altitude, poor soils and slope (IEEP, 2014). Semi-natural grasslands are of great significance for biodiversity conservation in Romania and represent some of the most biodiversity-rich ecosystems in Europe (Veen *et al.* 2009). They are therefore commonly referred to as High Nature Value (HNV) grasslands.

Figure 3 – The HNV grassland landscape in Poiana Marului, Brașov county

The majority of HNV grasslands (e.g. **Figure 3**) in Romania have been created and managed for hundreds of years by a form of traditional pastoralism that typically involves a functional relationship between two distinct land uses: a) a myriad of extensively-managed subsistence / semi-subsistence small-holdings in the lowland / hilly areas with a few animals (cows, sheep, pigs and poultry) plus a patchwork of small parcels of meadow land for mowing, cultivated land, vegetable plots and orchards, and b) the seasonal movement of livestock from these small-holdings onto high altitude mountain pastures where they are grazed communally for up to 6 months from late spring to early autumn. One specific feature of livestock moving from the lowland / hilly areas to the mountains for summer grazing is that it permits haymaking (for winter fodder) on the private meadows around the smallholdings.

Figure 4 - Traditional hay-making in the hilly-mountain areas of Brasov county

Small farmers in Romania have managed their hay meadows for generations following deeply embedded traditions (e.g. **Figure 4**) that follow a well-defined agricultural calendar with specific times and techniques for mowing, grazing, pasture management, herding and animal husbandry (Iuga *et al.*, 2016).

Over the past 10-15 years these the traditional management of hay meadows – especially traditional hay-making techniques - have been declining as hand-mowing with scythes has been replaced by mechanical mowers; haystacks replaced by hay-bales, and; more productive fodder crops (notably lucerne) replacing semi-natural hay meadows (Iuga *et al.*, 2016). Of course, this transition is not unique to Romania since such practices disappeared from other European countries many years ago (Dahlström *et al.*, 2013), but because they were maintained for so long in Romania the pace of change in recent years has appeared as particularly rapid and marked.

The county of Brasov (NUTS3) in Southern Transylvania is an ideal region in which to study these changes in hay-making. The south of the county is dominated by the peaks and slopes of the Carpathian mountains (up to 2500m in altitude), while the remaining area of the county encompasses the Brasov Depression with a combination of productive upland plain (around 500m in altitude) and large areas of rolling hills with a mosaic landscape of grasslands and forest patches. As is characteristic of all Romania, the distribution of farm size in Brasov county is very polarized. According to EUROSTAT (2015) data, the average farm size in Brasov county is 6.0 ha (47 980 registered holdings on 287 560 ha of Utilised Agricultural Area, UAA) with 79% of all registered holdings having less than 5 ha and managing around 20% of total UAA (predominantly HNV grasslands), whilst 0.8% of holdings have more than 50 ha and manage 48% of total UAA.

There has been widespread change during the last 10 years in the hay-making techniques used by small farmers in Brasov county. Traditionally the hay would be cut with a scythe, left to dry, turned regularly, raked into rows and then gathered in haystacks – all with manual labour. This was usually family labour, plus the exchange of labour between neighbours and some purchased labour (especially for mowing larger

areas of meadow). The hay would then be collected in horse-drawn carts and brought to the barns or yards to be stored for the winter.

Numerous mechanical techniques for mowing, turning and collecting hay have now replaced to a great extent the use of manual labour for traditional hay-making. These range from small motor scythes that are pushed by hand for mowing grass to full-size tractor drawn equipment for mowing, turning and baling (both small rectangular and large round bales). The appearance of "hay bales" on small farms in Brașov county is a particularly new phenomenon and (together with the other changes in traditional hay-making) effectively represents the **re-invention or re-creation of a traditional product as something entirely new** (**Figure 5**).

Figure 5 – Modern round bales being transported by a traditional horse cart in Brașov county

In other words, a **form of retro-innovation** (Stuiver, 2006) with pioneers involved (knowledge convertors and disseminators), active and passive followers, farmers planning to adopt – and also a small number of non-adopters.

There are numerous reasons cited for the wide-spread adoption of mechanised hay-making techniques by small farmers in Brașov county (Ujupan, 2018 – personal communication[2]):

- A significant reduction in the physical effort required to make hay, particularly for the ageing rural population;
- Fewer people are needed to produce hay, this is increasingly important because of continued out-migration and the declining availability of local labour;

[2] Mrs Georgieta Ujupan was until recently the Head of the Farm Advisory Unit in the Brasov county-level Directorate of the Ministry of Agriculture and Rural Development.

- Mechanical hay-making is much quicker with less spoilage by rain thereby producing better quality hay with fewer losses which represents an overall increase in economic efficiency;
- Better quality hay helps to reduce the differences in productivity between the mountain / hilly areas and the lowland plain areas;
- For all of the above reasons, mechanical hay-making is slowing down the abandonment of meadows (especially in more marginal circumstances) and thereby contributing to the maintenance of the landscape and biodiversity.

4.1.2 Case study 2 - Giurgiu

Giurgiu county (NUTS3) lies immediately to the south-east of the capital city of Bucharest and takes around 30-45 minutes to reach by car (see Figure 6). It is a predominantly flat region with a few undulating hills running to the floodplains of the lower Danube River adjacent to the border of Romania with Bulgaria. Fertile soils and relatively abundant water resources have created favourable conditions for crop production in this region for hundreds of years. Agriculture remains the main economic activity in the region, but (as in Brașov) it has a very polarised structure with around 93% of all farms being small-holdings less than 5 ha in size and managing around 39% of UAA, whilst the remaining 61% of UAA is managed by the 7% of holdings larger than 5 ha – including several hundred very large and modern arable farms.

Figure 6 - Location of Giurgiu county relative to the capital city of Bucharest

Almost 2% of the UAA in Giurgiu county is occupied by vegetable production with open field vegetables (including potatoes), protected cropping and large kitchen gardens. Plastic greenhouses are particularly

common in some villages (see figure 7 below) and with good management have very high production potential.

The district of Giurgiu was selected as a focus region for the direct marketing arrangements because of its proximity to the country's largest consumer market of Romania, namely Bucharest, which has been developing an upper middle class of consumers, with busy lifestyles, but interested in acquiring healthy local foods through convenient alternative marketing channels (online orders or specialized food boutiques).

These farms have a high production potential, are in the proximity to Romania's main consumer market (Bucharest has a population of approximately 2.2 million inhabitants) and are focused on producing high quality fresh vegetables.

Figure 7 - Satellite photo showing the extent of greenhouses in Colibași Village, Giurgiu county

Vegetable growers in the county have a long tradition of supplying the capital via many formal marketing channels – including both direct sales ("free markets") and the wholesale trade – and informal networks. Sales via unregistered and unregulated intermediaries have been a major concern for the authorities, but they continue to thrive, raising issues of lack of traceability, product quality and food safety (World Bank, 2017).

Nevertheless, in the last two years the market has changed significantly. There is a retail revolution underway, with supermarkets and discount stores haven taken over 65-70% of the market (Newscompany.ro, 2018). Only 20% of Romanian consumers still buy their fresh fruit and vegetables at

traditional local markets (AgroTV, 2019), change which has determined Romanian producers to seek partnerships with supermarkets in order to be able to place their products on their supermarket shelves.

Consumer tastes are also changing – with incomes steadily increasing in urban centres such as Bucharest, consumers are increasingly prepared to pay extra for local products of known origin and of high quality. With international chain stores having taken over most of the market, consumers are demanding local Romanian products. This has pressured supermarkets and discount stores to develop regional supply chains, leading to an increase of Romanian produce in supermarket shelves from 55% in 2014 to 61% in 2016 (WWF, 2016).

Many new market opportunities exist and there are an increasing number of very innovative – and successful - farm-based businesses in Giurgiu engaged in serving the needs of urban consumers in Bucharest. These range from successful small food businesses, to on-line delivery services, to supermarket-led co-operatives involving networks of small-scale suppliers bound together by trust.

Figure 8 - Farm Shop in Giurgiu county

But huge gaps in knowledge and experience prevail. Many obstacles remain, especially for small-scale producers in the most disadvantaged rural communities (poverty is rife and subsistence farming is the norm in many villages). Farmers remain very suspicious of co-operation (Wolz *et al.*, 2018) and do not have the financial or human capital resources to make the necessary investments in the development of new market outlets and distribution channels.

The study will focus on the flow of knowledge to and between farmers that are both active in - and considering entry to – the full range of new fruit and vegetable marketing initiatives that exist in Giurgiu county. Particular attention will be paid to distinguishing the knowledge systems of the pioneers and early adopters from the non-adopters.

There is a broad spectrum of innovations involved (market channels, organisational management, social relations, ICT, business models etc.) and with many early adopters and followers having established

successful new marketing arrangements. Following law 321/2009 that obliges retailers to acquire 51% of meat, eggs, fruit, vegetables, honey, dairy and bakery products from direct partnership, big retailers started to develop specific relationships with local producers. "Direct partnership" refers to the "commercial relation between retailer and agricultural cooperatives, producer organizations, companies that produce and sell agricultural produce, excluding intermediaries, between whom a 12 months contract is established".

This context has led two supermarkets to get involved in building agricultural cooperatives (such as Cooperative Carrefour Varasti, Vidra, Tara mea) to support the demand for local produce from Romanian consumers side and respect for new legislation. For example, Carrefour has supported the founding of Cooperative Vără□ti, which brought together about 100 small vegetable growers' families that together harvest about 60 ha.

Figure 9 – Pack-house of Cooperative Carrefour in Varasti, Giurgiu county

Kaufland was co-opted in a partnership together with the Ministry of Agriculture and Agrostar (big farmers' association) that led to Cooperativa □ara Mea, also the brand name under which the products are being sold in Kaufland's outlets around the country. Cooperative □ara Mea brings together about 320 producers and aims to raise its degree of integrating its production given the diversity of its members, covering almost all food sectors. NGOs occasionally got involved to support the development of such cooperatives, as was the case in the case Cooperative Vidra, facilitated by 2 NGOs – FDSC (Fundatia pentru dezvoltarea societatii civile) and RAF (The Romanian-American Foundation).

Other alternative value chains are also developing. Several restaurants in Bucharest have also started branding themselves according to the 'farm-to-fork' concept, distinguishing themselves through their local sourcing (Maize), with some even promoting their integrated production (Cocosul Rosu). In the past 7 years smaller small boutiques have also started appearing, specializing in selling higher quality local produce (Bacania Veche, Realfoods.ro), and often combining both online and offline sales channels to reach consumers.

An increasing number of producers have also developed an online web presence, in the form of a web shop placed on their website (BioDumbrava, EcoKult, Prepelitu, Capitanu, Ograda lui Luca, EcoShopping.ro), or the creation and promotion of a Facebook page through which the producers intermediate orders from consumers (BioSalati din Gradina Ursului, MacoBees). As of 2017 a new app appeared for Bucharest consumers who want to order fresh produce from smaller producers around Bucharest (Taraba Virtuala, Platferma), offering also a convenient interface for producers to manage their orders.

A distinguishing element of all the newly developed direct marketing channels is that they all focus on selling *niche products* to Bucharest's urban consumers, whether this implies providing local or organic fresh produce, rare or disappearing plant varieties, medicinal herbs, unprocessed honey or quail eggs. For many of the producers interviewed, the online marketing channels have provided the ideal mechanism to connect them with isolated consumers from the capital's market, which would otherwise be expensive to target through offline marketing channels.

Nevertheless, Mircea Draja, the founder of Realfoods.ro, is of the opinion that the online food market is probably one of the most difficult online market segments. In order to be able to identify the right consumer market, he had to position his business as gourmet (focusing on the produce's quality, storytelling, ability to raise emotion in the consumer), to emphasize the local dimension of food, as well as to offer a diverse retail-level product range. For predominately offline venues, such as Bacania Veche, keeping the niche markets profitable involved focusing on firstly educating consumers about healthy eating, as well as the benefits of local products. Also, the price-quality balance of such products is important in order to attract and maintain consumers interested enough in order for them to prefer these alternative chains to the mainstream supermarket ones.

In spite of all these developments and efforts, the size of the market and its ability to integrate Giurgiu's producers remains relatively small. Realfood.ro sources from 100 different producers at the moment, while the Bacania Veche shop from around 50-60 and expects the market will grow organically (Draghici, 2018). Although the Taraba Virtuala platform currently has 10 000 users, only about 1 000 are active and order frequently, leading to a 20 orders per week average for the platform's almost 100 producers. Considering these developments, it is no surprise that the great majority of small farmers from Giurgiu and Bucharest's vicinity remain as observers and non-adopters.

4.2 Group of farmers target and sampling strategy

4.2.1 Case study 1 - Brasov

Taking account of the farm structure in Brasov county (i.e. average farm size of 6.0 ha and 79% of farms with less than 5 ha), the target group for sampling was defined broadly as "traditional small-scale livestock farmers with hay meadows". Within this broad target group we aimed to select individual farmers for interview that have either:

- Adopted some form of mechanization (i.e. various types of machine to replace manual work) in their *traditional hay-making* in recent years and have continued to use this mechanization (in various different combinations) ever since;
- Not adopted any form of mechanization in their *traditional hay-making* – in other words, they continue to make hay solely by hand;

- Have used some form of mechanization at some time, but have decided not to continue.

Our aim was to survey up to 40 local farmers and we chose to focus on five communes where we expected to find significant areas of private meadows and traditional hay-making still being practiced (see **Figure** 10).

Figure 10 – Location of the five rural communes in Brasov county selected for sampling

Communes (*comuna*) are the basic administrative level in Romania. Each rural commune usually contains 3-4 villages. There are a total of 48 rural communes in Brasov county which (in 2018) range in population from 755 to 10 003 persons.

Four communes (Bunesti, Poiana Marului, Sinca Noua and Vama Buzului) were selected specifically because of their known association with "traditional small-scale livestock farmers" – a characteristic corelated with a) the presence of significant area of HNV grasslands in each commune and the eligibility of local farmers to receive agri-environment payments to manage these grasslands for biodiversity, and; b) the designation of the communes as Less favoured Areas (i.e. with significant natural constraints on farm productivity and profitability). A fifth commune (Homorod) was also selected to test the questionnaire on a known farmer, but it was decided not to sample the commune further and to focus on the other four listed above.

Three slightly different sampling strategies were used:

- For the communes of Poiana Marului, Sinca Noua and Homorod the main point of entry in the community were the local authorities, including the Local Agricultural Chamber office at the village municipality (Camera Agricola) or representatives of the mayor's office;
- For Bunesti the points of entry were representatives of local NGOs and other experts who recommended farmers in the locality that corresponded with the above-mentioned description, and;
- For Vama Buzaului a random sampling technique was used and small farmers in the village were identified by walking along the pastures and the agricultural lands. This was possible because the interviews were held in August-September 2018 when many farmers were still active in the field.

Consequently, 8 interviews were conducted in Bunesti; 7 in Poiana Marului; 5 in Sinca Noua and 10 in Vama Buzului. Together with the one interview in Homorod this was a total of 31 farmers – which included 27 adopters; 3 non-adopters, and one dropper (**table 2**).

Table 2 - Farmers interviewed in Brasov county

Innovation case study	Adopters	Non-adopters	Droppers	Total
Retro Innovation	27	4	0	31

Source: AgriLink – Brasov, Romania

4.2.2 Case Study 2 - Giurgiu

The first criteria for selecting farmers was their geographical location. While our initial focus was on the district of Giurgiu, after realizing that many adopters were based in the districts of Ilfov and Prahova (also found in the immediate vicinity of the capital city), we decided to extend our geographical scope if needed. We felt confident that extending our geographical selection beyond the initial scope chosen because our preliminary research indicated that the advisory systems in all these districts was very similar, so no variation between the offer of advisory services was expected. This was later confirmed through interviews.

Secondly, we used the following sampling criteria to identify respondents:

a) Using innovative marketing channels to sell their products (Innovation Adopters) - selling directly to supermarkets (Carrefour, Auchan, Lidl, Mega Image), online (Facebook page, own website, Taraba Virtuala app, Platferma, RealFoods.ro (online channels)), restaurants (Maize, Cososul Rosu) or through small food boutiques (Bacania Veche) etc;
b) Farmers in the proximity of other farmers who have direct marketing arrangements but who prefer selling to Pucheni gross market/farmers market - business as usual (non-adopters);
c) Farmers who started to sell directly to supermarkets, on-line, restaurants, etc., but gave up (droppers).

In order to ensure comparability between farms, we focused primarily on smaller farms, with an average cultivated area of 2-5ha (in spite of the fact that some farms owned up to 15-20ha).

The sampling was done initially through an online search of available online distribution channels (Taraba Virtuala, Platferma, Realfoods.ro), news articles and Facebook pages that matched the selection criteria

mentioned above. The sampling was refined through a snowballing technique also involving expert opinion, consulting AKIS actors, as well as interviewed producers themselves with regards to other producers selling online in a similar manner.

Overall, a total of 37 interviews were conducted – which included 18 adopters, 16 non-adopters and 3 droppers (table3).

Table 3 - Farmers interviewed in Giurgiu county

Innovation case study	Adopters	Non-adopters	Droppers	Total
Direct marketing	18	16	3	37

Source: AgriLink – Giurgiu, Romania

4.3 AKIS experts and advisory organisations

Brasov

A total of 11 AKIS interviews were conducted with representatives of the main public institutions playing an advisory function in the region, while 19 interviews were held with various Advisory suppliers from the region of Brasov, mainly consultants working independently or for various farmer associations. The AKIS experts and advisory organizations interviewed were identified through a snowballing technique, starting with discussions with various agricultural experts, who worked in the leadership of public advisory organizations in Brasov and who know large networks of farmers and advisors.

Giurgiu

For the region of Giurgiu, due to the fact that the innovation was pioneered by entrepreneurs, who developed markets from scratch, there few AKIS actors whom we could interview about this phenomenon. They were selected following expert advice from actors involved with the new food movement of Bucharest, involving local sourcing, farm-to-fork and small food concepts. In total 6 AKIS actors were interviewed.

5. Results

The current results section discusses the findings for each of the two case study regions, namely Brasov (Section 5.1) and Giurgiu (Section 5.2). Each of the two sections are structured according to the two main sources of data used for each case study, namely the Farmers' survey and the AKIS experts interviews. The Farmers' survey follows the conceptual approach to studying the role of advisory services in different phases of the innovation adoption process.

5.1 Case 1: Brasov the role of farm advice in innovation case study

5.1.1 Findings related to the Farmer's survey

5.1.1.1 Farmer's profile and farm structure

Considering the fact that our innovation concerns hay-making, which is essential for cattle rearing, as well as the fact that our sampling procedures in order to find farmers who would be likely to maintain HNV landscapes, the profile of the large majority of the farmers interviewed falls within a certain standard. Out of 31 respondents, 51% reported owning their own land and another 30% of the sample had rented. **The average land size of the sample is 36ha, but with 43% of the sample with under 5ha of land. The farmers interviewed work a total of 785ha of land.** Land in this area is mainly used for agriculture (herding livestock, hay making, grain production and producing some vegetables), respondents also owning less than 10 ha of land for forestry. The clear focus of the regional farming system on animal rearing can be seen from the tables below, which show that our sample of 31 farmers grows 998 sheep, 315 goats and 206 cows. The crops planted by farmers reflect the reliance on grasslands (429 ha) and the need for additional animal feed (113 ha leguminous plants, 58.5 green maize), as these were the most important crops in our sample.

Table 4 - Total no. of hectares (ha) managed by farmers interviewed in Brasov county

	No. of responses	Total no. of ha
Barley	1	0.3
Oats	1	0.3
Grain Maize	4	7.9
Other cereals for grain production	3	11.65
Potatoes	6	4.2
Temporary Grass	3	56
Green Maize	7	58.51
Leguminous Plants	9	113.15
Permanent Grass	26	429
Permanent grassland no longer used for production purposes	1	3.8
Permanent grassland no longer used for production purposes and eligible for subsidies [Organic]	1	6.5

Table 5 - Total number of animals owned by farmers interviewed in Brașov county

	No. of responses	Total no. of heads
Bovine: animals under 1 year	10	74
Bovine: male between 1 and 2 years old	2	7
Bovine: female between 1 and 2 years old	12	74
Bovine: Female between 1 and 2 years old, Organic	2	16
Heifers aged over 2 years	4	25
Bovine: dairy cows aged over 2 years	22	206
Bovine: dairy cows aged over 2 years, Organic	1	15
Sheep: breeding females	23	675
Sheep other	9	323
Goats	4	315
piglets up to 20kg	7	87
Pig: breeding sows over 50kg	14	30
Pig other	4	28
Poultry: laying hens	18	231
Broilers	1	5
Geese	2	30
Horses	7	18
Rabbits	2	13
Beehives	2	50
Other livestock	1	4

Farmers who have below 30-50 cows might give their cows to the communal cowherd in the village and pay the local herdsman a fee for the grazing in return for cheese for household consumption. This practice has been slowly disappearing in many villages. In the Poiana Marului village for example, there were about 35 cows in the village herd in 2005, now only one family still keeps a cow for household consumption.

The farmers sell a big portion of their production in order to earn an income, with 68% declaring that total sales represent 50-100% of their farm production. Interestingly, 20% of the sample also declared producing for their own consumption, indicating a more subsistence type of agricultural household. The sample seems to have a relatively balanced distribution **between the 32% of the farmers interviewed reported that more than 75% of their production is sold to consumers, the 38% selling anywhere up to 75% of their produce to consumers, and the 29% who do not sell any of their produce to the end consumer.** One pioneer sells their produce through online direct marketing arrangements to consumers in the city of Brașov, while a few others reported supplying a few consumers with milk and fresh cheese mainly through informally developed ties.

Figure 11 - Traditional sheep farm for milk and cheese production in Homorod commune, Brașov

Although traditionally the milk would be processed into **various varieties of white cheese (and other dairy products)**, the mahority of the farmers interviewed had returned to selling the raw milk to processors because the costs of processing the milk and the labour involved in selling in traditional farmers markets makes the whole process economically unviable for many. Depending on the number of cows they have, farmers sell the milk to various other supply chain actors besides consumers, most important of which are the industrial milk processing units of several big brands, which have established milk cooling and collection states in various villages. Among the biggest brands in the area are Albalact (Alba Iulia), Prodlact (Brasov), Olympia (Brasov), Fabrica de Lapte (Brasov) and Gordon (Odorheiul Secuiesv), although no thorough supply chain analysis exists to be able to fully understand the ranking of the different processors and their individual supply chain management strategies.

Only 6.5% (2 out of 31) of the farmers interviewed had another source of income for their farm besides agriculture (namely agro-tourism and post office). These activities brought less than 25% of the farm's total income. In terms of paid employment, 65% of interviewees have a professional occupation besides their farm activity as construction workers, working in factories, machine operator, gas technician or working in the local municipality.

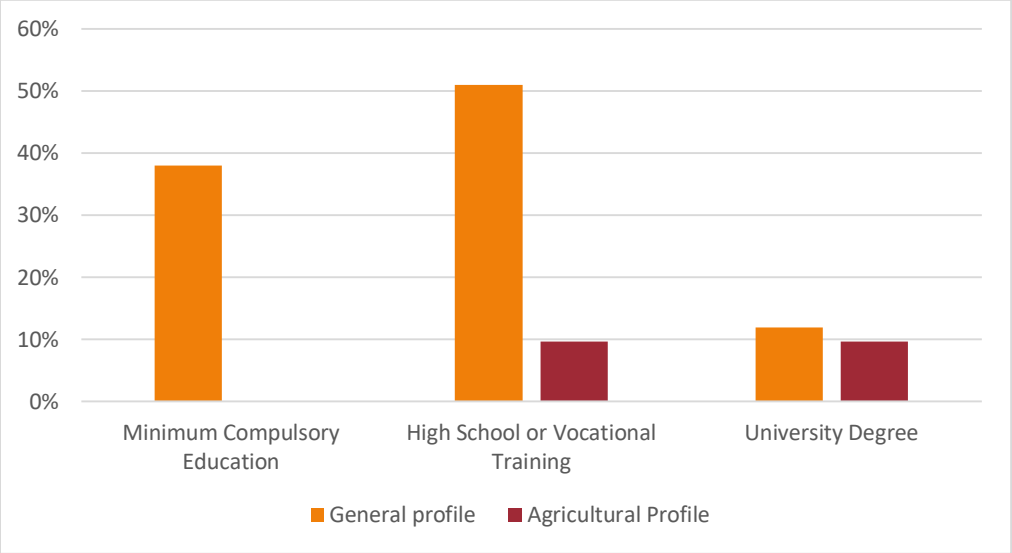
Regarding the dependence on subsidies, 90% of the sample reported receiving them, with 68% of the sample declaring that they represent up to half of their farm's income. **Overall, these findings indicate a high dependence of cattle farmers on agricultural income, but also on area-based CAP payments including agri-environment measures (AEM) and disadvantaged area (LFA) subsidies that supplement their income, with diversification into other activities not being prominent for the size of farmers we have selected for our interviews.** Nevertheless, a surprisingly high amount of the farmers interviewed in this region say they would by far prefer to receive a fair price for milk, one which would fully cover their production costs, rather than have the current price uncertainty but receive income support through subsidies, which vary on a yearly basis. One farmer interviewed in Poiana Marului reported that, at the current prices for milk (14 eurocents per litre) farmers would rather give excess milk to their animals rather than going through the hassle of bringing the milk to

collection centres. A price of at least 30 eurocents would be much more attractive and incentivize production from smallholders. Furthermore, although it is definitely a supportive measure offering some support to smallholders, the high level of bureaucracy needed for obtaining the subsidy payments does not incentivize farmers to rely to a large extent on this source of income. The fact that the payments are received once per year also do not provide a stable source of income for the farm, allowing farmers to make rather small farm investments.

The farmers interviewed in our sample seem to follow the traditional family household farming model, as 28 of the 31 respondents are living on the farm and 58% of the respondents have permanent farm employees hired from among family members and 25% part time. Hired work both permanent and part time is used by less than 30% of the farm holdings in our sample. The great majority of farmers in our sample fall in the 41-50 years old age category (26% of the sample), followed by 61-70 years old (25.8%).

The **level of education** of the interviewed farmers is **rather low** with only 38% of the farmers interviewed have completed the minimum compulsory education; 51% have graduated from high school or vocational training (of which 9.7% with an agricultural profile), and; only 12% have obtained a university degree (of which 9.7% in agriculture).

Figure 12 - Education levels of farmers interviewed in Brașov county



Some 68% of the sample had **participated in a training course in the past year**, but these were the courses organized by the local Agricultural Payment Agencies on Agri-environment measures and animal rearing.

With over 53% of our sample passing through the second or third part of their lives (40 years and older), the long-term continuity of farms comes in question. Only 34% of the sampled farmers indicating that their children would potentially or surely take over the household, so **much uncertainty exists** in the area as to the future of family farms.

Figure 13 - Low-capacity mechanical mower in the hilly-mountain area of Brașov county

Many of the children of the farmers interviewed either work in the city or abroad. Romania is one of the countries with the highest outward migration trends, with as many as 4 million Romanians being reported as living outside of the country at the moment. In the words of one older interviewee from a particularly pristine village with breath-taking views over Transylvania's mountain ranges, "*It's our responsibility to keep the land after our ancestors have fought for it. Now our children go to work in other countries. I do not think they will come back to this lifestyle. My son has said that if I cannot manage the farm anymore, maybe he will keep 1 cow. It's not just that they work 8h/day, but they don't like this lifestyle anymore. My mother is 81 and she cries thinking how much she has worked to maintain these lands. After my generation dies, the forest will take these lands back.*"

Considering that 84% of the farmers interviewed have been farming for 30 years or more, this quote indicates the break from traditional forms of land stewardship, which has taken place within the lifespan of the current younger adult's generation (under 40 years old). This is leading to the loss of rural labour and a gap in the transfer of traditional hay-making agricultural practices and also to increased innovation through mechanization.

Regarding the use of digital services, only 6.5% reported using book-keeping software on their laptops, 13% were using a management software and subsidy management on their smartphones, (with slightly lower percentages for the same software on laptop). Given that there are few specialized 'apps' for farm management, it is possible though that some of these respondents simply referred to using their smartphones for accessing relevant websites, rather than specialized software. Some 19% rated their broadband connection as excellent, 30% reported that their 4G connection is generally of good quality and only 6.5% reported having a premium fibre connection.
Overall, **two main types of small farmer type** emerged during the fieldwork:

- Firstly, a considerable number of semi-subsistence farmers (both young or old) with up to 5 ha who produce mainly to supplement their household food supply and who (depending on the time they have available) enjoy the lifestyle of preserving the traditional farming model and contributing to maintaining the local (often very beautiful) landscape. Often they are combining some form of paid work with running the farm. These farmers are mostly using low capacity mechanical mowers and paying / exchanging services with their neighbours in the village for the use of a tractor and baler etc.
- Secondly, there are those farmers seeking to professionalize, expand and modernise. Depending upon the resources they have available they are aiming to increase their number of animals, purchase more and better equipment and connect more with professional advisory systems. In many cases they are also looking for opportunities to obtain public funding for their farm development plans.

5.1.1.2 Farmer's attitude towards innovation and change

When asked about their general micro-AKIS, **the farmers reported predominately that talking to others is their main source of information (81% of the sample), followed by observing on other farms (45% of the sample)** (see **Figure 14** below).

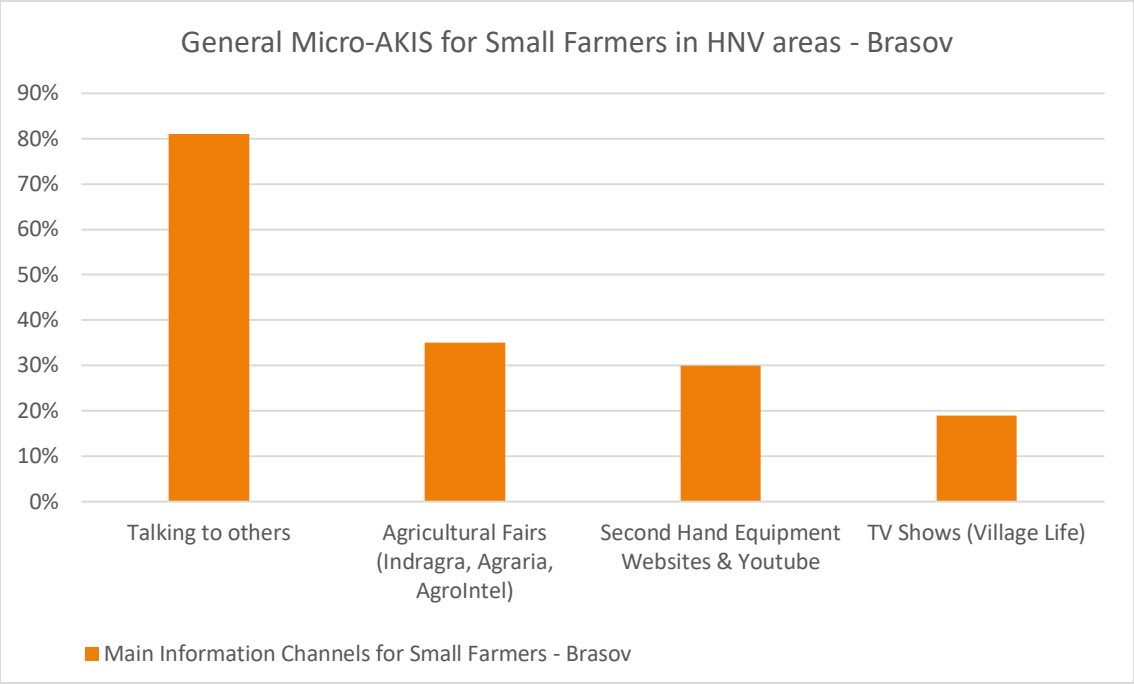
Although they are usually expensive to attend, and mostly aimed at bigger farmers, **35% of the sample reported that agricultural fairs were an important source of information about innovation.** Particular shows mentioned were INDAGRA (Bucharest) and AGRARIA (Cluj-Napoca), but also several fairs in Germany. About **30% of the farmers** also reported using their **smartphones** for checking second-hand equipment sites (e.g. such as OLX.ro and LaJumate.ro) and looking up relevant information (including technical sketches of how to modify or operate materials) on search engines or YouTube**.**

One particular surprise for the interviewing teams was discovering that still a considerable number of farmers (around 19%) reported taking their information from one of the longest-standing **agricultural TV shows on public television, namely "Village Life" (Viata Satului).** The show has been airing for 30 years every Sunday morning, and provides farmers with examples of bigger agribusiness models, Romanian success stories and innovations possible with EU funds. The equivalent **radio show "Village Antenna**" and the existence of an entire **TV channel dedicated to agriculture called TV Agro**. Last but not least, interviewees occasionally mentioned some farmer magazines such **as Revista Fermierul**, as well as new online publications such as Agro-intel[3].

Overall, the general micro-AKIS of farmers in Brasov also places a great emphasis on informal networks, but with less specific emphasis on family members as in Giurgiu. Furthermore, there seems greater reliance on TV, internet and other audio-visual channels with provide free information, as well as agricultural fairs.

[3] https://agrointel.ro/ is popular private website offering comprehensive on-line news and information for farmers

Figure 14 - The general micro-AKIS of farmers interviewed in Brasov county



The general micro-AKIS of the farmers interviewed in Brasov shows that 74% of them are connecting to a wide diversity of professional organizations from farmer based, public and private spheres (see **table 6**):

- The actor that seems to be the most solicited source of information is family members (30% of the sample, n=9), followed by an agricultural NGO based in the northern part of Brasov where fieldwork was conducted which provided one to one advice for 19% of the sample, plus trainings and seminars to 12% of the sample.
- Secondly, farmer-based associations seem to have been very active in providing one-on-one technical, marketing and subsidies advice (16% of the sample).
- Thirdly, the public services provided by the agricultural directorate were mentioned as important (16.12%, n=5).

For the rest, the diversity of actors might indicate either a haphazard approach to obtaining advice, the lack of any central AKIS actor who can serve as a go-to place for farmers or simply varied preferences among respondents concerning the organizations they trust the most. While one to one interaction is still the preferred channel of communication, farmers inform themselves also from the social media channels of the organizations they follow. Lastly, also for the Brașov region the family remains an important source of information and advice, as do other fellow farmers.

Table 6 - General micro-AKIS actors consulted (and their type of interaction) by farmers interviewed in Brasov county

Micro-AKIS Actor	Type of Interaction	Responses	Percentage Sample	Type of Advice
2. Farmer-based organization - association	**One to one (individual advice in person)**	**5**	**16.13**	Technical
				Marketing
				Subsidies
	One to one (individual advice by phone, sms, e-mail)	**1**	3.23	Farm records/account
				Certification
				Legal Issues
				Farm development
3. Farmer-based organization - farmers' circles, clubs or similar	Operational group (EIP)	1	3.23	Other
6. Private sector - independent consultant/advisors	One to one (individual advice in person)	2	6.45	Subsidies
				Farm records/account
				Certification
				Farm development
				Other
7. Private sector - input and machinery companies and industries	One to one (individual advice in person)	1	3.23	Technical
	One to one (individual advice by phone, sms, e-mail	1	3.23	
	Smartphone apps/websites	1	3.23	
9. Private sector - clients, traders, etc.	One to one (individual advice in person	1	3.23	
10. Research and education - universities, institutes, etc.	Technical brochure, manual, magazines or similar	1	3.23	Technical
12. Public sector - national level advisory department of the Ministry of Agriculture	One to one (individual advice in person)	**2**	3.23	Subsidies
	Training session, workshop or seminar	**2**	6.45	
	Technical brochure, manual, magazines or similar	**1**	3.23	
13. Public sector - local advisory department of the Ministry of Agriculture	One to one (individual advice in person)	1	3.23	Subsidies
	Training session, workshop or seminar	1	3.23	Farm records/account
		1	**3.23**	Certification

Micro-AKIS Actor	Type of Interaction	Responses	Percentage Sample	Type of Advice
	Operational group (EIP-AGRI)			Legal Issues
				Farm development
14. Non-Governmental Organisations (NGOs) in the agricultural sector	**One to one (individual advice in person)**	**6**	**19.35**	Technical
				Marketing
				Subsidies
	Training session, workshop or seminar	**4**	**12.90**	Certification
				Legal issues
				Farm development
15. NGOs outside agricultural sector	Training session, workshop or seminar	1	**3.23**	Farm development
				Technical
16. Other		**14**	**45.16**	
Family		**9**	**29.03**	
Other farmers	**one on one**	**2**	**6.45**	
Local Action Group (GAL)		1	**3.23**	
Local administrations (Mayor)		1	**3.23**	Information from the local administration.
Vet		1	**3.23**	

Farmers in the Brașov region receive in general training on Agri-Environment Measures (AEM) from the local payment agencies. These local payment offices are the main point of contact in terms of asking about the necessary paperwork to access certain measures. In spite of the available resources, the vast majority of the farmers interviewed, especially those focused on subsistence, do not apply for RDP measures due to bureaucratic and sophisticated application procedures. **The pioneer farmers who had applied for measures from the RDP to purchase hay-making equipment (one farmer obtained his through M4.1 of 2014-2020 RDP) have used private consultants** who have written the applications for them, against a fee. For many farmers however, especially those without a commercial orientation, consulting professional consultants is unaffordable.

In what concerns simply buying simple second-hand agricultural machinery, farmers usually get inspired from neighbours and other fellow farmers in the vicinity, but increasingly also from other farms abroad. Many farmers in the area perform seasonal farm labour abroad (Italy, Germany, Greece) and observe the practices there. When considering buying the equipment they consult with other family members, fellow farmers, neighbours about new forms of mechanization and technology and then they look up how to obtain the equipment by looking it up online through second-hand machinery websites like OLX.ro or Lajumate.ro.

Table 7 - Main sources of information about innovation for farmers interviewed in Brașov county

	Yes	No
Test and experiment	7	24
Observe on other farms	14	17
Talk to others	25	6
Participate in informal groups/networks	7	24
Developing own network	2	29
Becoming member of formal networks	2	29
Search the internet	9	22
Reading technical magazines	2	29
Going to Agricultural Fairs	6	25
Other	Watching Village Life TV show	

5.1.1.3 Farmer's innovation paths and trigger cycle change model

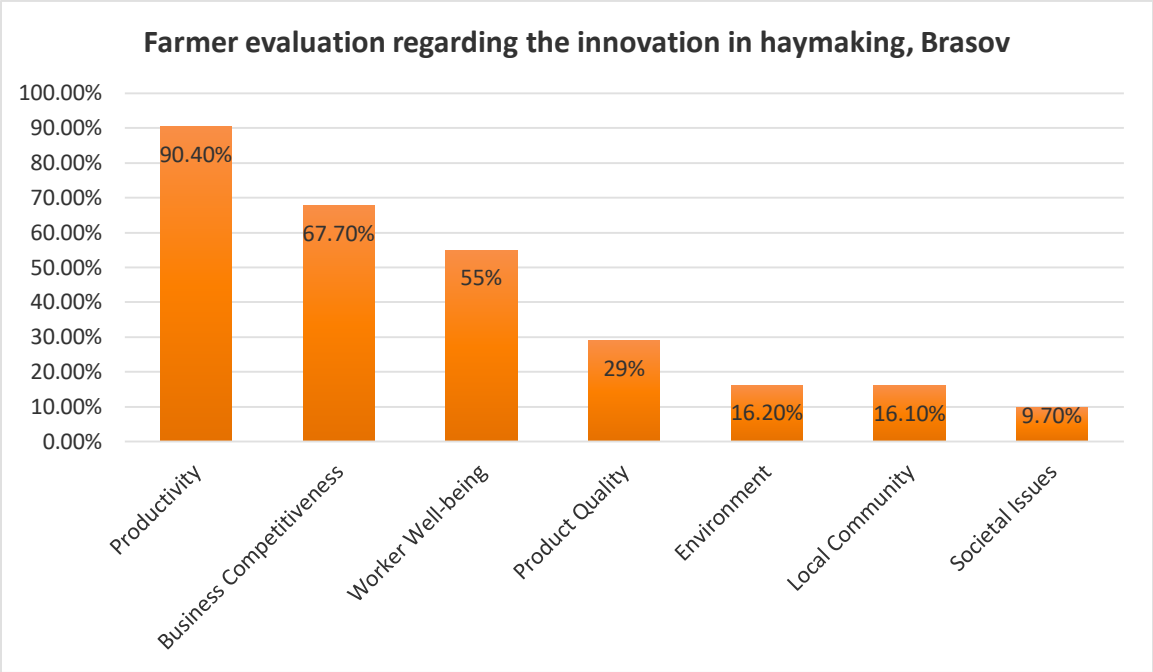
Of the 31 farmers interviewed in Brasov, 27 are adopters and only 4 non-adopters. No droppers were identified.

The farmers interviewed rated that the most important impact of the innovation was beneficial or very beneficial for productivity (90.4% of the sample), business competitiveness (67.7%) and worker well-being (55%) (see

Figure 15). This is because the innovation significantly increases the speed of hay-making and reduces the need for human labour with one person able to do in one day what was possible with a whole family during the same period. Baling machines in particular (especially those producing small rectangular bales) can lead to a reduction of 70% of the storage space which would have traditionally been dedicated for this purpose – namely the traditional wooden barns.

Many of the farmers interviewed first became aware of the innovation at various stages over the past 20 years. In terms of actors with which the farmers have been in contact during the innovation awareness stage, **the biggest influence seems to have been from *fellow farmers or peers* (with 64.5% of the sample farmers having reported reporting frequent or constant contact during this period, and 70% to have consulted with them at least once)** (table 8). 16% of the farmers also reported informing themselves with **NGOs from the agricultural sector** (n=5), indicating the importance of organizations such as ADEPT in promoting innovative low-tillage machinery, as well as information about the AEM subsidies which provide income support for their use of such hay-making practices. Another equally important source of advice came from the **input and machinery companies** (16%, n=5), indicating that the marketing which mechanization solution providers provide in various villages is an important trigger for more demand for innovation.

Figure 15 - Evaluation of the benefits of the innovation by farmers interviewed in Brasov county



Trigger Cycle Model – Awareness Stage

Some of the interviewees in the villages of Poiana Marului and Homorod reported that companies selling low-tillage machinery and spare parts periodically come there to promote their offer of equipment, as well as spare parts. In spite of the marketing and innovation promotion work of some of these companies, **the channels of communications between the advisory actors and farmers do not seem to be well established,** as they do not allow for a constant and uniform information dissemination about innovation among our interviewed farmers. One particular pioneer from Poiana Marului who has purchased a new, performant and environmentally friendly type of low-capacity mowing machine, mentioned that he became aware about the innovation entirely accidentally after seeing the equipment in a petrol station.

Although the interviewed farmers reported consulting sporadically with cooperatives, associations, agricultural chambers, independent consultants, clients, ministry representatives, agricultural technicians and other researchers, these usual one-to-one interactions do not seem to follow a consistent interaction pattern. **This further indicates a haphazard approach to contacting experts rather than the existence of a well-established advisory system on the topic of mechanization in haymaking in Brasov**. Alternative channels of providing advice do not seem to be well developed besides the occasional phone or SMS contact, with training sessions being an available type of interaction only through farmer associations, NGOs, input providers and clients. These were marked by respondents are representing a more reciprocal type of interaction, as were some of the interactions with researchers and neighbours.

Table 8 - Advisory organizations consulted by farmers during the awareness phase of the trigger cycle model (Brasov)

Actor	Times of interaction	No Farms	Percentage	Type Interaction
1. Farmer-based organization - cooperative	Just once	1	3.23	One to one (individual advice in person)
	Sporadic	I	3.23	One to one (individual advice by phone, sms, e-mail)
2. Farmer-based organization - association	Frequent	2	6.45	One to one (individual advice in person)
	Sporadic	I	3.23	Training session, workshop or seminar]
4. Farmer-based organization - agricultural chambers	Just once	I	3.23	One to one (individual advice in person)
6. Private sector - independent consultant/advisors	Just once	I	3.23	One to one (individual advice in person)
	Sporadic	I	3.23	One to one (individual advice by phone, sms, e-mail)
7. Private sector - input and machinery companies and industries	**Frequent**	**2**	**6.45**	**One to one (individual advice in person)**
	Sporadic	**3**	**9.68**	**Training session, workshop or seminar**
9. Private sector - clients, traders, etc.	Frequent	I	3.23	One to one (individual advice in person)
				Training session, workshop or seminar
13. Public sector - local advisory department of the Ministry of Agriculture	Sporadic	I	3.23	One to one (individual advice in person)
				One to one (individual advice by phone, sms, e-mail)
14. Non-Governmental Organizations (NGOs) in the agricultural sector	**Constant**	**I**	**3.23**	**One to one (individual advice in person)**
	Frequent	**2**	**6.45**	**Training session, workshop or seminar**
	Sporadic	**2**	**6.45**	
16. Business partner or farm contractor	Constant	2	6.45	One to one (individual advice in person)
17. Neighbour farmer or peer	**Constant**	**11**	**35.48**	**One to one (individual advice in person)**

Actor	Times of interaction	No Farms	Percentage	Type Interaction
	Frequent	**9**	**29.03**	**One to one (individual advice by phone, sms, e-mail)**
	Just once	**1**	3.23	
	Sporadic	**1**	3.23	
18. Agricultural technician (informal, acting as an individual)	Constant	1	3.23	One to one (individual advice by phone, sms, e-mail)
19. Researcher (informal, acting as an individual)	Just once	1	3.23	One to one (individual advice in person)
20. Other	Constant	3	9.68	One to one (individual advice in person)

Only about one third of the sample remember the first moment when they became aware of the innovation, but time estimates vary greatly (between 30 years and 3 months), depending on when the respondent first came in contact with that particular type of mechanization. As purchasing the equipment was for many a considerable investment, the interviewed farmers generally go through an active assessment phase during which they consider all the characteristics of the equipment. This phase entailed checking the price levels of various companies or second-hand websites, but in some cases also saving up for a certain amount of time in order to be able to afford the innovation, so it can be considered distinct from simple awareness.

The most prominent trigger event that led the interviewed farmers to start actively assessing the innovation on their farm is the increasing labour shortages in their villages (33% of the sample, n=8 out of 24 answers from 31 respondents). This trigger is connected to several societal trends, increasing the high rate of outward migration from rural areas, an aging farmer population, as well as increasing market pressure for more efficient farming practices. Altogether, these changes have contributed to the human labour necessary for traditional farming practices becoming too expensive. Nevertheless, some of the farmers interviewed had to wait for a period, in some cases up to 3 years, before they could afford buying the equipment, so **the drop in prices brought by the mainstreaming of the innovation helped them to acquire it (12.5%**, n=3 of 24 answers from 31 respondents).

For a few others who were previously sharing equipment with other farmers, **the change in weather patterns due to climate change was the main trigger (12.5%, n=3 of 24 answers from 31 respondents),** as unexpected rain during period when traditionally the hay would be drying would force them to have to gather the hay quicker than initially planned. **Other triggers mentioned by farmers were working in other farms and observing the innovation** (n=2), **seeing it on a neighbour's farm** (n=2), as well the **availability of the 40% SAPARD subsidy for purchasing the equipment in 2004-2005** before Romania's accession to the EU in 2007.

In order to be able to assess whether the innovation in haymaking was appropriate for their farm, the interviewees relied on the following main sources of knowledge and skills: talking to others (68% of the sample, n=21), observing the innovation on other farms (48% of the sample, n=15) and searching the internet (35%, n=11) (see **table 9**). Only 25% of the farmers

interviewed reported on testing and experimenting themselves (n=15). **This indicates that the farmers still rely on informal networks in order to assess the innovation,** complemented by obtaining free information on the internet, either via Youtube or via other websites (such as those of equipment producers).

Table 9 - Most important knowledge and skills required by farmers interviewed in Brasov county to assess the innovation

Can you tell the three most important types of knowledge and skills you needed to assess the innovation?		
	yes	no
Test and experiment	8	23
Learning in training/technical workshops	1	30
Observe on other farms	15	16
Talk to others	21	10
Participate in informal groups/networks	2	29
Search in the internet	11	20
Reading technical magazines	1	30
Going to agricultural fairs	4	27
Other	advice with my family	testing and learning on my own

Trigger Cycle Model – Assessment Stage

The strength of the informal networks and their quintessential importance among small rural farmers in HNV areas in Romania are further confirmed by interviewees who report that **neighbouring farmers or peers** (35% of the sample, n=11), as well as **family** (16%, n=5) have been the actors with which they consulted most during this assessment phase (see **table 10**).

Figure 16 - Community based hay-making practices, Poiana Marului, Brașov county

As few as 9% of the sample have frequent contact with an agricultural NGO (most notably ADEPT foundation in the Northern part of the Brasov district), and 16% are in frequent contact over the phone or SMS with farmer associations in Viscri and Vama Buzaului.

One on one in person advice remains the predominant channel for obtaining advice from various advisory actors. The only advisory actors who have been reported to offer trainings are the machinery companies selling the equipment, which are consulted by 13% of the farmers during the active assessment phase. Contact with them is more sporadic, through various channels, including also one to one calls or SMS, during which farmers inquire about the technical capabilities and characteristics of the equipment that they are considering purchasing. In some cases, where the interest of the farmer concerns higher end machinery, farmers might be able to request demonstrations and more tailored advisory services. The particular pioneer from Poiana Marului mentioned previously (who had purchased the new, performant and environmentally friendly low-capacity machinery) requested the equipment reseller to come offer a demonstration on his farm, during which he not only got a first-hand impression of its capabilities, but was also able to ask technical questions.

For 32% of the interviewed farmers the active assessment phase lasted under 6 months, while for another 13% it lasted between 1 and 4 years.

Table 10 - Advisory actors consulted by farmers in Brașov during the active assessment phase of the trigger cycle model, as well as interaction pattern

Actor	Times of interaction	no. answer	Type of interaction	no. answer
Farmer-based organisation - association	Constant	1	One to one (individual advice in person)	4
	Frequent	3	One to one (individual advice by phone, sms, e-mail)	
Farmer-based organisation - agricultural chambers	Just once	1	One to one (individual advice in person)	1
Private sector – independent consultant/advisors	Just once	1	One to one (individual advice in person)	1
Private sector - input and machinery companies and industries	Frequent	2	One to one (individual advice in person)	4
	Just once	1	One to one (individual advice by phone, sms, e-mail)	1
	Sporadic	1	Training session, workshop or seminar	1
Private sector - Hi-tech start-ups, hi-tech companies	Sporadic	1	One to one (individual advice in person)	1
Private sector - clients, traders, etc	Frequent	1	One to one (individual advice in person)	1
			Training session, workshop or seminar	1
Public sector - local advisory department of the Ministry of Agriculture	Frequent	1	One to one (individual advice in person)	1
	Sporadic	1		
Non-Governmental Organisations (NGOs) in the agricultural sector	Frequent	3	One to one (individual advice in person)	3
			Training session, workshop or seminar	2
Business partner or farm contractor	Constant	2	One to one (individual advice in person)	2
Neighbour farmer or peer	**Constant**	**11**	**One to one (individual advice in person)**	**13**
	Frequent	3		
Agricultural technician (informal, acting as an individual)	Constant	2	One to one (individual advice in person)	3
	Sporadic	1		
Researcher (informal, acting as an individual)	Constant	1	One to one (individual advice in person)	1
Family	**Constant**	**5**	**One to one (individual advice in person)**	**5**

Actor	Times of interaction	no. answer	Type of interaction	no. answer
Local LAG - once a year	Once a year	1		

Considering that **87% of the sampled interviewees (n=27) adopted the innovation**, it is clear that following the active assessment phase they identified some clear benefits, especially in terms of the **efficiency and productivity of hay-making in the mountainous areas** where their farms are based (n=24). Farmers however also looked for **affordable and efficient equipment in terms of costs** (45% of the sample, n=14), and considered as well as potential risks related to the **equipment brand, its reputation and viability**, especially considering the fact that many Romanian equipment manufacturers went out of business during the past 20 years (see **table 11** below).

Table 11 - Types of benefits of the innovation as perceived by farmers interviewed in Brașov county

Factor	Cost	Benefits	Risks	Uncertainties
No. of answers	**14**	**24**	**3**	**1**
Comments	Affordable	Efficiency and productivity, the hay is better.	Equipment brand reputation and viability	Will I be able to use it productively on my farm?
	Efficient	More efficient for mountainous type of farmlands (accessibility), an improved hay productivity.	Will there still be spare parts for it in the future (Romanian equipment manufacturers went bankrupt a few years back)	

Trigger Cycle Model – Implementation Stage

In terms of the implementation of haymaking solutions, 9 out of 14 respondents on this question mentioned having acquired new machinery in the last five years. Their motives for pushing through with implementation are similar to the benefits that they considered during the active assessment phase, namely the increases in efficiency in an environment where farm labour is increasingly scarce, as well as the suitability of the mechanization solutions to the steep slopes common in the hilly-mountain areas.

In terms of advisory actors with which they consulted during the implementation phase, other farmers and other peers such as neighbours again rank as the most important source of advice. Alongside these, input providers were ranked as second most important source of information (but with only 16.5% of the sample, n=5), while 9% asked for the advice of an agricultural technician or an NGO in the agricultural sector (n=3) (see **table 12**).

Table 12 - Advisory Actors consulted during the implementation phase of the trigger cycle model (and their interaction pattern) by farmers interviewed in Brasov

Micro AKIS Actor	Times of interaction	No. answers	Type of interaction	No. answers
Farmer-based organisation - association	Frequent	1	One to one (individual advice in person)	2
	Sporadic	1	One to one (individual advice by phone, sms, e-mail)	
Farmer-based organisation - agricultural chambers	Sporadic	1	One to one (individual advice in person)	1
Private sector - input and machinery companies and industries	**Frequent**	**2**	**One to one (individual advice in person)**	**5**
	Just once	**1**	**One to one (individual advice by phone, sms, e-mail)**	**1**
	Sporadic	**2**	**Training session, workshop or seminar**	
Private sector - clients, traders, etc	Frequent	2	One to one (individual advice in person)	1
			Training session, workshop or seminar	1
Non-Governmental Organisations (NGOs) in the agricultural sector	**Constant**	**1**	**One to one (individual advice in person)**	**3**
	Frequent	**2**	**Training session, workshop or seminar**	**1**
Business partner or farm contractor	Constant	1	One to one (individual advice in person)	2
	Just once	1	One to one (individual advice by phone, sms, e-mail)	
Neighbour farmer or peer	**Constant**	**7**	**One to one (individual advice in person)**	**10**
	Frequent	**3**	**One to one (individual advice by phone, sms, e-mail)**	
	Just once	**1**		
Agricultural technician (informal, acting as an individual)	**Just once**	**2**	**One to one (individual advice in person)**	**3**

Micro AKIS Actor	Times of interaction	No. answers	Type of interaction	No. answers
	Sporadic	**1**	**One to one (individual advice by phone, sms, e-mail)**	
Other: **Family** **YouTube tutorials**	Constant	2	One to one (individual advice in person)	1
			Smartphones	1

Non-adopters

Figure 17 - Farming family using traditional hay-making practices extensively, Poiana Marului, Braosv, Romania

From the whole sample (n=31), only 4 respondents reported themselves as being partial or full non-adopters. The reasons invoked for non-adoption are varied, ranging from lack of financial and human resources to run the farm at a level at which mechanization is needed, to subjective beliefs related to enjoying the traditional methods of haymaking (see **table 13** below). The partial adopter occasionally leases the mechanization solutions from neighbours and the local community.

Despite the low number of non-adopters, most small-scale farmers interviewed would still use a combination of modern and traditional hay-making practices, depending on the slopes on their meadow land. This is the case, for example, with the family in **Figure 17** above.

Table 13 - Reasons for non-adoption from farmers interviewed in Brasov county

Why	Comment
Resource restrictions	Lack of financial resources
Lack of support	He has 2 sons that do not support him yet consistently with the sheepfold. He said he will buy machinery when they decide to really join him.
Subjective beliefs	He comes from a family with long tradition in livestock rearing. He grew up on a sheepfold. He is very used in working non-mechanized and lease what he needs.
Emotions	Old way is the best way

No droppers were identified during the survey work. When farmers were asked why there are no droppers in their communities they asked back "Who would return to doing what you could do in a day with 10 people when now you can do it by yourself, sometime even in an hour?"

5.1.1.4 Farmer's innovation micro-AKIS

In the case of retro-innovation for Brașov, the study of the farmers' micro-AKIS throughout the Trigger-Cycle Model of the innovation reveals that **neighbouring farmers are the most important group of actors for farmers interviewed, followed by NGOs**.

These two types of advisory providers seem to be have been consulted by farmers throughout the awareness, assessment and implementation phase, but the NGOs seem to have played a more important role in introducing the innovation. Input providers and machinery companies played a similar role for the awareness raising stage, and then during the implementation, but farmers preferred to assess the benefits of the innovation and decide whether to invest in it or not together with the family. Lastly, some farmers seem to have requested the services of specialized agricultural technicians, but mainly during the implementation phase.

The most invoked trigger that led to the adoption of the innovation was the increasing labour shortages in the village due to migration. These made finding the appropriate labour needed for traditional hay making practices more unlikely. The drop in prices for second-hand equipment made it then possible for farmers to substitute the missing labour with equipment. Although farmers were initially sharing equipment within their village networks, the changing weather patterns forced farmers to dry and collect their fodder during shorter time-spans throughout the summer, convincing more farmers that they should purchase their own equipment. These triggers indicate that the farmers in the interviewed region pay more attention to local conditions and seek solutions also within their networks, rather than paying attention to international trends.

Figure 18 - Micro-AKIS of farmers throughout the 3 phases of the Trigger Cycle Model (Brasov county)

<table>
<tr><th>General Micro-AKIS</th><th>Trigger Cycle Model – Awareness Raising</th><th>Trigger Cycle Model – Assessment Phase</th><th>Trigger Cycle Model – Implementation</th></tr>
<tr><td>NGO
(31% of sample)</td><td>Neighbouring farmers
(64.5% of sample)</td><td>Neighbouring farmers
(35% of sample)</td><td>Neighbour farmers
(30% of sample)</td></tr>
<tr><td>Family
(30% of sample)</td><td>NGOs
(16% of sample)</td><td>Family
(16% of sample)</td><td>Input providers & machinery companies
(16.5% of sample)</td></tr>
<tr><td>Farmer Associations
(16% of sample)</td><td rowspan="2">Input providers & machinery companies
(16% of sample)</td><td rowspan="2">NGO
(9% of sample)</td><td>NGO
(9% of sample)</td></tr>
<tr><td>Local advisory Department of the Ministry of Agriculture
(16% of sample)</td><td>Agricultural Technician
(9% of sample)</td></tr>
</table>

The prevailing importance of neighbour farmers or peers in the process of adoption of innovation plays both positive and negative roles. On the one hand, the local network of farmers is an important safety net of peer support and source of information in a context of weak and fragmented regional FAS (see **section 5.1.2**). Considering the lack of demonstration farms highlighting different technologies in the area, these networks get inspiration by working on foreign farms and then copying the practices and technologies observed in their own contexts.

On the other hand (and depending on local circumstances), the village networks often resemble closed groups and more networking would be needed in order to assure that all farmers gain equal access to valuable information. In certain villages, the farmers who are closer to the village elite hear sooner about both technological and funding opportunities, while other farmers remain locked out of these important information loops. Public advisory services available closer to farmers, but also offering services for all categories of farmers would help alleviate this problem, but also increase the level of professionalism of this advice.

5.1.2 Findings from the AKIS experts interviews and advisory organisations survey

5.1.2.1 Advisory landscape in the focus region

The advisory landscape regarding mechanized haymaking solutions for small-scale farms in HNV areas in Romania's Brasov region reflects the overall situation of the weak and fragmented AKIS systems in the whole country. To compensate, farmers' first resort is to rely on their informal networks of neighbours and peers, as well as on free information available on the internet. Depending on the active actors around their villages, farmers may have access to professional organizations that provide support on AEM, technical and, at times, also some innovation support.

The main organizations involved in advisory functions in the region of Brasov are:

- The Agricultural Payment Agency (APIA) and the County-level Agricultural Directorate (DAJ)
- Independent consultants

- Equipment re-sellers
- Farmer Associations
- NGOs (ADEPT)

5.1.2.2 Key players of advice for the innovation area in the focus region

Currently, the main organizations providing public advisory services for farmers in Brasov are the Agricultural Directorates (DAJ). The Brasov DAJ currently offers trainings and support to farmers to write applications for various measures of the Rural Development Programme (RDP), but also qualification courses on cultivating plants, horticulture and animal husbandry (provided on demand). The Agricultural Directorate (DAJ) also holds information sessions together with the Agricultural Payment Agency (APIA) on the RDP measures to be launched (once per year), as well as on Agri-Environment Measures (AEM) (up to three times per season). The latter courses focus on HNV areas (such as Poaiana Marului) and explain GAEC eco-conditionality and SMR, but also other requirements for AEM application process. The courses do not focus on promoting innovation per se. Without proof of having attended these courses, the farmers are not allowed to receive the benefits. While the institution is funded by the Ministry of Agriculture and Rural Development, it also receives standard fees for supporting farmers with their projects (namely the equivalent of ~215 euro for writing an application for RDP measures, ~90 euro for qualification courses and a contribution per course participant for AEM measures).

Overall, the service offer of the institutions is very geared towards supporting farmers to access funding through RDP measures, rather than responding to the more diverse range of needs of farmers on the ground. This is likely in part because of their current mandate, but AKIS interviewees mentioned that currently DAJ and CLCA authorities are very under-resourced both in terms of staff and in terms of facilities to be able to respond to farmers' needs. Several interviewees who had previously worked in the institution mentioned that the staff do not even have appropriate cars to access the district's remote rural communities, which usually have poor road connectivity. For all these reasons, it is not surprising that farmers would rather turn on their informal communities for advice, and occasionally to other agricultural consultants.

Independent private consultants acting as farm advisers in Brașov county therefore usually wear two hats. They are either agronomists or re-sellers of equipment, but they are also prepared to write projects for farmers in order to obtain the funding necessary to purchase their equipment. In order to support farmers in finding a suitable consultant for their application to RDP measures, the Agricultural Payments Agency (AFIR) provides on its website an official list of consultants[4] listing more than a hundred consulting businesses specialized on different RDP measures. Nevertheless several interviewed farmers have mentioned that they came in contact with their consultant through informal social networks. A few independent agricultural consultants mentioned by interviewees were:

- An agronomist and re-distributor of agro-chemical inputs for large-scale Homorod farmer;
- An importer of equipment from Germany who helped one pioneer commercial farmer from Poiana Marului to apply for Measure 4.1 of the National Rural Development Plan 2014-2020;

[4] https://portal.afir.info/informatii_generale_rapoarte_si_liste_lista_firme_de_consultanta

- The director of an Official Control of Milk/Meat Performance (COP) for Romanian cow breeds, offering technical support as well as information about subsidies to a commercial farmer from Sinca Noua;
- A consultant commonly referred to by the APIA payment agency officials in Poiana Marului.

Other private companies have specialized as niche equipment re-sellers in the Brasov district, such as Agro-Serv Brasov. Some regularly come to villages on Sundays to sell spare parts, or show-case new equipment, and they are an essential source of spare parts and information for many farmers in HNV areas where equipment adaptations are needed or where there are high numbers of second hand machines which require maintenance. Farmers also consult their websites, and according to the survey, might occasionally hold some trainings.

Farmer associations have been noted as being important in at least two villages were AGRILINK fieldwork was conducted, namely Viscri and Vama Buzaului. The **Agro Eco Viscri-Weisskirch** brings together all the farmers in the village. They produce meat and especially milk and commercialize it together. This association was started by Caroline Fernolend, a local saxon woman, who is also the leader of a local NGO called Mihai Eminescu Trust. The NGO disseminates the information within the association with the support of external resources and experts that they invite to speak at their events. **Asociatia Transhumanta Vama Buzaului** was initiated by the mayor of the village who wanted to preserve natural heritage, and in particular the natural pasture of the village, which is of cultural significance and a rich source of biodiversity. The association is funded by the Agricultural Payment Agency (APIA). Although it would be beneficial for more farmer associations to develop in the district of Brasov (among other benefits, in order to better disseminate information to farmers), AKIS experts interviewed mentioned that there is still a reluctance to collaborate due to a lack of leadership, strategy and vision in many rural communities.

LAGs exist in several regions of the district. Besides the LAG in Codlea, which reportedly offers general support to farmers in the regions, other LAGs do not play a role in supporting innovation in agriculture through risk reduction – their main focus has been on identifying non-agricultural sources of income.

Also, in terms of broader knowledge actors, Transylvania University in Brasov (UTB) only has forestry and food technician specializations, so is not able to act as an agricultural knowledge expert for local farmers. The only educational institution that provides some training in this field is the **Prejmer Agricultural Highschool**, which offers basic training on horticulture, animal husbandry and other specializations, without much focus or resources for the dissemination of innovation. Nevertheless, following 30 years of unsuccessful reforms in vocational training, such institutions have lost the good reputation they had during the communist period. One AKIS actor interviewed mentioned that in recent years few students attend its classes as being a farmer is no longer recognized as a lucrative profession. The situation of these two educational institutions in agriculture is indicative of the fact that Romania is the EU Member State with the highest number of farm heads, of which 96.4% have only practical farming experience and no formal training.

One particularity of the region of Brașov is the active presence and involvement of NGO actors in informing farmers about retro-innovation and hay-making practices. This is likely because of the high value of the environment in the area, and not a consistent pattern to be expected in across Romania. In the region of Brasov, **ADEPT,** a biodiversity conservation and rural development based in the HNV area of Saschiz, has been noted as being particularly important by farmers. ADEPT has

been working for the last years to protect the nature-rich farmed landscape of Transylvania and to support the traditional farming communities who have created them over centuries and who maintain them today. ADEPT is carrying out an integrated programme linking economic and social benefits with biodiversity conservation and raising local capacity for good management in the future. The NGO has developed meetings for farmers and practice seminars related to new machinery, the legal procedures for receiving subsidies for their farm and land, and more information about marketing and how to improve sales for their products. Some of the farmers were taught how to use hay making machinery or they received in custody one of these to work with in their village. **These trainings started 10 years ago when funding was available, but they only take place on a need-basis – depending on NGO resources, new know-how is disseminated.** Nevertheless, general support for farmers in the area is ongoing.

5.1.2.3 Transformation of advisory landscape

In terms of **public policies** there was **general agreement between all interviewees that the free extension services that used to be provided by the publically-funded National Agency for Agricultural Consulting (ANCA) until 2010 were very useful or farmers and that they should be re-introduced.** The ANCA was established in 2008 by MADR, within the framework of an EU-financed project under the PHARE program with headquarters in Bucharest and its network of County Centres for Agricultural Consulting (OJCA – Oficiul Jude□ean pentru Consulantă Agricolă) in the 41 county capitals and Local Centres for Agricultural Consulting (CLCA = Centre Locale de Consultan□ă Agricolă). Concerning the technical aspects, the ANCA played a role of coordination, especially for the information and the training of farmers. They published technical magazines (The Village Magazine), organized free periodic thematic meetings with farmers in each commune (group of villages) in the district, provided on-demand consultancy and extension services for research transfer and exploitation.

The institution however underwent several reforms and subsequent waves of centralization and decentralization, changing their subsidiarity between regional authorities and the Ministry of Agriculture. During this process, the quality of the advice work for farmers became questionable due to the large-scale use of OJCA and CLCA extension staff to undertake non-extension activities. The 2010 re-organization of the national ANCA and the regional OJCA lead to the establishment of **Regional Agricultural Chambers (CAJ)**. The reasoning for this move was to *"create leaner public expenditure and supporting he business environment in accordance with the framework agreements with the European Commission and the International Monetary Fund".*

The CAJ were intended to be **self-funded, receiving only subsidies from the public budget**[5], but in the years that followed the wave of decentralization in 2010-2011 significant difficulties and disparities in communication and prioritization of activities appeared between different regions within the country. This prompted the need for more coordination between CAJ offices in different regions and MADR, leading to common set of procedures for administering the institutions but also managing external services. In essence**,** it was during this period (2012-2015) that the decision was taken to set as the main priority of the CAJ to support the implementation of the European legislation in the reference domain of the CAP for the 2014-2020 programming period. This included providing advisory services on the norms and

[5] Law nr. 283/28 December 2010 (Law for Agricultural Chambers for agriculture, forestry and rural development) improved with Law nr. 122/6 July 2012

requirements for eco-conditionality, of the code of good practices for agriculture and the environment, as well as promoting of RDP measures. All other requests from the side of the farmers, or other organizations, would therefore become of secondary interest. This is reflected on the range of services offered in 2019 by CAJ Brasov (see **Section 5.1.2.2**) which focus almost entirely on supporting farmers with their applications for various RDP measures.

In 2016 law number 157/2016 recentralized the CAJ so moved from local Council to Regional Agricultural Directorares (DAJ). Together with the governmental decision HG 860, the new regional DAJ offices took on the activities, personnel and attributes of the old DAJ and CAJ, including that of providing agricultural advice, inspecting, verifying and control from the Romanian Ministry of Agriculture and Rural Development (MADR). The number of staff would be decided at a ministerial level, and the leadership of the organization would contain a mix of positions from all the institutions reorganized through this reform.

In terms of resources and staffing, in 2013 the county level chambers' human resources comprised of 360 staff members in all 41 county offices with an average of 7-9 staff/county office. At local (village) level, there are roughly 500 offices with 1 staff/office (most of them known as "the agronomist from the Mayor's office"). The ratio number consultant/beneficiary is 1/4700 (including subsistence farms) or 1/1764 (taking into account only the farms registered into the National Farm Registry). In 2019 the DAJ in Brasov had 3 back-office employees focused on providing advisory support in the form of helping farmers prepare the RDP applications and qualification courses on RDP measures, and two employees in the field, providing implementation support and some zoo-technical training. Overall in 2018 the Brasov DAJ was able to help farmers submit 12 RDP projects on behalf of farmers, of which 11 on M6.3 and one on M4.1 on mobile slaughterhouses. Also, within a years' time, they trained 72 farmers with their qualification courses, 64 of which passed the final exam, and they also informed 414 farmers about the AECM measures (M10) and organic production (M11). Considering that Brașov had in 2007 around 47,980 agricultural holdings, even taking the number of farms informed about AEM measures into account, we see that less than 0.008% of the population could benefit from these measures.

Quantitatively, it is obvious that the advisory staff is inadequate to cover even a minor proportion of Romania's farmers. Experience elsewhere in Europe has shown that coverage of between 1 and 1.5 full time equivalents (FTE) of professional expertise is required to adequately serve 100 farmers i.e. one consultant for between 65 and 100 farmers (Doorman and Eissen, 2006).

Subsidies for retro-innovation such as buying low-capacity hay-making machinery have been available in Romania throughout various programming periods since the SAPARD pre-EU accession program, when 40% subsidy was offered to purchasing the equipment in 2004-2005. During the 2017-2014 programming period funding was also offered through measure 141. Nevertheless, due to the competitive and bureaucratic process, only the commercially-oriented small farmers who are ready to pay for the consultancy fees tend to apply to such RDP measures.

Considering all these **aspects, it can be said that public advisory systems in Brasov are only able to play a limited role in providing information, advice and implementation support to farmers in the region.** This is largely due to their **low staffing and resource endowments**, particularly in what concerns their ability to travel to the field and be present in the proximity of farmers. Furthermore, considering their priority mandate of supporting the implementation of the RDP, the DAJ offices are **limited in their ability to be responsive to farmers' actual needs** - which may lie outside

the boundaries of what the RDP menu has to offer. Considering the low level of vocational education in agriculture in the country at the moment, significant efforts must be dedicated from the side of public advisory authorities in order to both respond to the existing gaps and invest in providing advice on innovation.

The regional and national network of **independent consultants** has managed to supplement current innovation advisory needs for farmers only to a very limited extent. This is largely because the vast majority are focused on supporting farmers with applications for various RDP measures, and, at times, also with implementation. **According to some AKIS actors interviewed, the number of independent consultants has increased substantially over the years, leading to more competition within the advisory market, but also more uncertainty for the farmer.** Independent consultants finance themselves from the allowed consultancy fees for RDP measures, requesting a 6-10% share of the available budget for this. Many ask for at least 50% of the payment upfront, regardless of whether the application is successful or not. These conditions may vary depending on the strength of the personal ties between the farmer and the consultant. **Several farmers interviewed, particularly smaller farmers, mentioned that they find such investments too risky, and therefore avoid using their services**. The APIA representative from Poaiana Marului warned that many independent consultants present only the benefits of the project to the farmer, but they often do not also present the conditionalities for obtaining the funding on some Pillar II measures of the CAP menu (such as the fact that within a 2-3 year period farmers need to further grow their agricultural business).

Lastly, the lack of advisory services focused on providing farmers with advice on basic production techniques has also left considerable room for **agricultural input companies** to play that role for farmers. While in the case of retro-innovation, and low-tillage machinery more specifically, this has not led to many adverse effects, there are concerns that, in the field of agrochemicals, input providers are not informing farmers sufficiently about the full range of consequences.

5.2 Case 2: Giurgiu the role of farm advice in innovation case

5.2.1 Findings related to the Farmer's survey

5.2.1.1 Farmer's profile and farm structure

In the Giurgiu focus region, although all interviewed farmers own exclusively agricultural land, only 9 out of 37 respondents reported using their land exclusively for agricultural purposes. For 60% of the sample agricultural activities represented between 50-100% of the sales of the holding represent the production from the farm, while for another 30% of the sample these represented 100%.

Figure 19 - Farmer from Giurgiu county with a cellar full of preserves for self-consumption and sale

For 30% of the sample, 75% of the sales went directly to the final consumer, while another 60% reported that they did not sell to the final consumer at all. 40% of the 49% who reported on this question mentioned their farm was not involved in any other form of income generating activities. Nevertheless, although the income of the farming household seems to come to a large extent only from agriculture, subsidies seem to still be an important form of income support. Around **60% of the sample benefits from agricultural subsidies and for 45% of these the subsidies represent up to 50% of the farm's income.**

In terms of farm structure, 60% of the sample (22 out of 37 respondents) reported being small farmers (farms under <5ha land). Land ownership levels are rather high, with 87% of farmers owning the land they cultivate. As expected given the agricultural profile of the region, the main crops are vegetables (14 out of 37 responses) and cereals (10 out of 37 responses), with some respondents reporting having kitchen gardens, cultivating culinary plants and sunflower. Considering that the region is particularly well-suited for vegetable production, it is no surprise that half the respondents (18 out of 37) report producing them in greenhouses or poly-tunnels.

Table 14 - Total number of hectares (ha) managed by farmers interviewed in Giurgiu county

	No. of responses	Total no. of ha
Wheat and Spelt	10	8
Durum wheat	1	30
Barley	1	0.5
Grain Maize	3	51
Corn	8	11.25
Alfalfa	3	2.5

Sunflowers	4	42.5
Aromatic, medicinal, culinary plants	2	0.25
Aromatic, medicinal, culinary plants (Organic)	2	3.5
Tomatoes	4	1.85
Green Garden	2	0.35
Peas	1	2
Berries	4	3.9
Vineyards	1	1.6
Leguminous plants	1	0.4

Table 15 - Total number of animals owned by farmers interviewed in Giurgiu county

	No. of responses	Total no. of heads
Bovine: dairy cows aged over 2 years	1	20
Bovine: other cows	1	7
Sheep	3	32
Goat	3	46
Pig: piglets up to 20kg	13	67
Pig: breeding sows over 50kg	1	20
Pig	5	17
Poultry: laying hens	7	230
Poultry: broilers	16	1200
Geese	3	27
Turkeys	1	10
Ducks	5	85
Quails	1	450
Horses	4	9
Beehives	2	100

In the traditional small farmer agricultural system of Giurgiu, family farming is a common practice. 72% of the sample (27 out of 37 respondents) work the land together with their permanently hired family members, while only 37% of the same use permanent hire labour. Part time working arrangements are more common for hired labour and constitute 27% of the sample (10 out of 37 responses). 83.8% (31 out of 37 respondents) have not had work experience outside of agriculture, showing a high dependence of the farms on the income earned through farm activities. Although not all respondents offered answers as to their housing arrangements (45% of answers are missing), at least 30% of the Giurgiu focus region sample lives on the farm, with another 16% (6 respondents) living there on a part-time basis.

In what concerns age structures, 35% of the sample respondents in the Giurgiu area are between 31-40 years old, while another 32% are 41-50 years old. Only 18% of respondents were 51 or older, but given the family farm socio-economic model of the region, it is likely that the families of many of the farmers interviewed contain also older dependants. These figures seem to suggest that regardless of potential farm ownership rights within the family, farm management has been passed on to the younger generations.

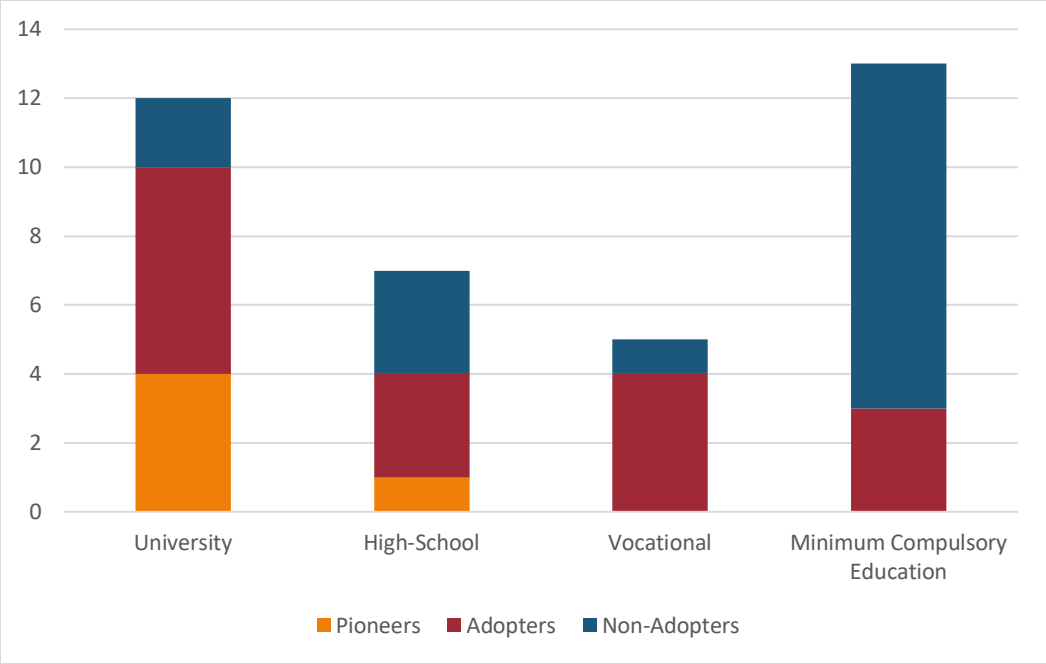
In spite of the fact that most of the sample is comprised of young and middle-aged adults, when asked whether they used any farm management software, only 5-8% reported using either paid or open-source apps. These apps were mainly used for book-keeping, but also for management on a smartphone, or a laptop device; less than 2% of the sample used apps for subsidy or crop management purposes. The lack of popularity of digital tools is not surprising considering that only 29% of the sample has a broadband internet connection at home, but the area does benefit from good 4G connectivity, making internet easily accessible by phone at any location.

According to one of the direct marketing app owners, connecting consumers to producers around Bucharest, most farmers now own a smart-phone, although not everyone is comfortable in using it fully. Nevertheless, he mentioned that there have been only a few cases where the farmers who explored their online platform decided to leave the system, showing that a user-friendly approach of digital tools is important for encouraging them to keep engaging with this new medium.

There is a clear differentiation between the level of education of adopters and non-adopters within the Giurgiu sample (see **Figure 20** below).

The interviews with adopters who had developed their own online brands, or direct online sales changes revealed that many had worked in marketing, sales or in other businesses before deciding to start their own business. The change from a corporate job to a farm-based one was circumstantial for many of them, and either due to the inheritance of a farm, or a decision to start a new occupation due to a desire to change lifestyles. In shifting occupation though, these innovation adopters could therefore not only rely on their personal knowledge, experience and education, but also had the right informal micro-AKIS, where friends or family from the highly skilled corporate world of Bucharest can offer technical support or advice in building an online shop or their websites. For this reason, one of the AKIS actors interviewed regarding the digital marketing trend which developed around the capital city went as far as to say that the farmers who sell through these online marketing channels are "not real farmers"

Figure 20 - Education levels of Pioneers/Adopters/Non-Adopters interviewed in Giurgiu county



5.2.1.2 Farmer's attitude towards innovation and change

When looking at the general microAKIS of the farmers, we realize that 60% of the responses indicated that they have engaged with a variety of actors from farmer based, public and private spheres. The only actor that seems to be among t**he most solicited sources of advice is the local advisory department of the Ministry of Agriculture (26% of the sample, n=7)**, which in the context of Giurgiu might represent either the regional Agricultural Payment Agency office (APIA) or the agricultural directorates (DAJ) in the region. The second most common adviser is the **client or trader buying the product (18% of the sample, n=5) and independent consultants (11%, n=3)**. For the rest, the diversity of actors might indicate either a haphazard approach to obtaining advice, the lack of any central AKIS actor who can serve as a go-to place for farmers or simply varied preferences among respondents concerning the organizations they trust the most. While one to one interaction is still the preferred channel of communication, farmers inform themselves also from the social media channels of the organizations they follow.

The most interesting observation regarding the general micro-AKIS of farmers in Giurgiu is that out of the 60% of responses that indicated engagement with a professional advisory institution, 70% came from adopters or pioneers, indicating a potentially strong correlation between seeking professional advice and adopting innovation. Only 3 adopters also mentioned consulting with other sources of information, such as family, compared to the 13 non-adopters (who make up 35% of the sample).

Table 16 - General micro-AKIS of farmers interviewed in Giurgiu county and the types of interactions

Micro-AKIS Actor	Type of Interaction	Responses	Adopter Responses
Farmer-based organisation - **farmers' circles, clubs or similar**	One to one (individual advice in person)	2	2
Private non-profit - farmers' owned advice company	One to one (individual advice in person	1	
	Through social media such as Facebook or Twitter	1	
Private sector - independent consultant/advisors	One to one (individual advice in person	2	1
	Technical brochure, manual, magazines or similar	1	1
Private sector - input and machinery companies and industries	One to one (individual advice in person)	1	1
	Smartphone apps/websites	1	1
Private sector - clients, traders, etc.	One to one (individual advice in person)	2	2
	Training session, workshop or seminar	1	1
	Through social media such as Facebook or Twitter	1	1
Research and education - universities, institutes, etc.	One to one (individual advice in person	1	1
Public sector - national level advisory department of the Ministry of Agriculture	One to one (individual advice in person)	1	
	Through social media such as Facebook or Twitter	1	1
Public sector - local advisory department of the Ministry of Agriculture	One to one (individual advice in person)	**7**	4
Non-Governmental Organisations (NGOs) in the agricultural sector	One to one (individual advice in person)	1	1

Overall, the fact that 43% of the sample (16 respondents) mentioned that they get advice from 'other' sources rather than the conventional ones listed in the questionnaire is indicative of both the **low levels of trust in certain rural communities with regards to public or private authorities, but also of the lack of widely known and accessible professional adviser**s. **From this 43%, 56% (9 respondents out of 16 respondents) mentioned that their family is their most important source of advice, while another 37% reported taking decisions by themselves.**

As one farmer said: "*...in this area people are not used to ask for advice, they are producing or taking decisions on their own or in some cases they are discussing the farm future with the family*". Considering the fact the prevalent family-based farm household model in the region, investments regarding the farm, improving the farms' business model or sales channels require the cooperation and agreement of the family members

who need to contribute either financially or through their time investment to the implementation of the innovative idea. Nevertheless, if interpreted in the context of the adopter/non-adopter distinction, these findings might indicate the fact that family farms/those who consult primarily with family members are less likely to adopt innovative practices such as direct marketing channels.

When asked about the three most important skills which they need to know for the current management and planning in their farms, 24% of the sample (9 out of 37 respondents) mentioned they primarily need to **search the internet**, 13.5% mentioned the importance of developing their **own network of pioneers and researchers**, whilst 11% said that it's participating in **informal groups/networks** and **testing or experimenting on the farm** (see **table 17**). The other 40% of responses were divided between farm observations, talking to others and reading technical magazines. Fairs and trainings were preferred only by two respondents, potentially because these are either more appropriate for larger farmers or because they are more costly to attend.

Table 17 - Most important skills needed for their farm as reported by farmers interviewed in Giurgiu county

Skills	Responses	Percentage
Search in the internet	9	24.3
Developing own network (pioneers, researchers, etc.)	5	13.5
Test and experiment in the farm	4	10.8
Participate in informal groups/networks	4	10.8

Nevertheless, the fact that navigating the internet is the preferred state of way of the interviewed farmers to obtain new information indicates the potential for developing online training materials and open source innovation advice.

5.2.1.3 Farmer's innovation paths and trigger cycle change model

Through our research, we interviewed 37 respondents, out of which 19 were non-adopters of innovation, 18 were adopters of innovation and 3 were droppers.

The pioneers interviewed through the Giurgiu case study have seen the online direct marketing trend evolve over the past ten years in Bucharest. The pioneers interviewed had first been introduced to these new marketing techniques as far back as the year 2000, with **two pioneers reporting that this new trend started popping up in Bucharest around 2010**.

Figure 21 - Cocosul Rosu – an integrated restaurant model (from farm to fork) in Giurgiu county

While in the beginning, many of them were **competing with only 3-4 farmers in their Google Search online sale niche market, now there may be hundreds or thousands from Bucharest and the rest of the country who promote their produce within the same cyberspace.** Although there is some differentiation as to how competitive each channel has become, the trend is the same whether one is thinking about the Facebook route, the use of apps or farm to table restaurants. **The evolution of direct marketing channels has not been linear though**. Some of the initial pioneers have become droppers and have closed their business due to inner company conflicts or deciding to immigrate (Cosul cu Legume). **Others have developed a diversity of direct marketing channels and evolved through them**, from online stores, Facebook pages, groups, to trying partnerships with local gourmet food boutiques and eventually tying contracts with local supermarkets. In doing so they have explored the benefits and pitfalls of each channel (in terms of quantities sold, stability of demand, quality requirements, amount of effort in managing) and sought to respond to changing market trends and consumer preferences.

For most of the pioneers, the journey of having developed and grown Bucharest's direct marketing niche was a journey of pure entrepreneurship, of keen observation and adaptation to competitors, as well as to consumers' response and trying out new recipes. Besides relying on whatever pre-existing knowledge of marketing from their occupations before farming, and some professional or informal advisers from their previous networks, none of the pioneers or adopters interviewed received any farmer-focused advisory support organization.

In many cases, the private sector advisers they worked with were website developers who were either friends, or family, or university professors with whom the pioneer had come into contact during their university studies. Also, 'app' developers such as Taraba Virtuala invested time to make their platform as user-friendly as possible for farmers, reducing the accession barrier. Regardless of these efforts, **to the best of our knowledge and that of everyone interviewed, no public or private advisory**

services for farmers currently exist in the areas of Bucharest and Giurgiu regarding how to start a direct marketing channel for one's farm.

This might also be the reason why many of the farmers with lower levels of educations, who have never had any other occupation besides farming, have remained non-adopters and still sell in the traditional markets of Bucharest. Another reason might be that, having not produced niche products, the non-adopters might not have a very strong reason to seek alternative means to reach their specific customers.

Respondents who adopted direct marketing arrangements evaluated the innovation as being very beneficial for productivity (27%) and business competitiveness (38%). One particular pioneer selling quail eggs mentioned that without direct marketing channels his business would have likely not existed, or in case not been very successful, as promotional costs in order to identify consumers through traditional marketing channels would have been very expensive.

The online platforms helped both producers and consumers from market niches (such as organic products, rare medicinal plant varieties) to find each other. At the same time, since farmers started to sell online or to a supermarket, they have also had to uphold regulations that helped increase product quality (21%). In the case of direct marketing arrangements with supermarkets, while farmers appreciated the stability of the business relationship, they also balanced the assessment of this marketing innovation against the smaller prices they receive, as well as the risk of high dependency on the supermarket chains. Respondents in 10% of the cases, or less, mentioned effects on the environment, worker health and safety and local community wellbeing.

Trigger Cycle Model – Awareness Stage

Since the development of direct marketing channels was developed alongside the development of the online platforms themselves, many respondents do not remember the exact date when they became of aware of this type of innovation (54%). Nevertheless, a greater majority of the remaining 45% (13.5%) mentioned that they remember events in 2012 that made them aware about direct marketing. Only 24% of respondents remember the start of the awareness phase, which had very varied lengths for each interviewee, spanning from 1 to 9 years.

Table 18 - Farm Advisers consulted by farmers during the awareness phase of the trigger cycle model (Giurgiu county)

Actor	Frequency Contact	Resp	%	Type of Interaction
6. Private sector - independent consultant/advisors	Frequent	1	0.05	One to one (individual advice in person)
8. Private sector - Hi-tech start ups, hi-tech companies	Sporadic	1	0.05	Training session, workshop or seminar
9. Private sector - clients, traders, etc	Sporadic	2	0.11	One to one (individual advice in person)
	Frequent	2	0.11	Training session, workshop or seminar Through social media such as Facebook or Twitter
12. Public sector - national level advisory department of the Ministry of Agriculture	Sporadic	1	0.05	One to one (individual advice in person)
13. Public sector - local advisory department of the Ministry of Agriculture	Frequent	2	0.11	One to one (individual advice in person) One to one (individual advice in person)
	Constant	1	0.05	
17. Neighbour farmer or peer	Sporadic	1	0.05	One to one (individual advice in person)
	Sporadic	2	0.11	Through social media such as Facebook or Twitter
	Frequent	1	0.05	Through social media such as Facebook or Twitter
19. Researcher (informal, acting as an individual)	Frequent	1	0.05	One to one (individual advice in person)
20. Other	Constant	3	0.16	[One to one (individual advice in person)
Family		2	0.11	Through social media such as Facebook or Twitter
Local church provided the cooperative with the necessary land for building the vegetable storage space.				

In broad lines, there are **two noteworthy contextual triggers**. The first was the **development and growing popularity of niche consumer groups** - such as raw vegans, others with special dietary requirements who rely on forms of fitotherapy (Diabetes, cancers, etc). Particularly noteworthy was the importance of a popular Romanian raw vegan chef who was mentioned by two of the pioneer organic producers from Bucharest as having directly encouraged them to produce for the growing number of raw vegan groups meeting in both online communities and at fairs. The second was **the development of an upper-middle class interested in healthy living and higher quality organic produce, one comprised of mothers with children and willing to dispense their higher incomes on healthy products**. This also translated in clients requesting higher quality products in restaurants and supermarkets.

Figure 22 - BioDumbrava Farm in Giurgiu county sells its fitotherapy products via direct online marketing

Trigger Cycle Model – Assessment Stage

Only about half of the respondents reported entering the active assessment phase (45.9%), corresponding with the number of innovation adopters in the sample. **While some started active assessment with a view to evaluating the benefits after a certain period, others simply trusted the innovation being beneficial having seen it work on other farms.**

In what concerns personal triggers for the active assessment stage, experiences were diverse, but the most common were:

- Previous business bankruptcy, unemployment or being between jobs;
- Observing new marketing opportunities by observing consumer preferences or by seeing other farms or competitors successfully using similar marketing channels;
- An increasingly competitive and less profitable conventional market;
- Meeting Ligia Pop, the vegan chef;
- Having bought or inherited a new farm.

For the active assessment phase, the three most important types of knowledge or skills which were needed were **searching the internet (22% of the sample), testing and experimenting on the farm, developing one's own network (of pioneers, researchers) (13.5% of the sample), and observing on other farms (11% of the sample).**

Only 40% of the respondents (15 responses out of 37) reported consulting themselves with other actors during the active assessment phase. Regarding the main actors who helped the farmers to assess the direct marketing innovation, **the farmers seem to have interacted with a wider range of actors (clustered as other, 10.8%), farmer-based org (5.4%), and private sector clients (5.4%)** (see **table 19**).

It is important to note that **most of the interactions took place in person, and only 3 out of 15 interactions took place through training sessions, workshops, seminars or social media channels**. Regarding the frequency of contact during the active assessment phase, it seems the main actors with whom the respondents were in constant contact were the private sector input providers or client traders who supported them in this process. For the rest, **contact during this period seems to have been punctual to the problem at hand.** The relationship seems to have been reciprocal for the farmer circles, clubs or similar, the private sector clients or traders, the research and education institutions, as well as for NGOs with whom the farmers have interacted, as these are likely the actors who were interested in obtaining other data, input or feedback from the farmers themselves.

Table 19 - Farm Advisers consulted by farmers during the assessment phase of the trigger cycle model (Giurgiu county)

Actor	Frequency Contact	Resp	%	Type of Interaction
3. Farmer-based organisation - farmers' circles, clubs or similar	Sporadic	2	5.4	One to one (individual advice in person)
				Training session, workshop or seminar
6. Private sector - independent consultant/advisors	Just once	1	2.7	One to one (individual advice in person)
7. Private sector - input and machinery companies and industries	Constant	1	2.7	One to one (individual advice in person)
				Through social media such as Facebook or Twitter
9. Private sector - clients, traders, etc	Constant	1	2.7	One to one (individual advice in person)
	Frequent	1	2.7	Training session, workshop or seminar
10. Research and education - universities, institutes, etc	Sporadic	1	2.7	One to one (individual advice in person)
12. Public sector - national level advisory department of the Ministry of Agriculture	Sporadic	1	2.7	One to one (individual advice in person)
13. Public sector - local advisory department of the Ministry of Agriculture	Frequent	1	2.7	One to one (individual advice in person)
15. NGOs outside agricultural sector	Sporadic	1	2.7	One to one (individual advice in person)
16. Business partner or farm contractor	Sporadic	1	2.7	One to one (individual advice in person)
20. Other	Constant	4	10.8	[One to one (individual advice in person)
Branding experts (work colleagues)				
family				
Local church provided the cooperative with the necessary land for building the vegetable storage space.				

Actor	Frequency Contact	Resp	%	Type of Interaction
the retailer				

Overall it seems that the advice received by the adopters from the various actors listed above was useful, but it likely took the shape of **more informal interactions for innovation exploration and validation purposes** during the active assessment phase, rather than a request for a clearly developed service for direct marketing support from the side of the actors concerned. Furthermore, considering that adopting the direct marketing innovation might have required some adjustment to the farming system of some of the adopters through its indirect requirements (produce varieties, quality requirements, etc), the type of advice sought during the direct assessment phase might have not been solely related to marketing, but to a broader range of issues pertaining to the overall business model. As mentioned previously, specialized direct marketing services are still **reported as lacking in the focus region**, which pushes partners to seek advice from their most common micro-AKIS networks, rather than service providers specialized on this particular topic. For these reasons assessing the level of satisfaction of the respondents with relation to the quality of the advisory services is more difficult. Overall it can be said that the information they received was obviously **sufficient for most of them to continue with this business model innovation**.

In terms of costs, 13 respondents out of 27 assessed various aspects of the particular direct marketing arrangement that they were considering. **For farmers using online marketing channels** (which formed a predominant part of the adopters), the costs of running the online shop compared to the physical shop, the cash flow, the cost of reaching consumers and the reduction in operational staff time counted the most in taking a decision. **For those with direct contracts with the supermarket,** the logistical capacity of the retailer and assessing the trade-offs between having the certainty of having their produce purchased compared to the lower price received made the difference. **Other respondents** mentioned also the time and resource investments from their family and the measures of the Rural Development programs as being important.

In terms of **benefits**, the most important factors that the 16 farmers assessed were the **time, management, production or money savings brought by the innovation**. Secondly, farmers looked at the **ease of accessing new niche markets** (for specific products or gastronomy), networks of consumers as well as the profit margins obtained from the advertisement to customer conversion rates. Other criteria which the producers considered were **the level of technology user-friendliness**, as well as the extent to which the innovation could make best use of family assets.

In terms of **risks,** the 8 farmers who responded on this question mentioned that they mainly considered the **market-related risks related either to the dependency on retailers, their production input packages or coming from competitors**. Secondly, they considered the risks involved for their family, and whether their initial investments in these alternative channels would pay off.

Trigger Cycle Model – Implementation Stage

After the active assessment phase, **40.5% of the sample decided to implement the innovation. This corresponds with the percentage of adopters among the 37 farmers interviewed**. The adopters implemented the innovation between 2008 and 2017, without any significant patterns in terms of

peaking moments of innovation adoption. **While 5 out of the 11 respondents on this question reported implementing the innovation within 1 month of the active assessment phase, the implementation period vary to up to three years, without any notable patterns.**

In implementing the innovation**, the adopters were motivated by kick-starting their business, creating a profit, or simply finding new ways to sell their yearly produce by responding to a clearly emerging market** (organic products**) or market opportunity** (having a farm shop alongside the road). In the words of one of the online marketing channels adopters, "it took 2 minutes to set up the website and online shop, tested it for 1 year to see if the investment was likely to pay off on the long term".

In order to be able to implement the innovation, **farmers reported needing knowledge and skills related to testing and experimenting in the farm, searching on the internet and participating in informal groups and networks**. The other skills listed in the study were also relevant but form less than 30% of the responses on this question. Interestingly, one of the responses pointing out to other sources of information indicate the rather technical knowledge needed in order to create a premium online direct marketing channel, which includes knowledge of tools such as Google Adds works, SEO, keywords and Facebook algorithms.

In terms of the types of actors with which adopters have consulted with during the implementation phase, the range here seems to be more limited than with the other phases of the innovation cycle model, but the range is just as diverse. **The three main advisory actors relevant at this stage are: (1) business partners or farm contractors** (8.1% of sample, n=3), **(2) various actors ranging from branding experts to church and family members** (listed as other, 8.1% of the sample, n=3) and **(3) the local advisory department of the ministry of agriculture** (5.4%, n=2) (see **Table 20**).

The frequency of the interaction varies per actor, without any clear pattern, and **one to one in person interaction remains the most important communication channel, which sometimes can also be extended phone contact**. **The training session of the local advisory departments makes an exception in this landscape,** as well as the website or app based interaction with one of the input or machinery companies that helped support the implementation of the innovation. Besides the interactions with the business partner during implementation, none of the interactions were reciprocal.

Table 20 - Farm Advisers consulted by farmers during the implementation phase of the trigger cycle model (Giurgiu county)

Type of Actor	No resp.	Percent	Frequency	Channel of interaction
6. Private sector - independent consultant/advisors	1	2.7	Just once	One to one (individual advice in person)
7. Private sector - input and machinery companies and industries	1	2.7	Frequent	Smartphone apps/websites
12. Public sector - national level advisory department of the Ministry of Agriculture	1	2.7	Sporadic	
13. Public sector - local advisory department of the Ministry of Agriculture	1	2.7	Frequent	**One to one (individual advice in person)**
	1	2.7	Sporadic	Training session, workshop or seminar
16. Business partner or farm contractor	1	2.7	Constant	One to one (individual advice in person
	1	2.7	Frequent	One to one (individual advice by phone, sms, e-mail)
	1	2.7	Sporadic	
20. Other				
advertisement agency (work colleagues)	1	2.7		direct help - developed the website for us
family (sister)	1	2.7		
the local church offering the land and the retailer investing in the logistical capacity and promotion of the producers	1	2.7		

Non-adopters

A total of 16 **out of the 37 interviewed farmers are non-adopters** and when asked for their reasons for not having taken up direct marketing arrangements, they mentioned as a **main reason the lower prices they would receive from direct marketing arrangements such as contracts with supermarkets.** Furthermore, **lack of support for small farmers to access the market due to hygiene and quality standards, their lack of processing infrastructures and investment funds to bridge these gaps prevents them from fulfilling the explicit or tacit requirements of various direct marketing arrangements**. Last but not least, some also mentioned the **lack of additional workforce** to produce more as a barrier for entering direct relationships with supermarkets.

For these non-adopters, support would therefore be welcome both in terms of **affordable investment facilities** for purchasing the necessary infrastructures to meet **quality and hygiene standards**, but also in terms of **information and advisory systems** that educate farmers about the **softer skills** necessary to meet these requirements and to successfully market their products with consumers. Coordinated measures in the next Rural Development Program would be very helpful for helping this category of farmers to step up. **Furthermore, advisory support for conventional farmers to learn farm management techniques would be helpful for them to be able to correctly assess the benefits of various marketing arrangements.** While some of this information is publically available, especially the one on regulation, it is often written in legal language, with complicated terminology, making it difficult

for conventional farmers to understand. Furthermore, farmers reported that the hygiene and food safety authorities in the region have more of a law enforcement approach to engaging with farmers. This means that they have previously penalized them immediately for discrepancies from the strict regulations in place by applying fines. This discouraged many from retrying or from seeking arrangements that actually work. **A supportive, pro-active and demonstrative approach to encouraging farmers to meet these standards would be more helpful for these non-adopters to become adopters and create more trust**. However, if we are to take the data of the survey seriously, **only a small part of the non-adopters interviewed were still considering ever turning to direct marketing arrangements.** Of the 40% of the sample who responded on the question of whether they'd reconsider these arrangements, only 8.1% reported they would do so, while the rest of 32% said they had no intention to implement.

Droppers

The three droppers interviewed decided to stop using these arrangements in 2017 and 2019, so fairly recently. They took the decision to stop took between 3 months and two years, depending on personal circumstances. The reasons they invoked were the lack of consumer awareness about the higher costs implied by quality organic produce, the increasing lack of trust in 'organic' because other new entrants had 'ruined the market', but also the unclear and high quality standards required by supermarkets. Lastly, one of the droppers mentioned that they had an already developed client base, but they lacked the desire to further develop this business. Regarding future perspectives, one of the thee droppers had no intention of re-entering into direct marketing arrangements, while the other two intended to implement it again in the next 3 years. One of the droppers in fact went on to develop another food business after closing down the initial one at the end of 2017, showing that those passionate about entrepreneurship might try different models of direct marketing businesses based on different concepts.

5.2.1.4 Farmer's innovation micro-AKIS

In the case of direct marketing for Giurgiu, the study of the farmers' micro-AKIS throughout the Trigger-Cycle Model (TCM) of the innovation reveals that the business partners of the farmers (ranging from clients, traders to business partners and farm contractors) are the most important group of actors for farmers interviewed who adopted the innovation. In the case of direct marketing arrangements, this is to be expected, as they ultimately respond to new supply chains developed to meet niche market demands. For the farmers who are part of cooperatives, these organizations also play an important role in helping the farmers assess the pros and cons of adopting the innovation.

Table 21 below also shows that the local advisory department of the Ministry of Agriculture (the DAJ) is also an important actor in general, but also for awareness raising, but of diminishing importance throughout the phases of the TCM. Other actors (such as neighbour farmers, family members or other stakeholders from the local church) can also play an important but varying role throughout the three phases of the TCM, showing a balanced pattern of consultations between informal networks and more professional advisory actors from either the business sphere or from the public advisory services.

Table 21 - Micro-AKIS of farmers throughout the 3 phases of the Trigger Cycle Model, Giurgiu county

General Micro-AKIS	*Trigger Cycle Model – Awareness Raising*	*Trigger Cycle Model – Assessment Phase*	*Trigger Cycle Model – Implementation*
Local advisory Department of the Ministry of Agriculture (26% of the sample)	Client or trader buying the product (22% of sample) **Neighbour farms** (22% of sample)	**Other** - Various actors ranging from branding experts to church and family members (10.8% of sample)	**Business partners or farm contractors** (8.1% of sample)
Client or trader buying the product (18% of the sample)	Local advisory Department of the Ministry of Agriculture (16% of sample)	Client or trader buying the product (5.4% of sample)	**Other** - Various actors ranging from branding experts to church and family members (8.1% of the sample)
Independent Consultants (11% of the sample)	**Other** – mainly family and church members (16% of sample)	Farmer-based organizations (5.4% of sample)	**The local advisory department of the ministry of agriculture** (5.4% of the sample)

5.2.2 Findings from the AKIS experts interviews and advisory organisations survey

5.2.2.1 Advisory landscape in the focus region

The advisory landscape regarding direct marketing solutions for farmers producing in Giurgiu and other districts near Bucharest, reflects the overall situation of the weak and fragmented AKIS systems in the whole country, especially when it comes to innovation. Considering the fact that many of the adopters interviewed pioneered new markets, they rely primarily on advice from business contacts, but blend this commercial advice with advice from family members, or other members of the community, and, occasionally, from the public advisors of the agricultural directorate in Giurgiu (DAJ). Nevertheless, as mentioned in previous sections, few farmers have access to these commercial networks, and therefore a significant part of the farmers interviewed in Giurgiu were largely non-adopters (43%, n=16). Furthermore, the AKIS interviews revealed that public advisory services offer no services to help farmers to adopt the innovation. Direct marketing either online, through supermarket contracts or physical farm shops requires considerable knowledge about marketing, website ranking, quality standards, but also resources to build shops or be able to deliver products to consumers and supermarkets in the conditions warranted by them. Due to this, the great majority of adopters were able to adopt the innovation and be successful because they benefitted from the right personal knowledge with various types of expertise (marketing, IT, design, agronomical, gastronomy), networks and resources that allowed their new business channels to be profitable.

5.2.2.2 Key players of advice for the innovation area in the focus region

Having explained in previous sections the importance of business contacts (contractors, traders, but also business partners) for all the phases of adopting direct marketing innovation, the following section will first focus on highlighting the type of support provided by various business partners directly or indirectly, through their networks. These business partners provide the linkages between farmers and consumers. Among these are:

- **Small local produce boutiques (Bacania Veche)**
- **Direct marketing apps (Taraba Virtuala)**
- **Retail chains** who have developed schemes for integrating Romanian producers into its supply chains (Carrefour, Kaufland, Mega Image, Metro Cash and Carry).

In the case of the **Bacania Veche boutique,** the owner is particularly passionate about local food varieties, local producers and he advises producers informally about breaking into these niche markets out of personal conviction. His personal reputation, connection with the capital's gastronomy networks, as well as his public appearances on various TV shows and on Facebook have gained him popularity around Bucharest, so usually producers contact him directly in an effort to sell their products. He advises them to open a Facebook page, to develop their brand, and tells them whether he thinks the company's image is appealing enough for the consumers who enter his shop. In his own words *"given the lack of marketing courses for small producers, people try to steal this craft by looking at their competitors, they get information from their families – maybe one has a nephew who knows a little bit of design and can produce label for them, or support them with setting up an online shop"*.

In the case of the direct marketing apps, connecting consumers and producers (such as Taraba Virtuala), the platform providers themselves conducted a scan of regional farmers and contacted them personally in order to bring them onto their app. Later on, the farmers themselves promoted the app with their acquaintances and personal networks. Taraba Virtuala relied on such an approach because, for platform-based business models, assuring that enough consumers and producers are present at the beginning on the app is an essential element of assuring its survival in the early stages. Secondly, the platform app entrepreneurs also set up stands during agricultural and consumer fairs around Bucharest. At the time of the interview (February 2019), the platform had around 100 producers on the app, but its owners think that it could gain a lot more producers if they simply had a budget to promote it on more expensive channels such as on TV. Besides informing farmers about the simple existence of such apps, its initiators focused on developing an intuitive design, which does not require much IT training from the side of the farmers. Producers must simply install the app on their phone and have a produce delivery system for the products which they advertise. Taraba Virtuala offers no further training to producers to support them in this respect.

Various **retail chains** have developed their own cooperation projects with cooperatives, offering different benefits and conditions as part of their package. The **'Tara Mea' cooperative, developed by Kaufland**, does not offer formal advisory services per se. They sign mutually beneficial contracts which follow the requirements of the Global GAP program, which oblige producers to make pre-agreements on their production plans. Quality standards are not imposed, but farmers need to fill in 'assignment notebooks' developed by the Romanian Ministry of Agriculture and they have to be ready to deliver reasonable quantities to the supermarket. Nevertheless, 'Tara mea' offers some marketing support to its members, focusing on necessary products (varieties, quality requirements), they offer the inputs and annual or seasonal business forecasts, packaging (produce boxes and labels), but all of these against a fee. In this way, the retailer provides advisory services in response to what they perceive to be a lack of know how among farmers about choosing hybrids, harvesting planning and preferable varieties. Nevertheless, the supermarket does not do much in order to promote their direct marketing arrangements with producers, relying mostly on a passive strategy whereby the farmers come to them. In their view, the innovations

possible through these direct marketing relations have mostly do to with innovation on processing and marketing (packaging and labelling), and not in primary production.

Carrefour developed a different structure for fulfilling the requirements of law 321/2009, namely they helped fund a cooperative together with the farmers in Varasti. In contrast to the Kaufland program, Carrefour seems to only offer support by offering producers the opportunity to launch products to the market. The **Mega Image** supplier program employs an agronomist to who advises a farmer on how to use their inputs package (which they have to purchase) and also obtains quality certificates for the program. **In spite of the important role that these farmer cooperatives play in providing a stable and more direct channel to the market, several AKIS actors interviewed mentioned that there is a disproportionate power relation between them and the farmers**. Furthermore, the standards of the supermarkets are also sometimes hard to reach by small producers.

In addition to these private business networks, the **Giurgiu Agricultural Directorate (DAJ)** also plays an important role in the region, as seen in section 5.2.1.4. The DAJ in Giurgiu functions in the same way as the DAJ in Brasov (see section 5.1.2.2), providing mostly advice for farmers on how to apply for various RDP measures, and offering some professional qualification training, but with limited staff and resources.

Although **independent consultants** are not common in what concerns this innovation Giurgiu, one young entrepreneur in this field, and specialized in organic agriculture farming systems, providing mostly agronomic advice to specialized farmers, noted that he also finds himself occasionally intermediating contact between his clients and other some small marketing and labelling experts in his personal networks. He also offers advice on the set-up of online shops for these niche markets producers, teaching them on how to find their first 30 clients in Bucharest. In his own words: *"producers often start producing without thinking about who they'll sell their produce to […] They are also often sceptical that professional advice would help them advance in their business, they are sceptical about professional services as you would see abroad – with client portfolios, periodic visits, contracts that include confidentiality contracts".*

The expert also reinforced the common conception that the public perception on such consultants is currently rather negative, due to the fact that many who have played this function in recent years have been inappropriately trained and have relied on copy-pasting strategies just to obtain funds through Rural Development Programs.

5.2.2.3 Transformation of advisory landscape

Considering the fact that the public advisory systems in Romania mostly focus on promoting CAP RDP measures, if at all, and that private consultants and input providers would mostly focus on advising on the agronomic aspects of farming businesses, **there is a real gap in terms of professional advice specialized in marketing and in particular innovative marketing channels for farmers**.

Some of the business actors mentioned in the previous section, such as the **small local produce boutique Bacania Veche, provide some informal advice to farmers on an unpaid basis**, just to support the development of this emerging food movement. O**ther actors, such as the direct marketing apps Taraba Virtuala and the retail chains with cooperatives for small farmers provide information about how on packaging and quality standards, but only to the extent that it helps farmers to use their systems**.

Considering the high level of bureaucracy in terms of quality, hygiene regulation, one AKIS expert mentioned there is a **big need among small farmers in particular to access simplified and easy**

to understand procedures and basic public information about these requirements for developing alternative marketing channels.

The overall picture of advisory systems for direct marketing in Giurgiu **shows there is tremendous opportunity for growth for both public and private advisory systems to develop new services, supporting also the less connected farmers with taking up this innovation**. These services would also be important in offering independent and unbiased information to farmers regarding the benefits, weaknesses and investment needed in order to connect better to growing urban consumer markets in big cities such as Bucharest.

6. Discussion: Answering research questions

Five main triggers were identified in the decision-making processes of the small-scale farmers interviewed in Brasov and Giurgiu:

Brasov

Increasing labour shortages in their villages - this trigger is connected to several societal trends, increasing the high rate of outward migration from rural areas, an aging farmer population, as well as increasing market pressure for more efficient farming practices. Altogether, these changes have contributed to the human labour necessary for traditional farming practices becoming too expensive.

A drop in the price of mechanical hay-making equipment, both new and secondhand - this was brought about by an increased supply on the market which meant that smaller-scale farmers could either a) afford to buy the equipment themselves or b) benefit from the fact that their neighbours in the village could afford to buy it and were prepared to share it (on some basis). Some of the farmers interviewed explained that they had waited for up to 3 years before having the possibility to use a specific piece of mechanical haymaking equipment.

A change in weather patterns - this was assumed to be associated with climate change and increasingly manifested as periods of unexpected heavy rain during periods when traditionally the hay could be safely made. Consequently farmers felt under pressure to make the hay much more quickly than they would have done traditionally.

Giurgiu

Development and growing popularity of niche consumer groups such as raw vegans, others with special dietary requirements who rely on forms of fitotherapy (Diabetes, cancers, etc). Particularly noteworthy was the importance of a popular Romanian raw vegan chef who was mentioned by two of the pioneer organic producers from Bucharest as having directly encouraged them to produce for the growing number of raw vegan groups meeting in both online communities and at fairs.

Development of an upper-middle class interested in healthy living and higher quality organic produce – including professionals with children willing and bale to spend their higher incomes on healthy products. This also translated in clients requesting higher quality products in restaurants and supermarkets.

The primary sources of advice that have been observed in the farmers' TCM in response to these triggers are summarised in table 22.

Table 22 - Summary of primary sources of advice in the Trigger Cycle Model (TCM) of farmers' decision-making in Romania (Brasov and Giurgiu counties)

Giurgiu county	Brasov county
AWARENESS RAISING PHASE	
Client or trader buying the product (22% of sample)	**Neighbour farmers** (64.5% of sample)
Neighbouring farms (22% of sample)	**NGOs** (16% of sample)
Local advisory department of the Ministry of Agriculture (16% of sample)	**Input providers & machinery companies** (16% of sample)
Other – mainly **family** and **church members** (16% of sample)	
ASSESSMENT PHASE	
Other - Various actors ranging from branding experts to church and **family members** (10.8% of sample)	**Neighbouring farmers (35% of sample)**
Client or trader buying the product (5.4% of sample)	**Other - Family** (16% of sample)
Farmer Association (5.4% of sample)	**NGO** (9% of sample)
IMPLEMENTATION PHASE	
Business partners or farm contractors (8.1% of sample)	**Neighbour farmers** (30% of sample)
Other - Various actors ranging from branding experts to church and **family members** (8.1% of the sample)	**Input providers & machinery companies** (16.5% of sample)
The local advisory department of the ministry of agriculture (5.4% of the sample)	**NGO** (9% of sample)
	Agricultural Technician (9% of sample)

6.1 Role of advisory suppliers in the farmer's TCM and innovation paths

What roles do advisory services play in the cycles of farmers' decision-making?

From **table 22** it is clear that public advisory services play a limited role in the decision-making processes of small farmers in Romania and instead a diverse range of other information sources are used depending upon the innovation and the stage of the TCM cycle. This is broadly in-line with the observations of Rusu

(2014) and others regarding the "weak and fragmented" state of the Romanian AKIS, but also concurs with the more general conclusions of other studies that:

- Farmers commonly share information and knowledge with a great diversity of actors that goes well beyond researchers and advisers, including input suppliers, purchasers of produce, NGOs etc. (SCAR, 2012);
- Friends and family are very important of sources of information and advice, especially for small and/or family farms where the "farm household" rather than the "farmer" is the decision-maker (Garforth *et al.*, 2003), and;
- Farmers tend to be most influenced by proof of successful farming methods by their peers, so-called 'peer-to-peer' learning (Koutsouris *et al.*, 2017).

Regarding the role of advisory services in triggering farmers' awareness of sustainability issues and innovation in Romania, we see that **the common element is the high importance of Neighbour farmers for both regions and types of innovation.** Considering the lack of advisory systems addressing farmers' actual needs, it is no surprise that these informal rural networks, developed between trusted parties, are so common in a Romanian context. Furthermore, the fact that so many farmers have emigrated over the past 15 years to work seasonally or permanently in agriculture has facilitated the transfer of innovative practices from farms from Germany, Italy and Spain through informal networks. Nevertheless, for the rest, the actors most relevant in each case differ substantially.

For the case of **direct marketing in Giurgiu**, the clients, traders and business relationships of the farmers were the most important lead. This category also includes customers from niche markets (such as those interested in healthy life-styles, vegans, young mothers from Bucharests' growing middle class), who increasingly approached farmers informally to signal their need for regional sourcing. Secondly, representatives of the local advisory department seem to have been important for farmers, as they likely provided information on potential support from RDP measures, followed by other circumstantial actors (such as church members, or family).

In the case of **retro innovation in Brasov**, the presence of the environmental NGOs in the region played a huge role in promoting innovation in hay-making practices in HNV areas. Also, input providers (and in particular machinery companies) played an important role in promoting low-tillage mechanizations solutions in the rural areas of Brasov, as they had a commercial interest in doing so.

Regarding the role of advisory services in supporting farmers in "assessing" the innovation also shows the prevalence of **informal networks as most popular point of advice for both Romanian regions studied**. Considering the fact that no professional Romanian advisory service providers offer well-developed services to support either direct marketing or hay-making in HNV areas, farmers are best off considering both the costs and the benefits of the innovation through discussions with other farmers or their own households and extended families. As a second option, farmers consulted again with the main advisory organizations they had been in contact with during the awareness phase (namely clients and traders, or the farmer organizations who helped them connect with the supply chain in Giurgiu, and NGOs for hay-making in Brasov). Little extra back-office activities are being held by these advisory organizations in order to support farmers with their choices, as the interactions tend to happen as part of informal exchanges. The one exception are the supermarkets providing direct marketing arrangement for Giurgiu, who hold some basic information sessions about the conditions for participating in their program,

but also these services are not responsive to farmers' actual needs for independent information during the decision-making phase.

Regarding the role of advisory services in supporting farmers in implementing the innovation, a similar pattern of advisory services is observed as during the awareness phase. For Giurgiu more emphasis seems to be placed during implementation on the importance of the other contextual connections (church or family members for Giurgiu). Contact and feedback from commercial relations remains a constant throughout the TCM process.

For Brasov input and machinery providers (and, at times agricultural technicians) become more important for the low-tillage solutions in hay-making in Brasov. In the latter region, this is likely because of the technical nature of the innovation. However the type of advice provided by these organizations during the implementation phase is resumed to offering official instructions on using the machinery, or at times practical help for adapting the machinery to particular local circumstances. The research did not reveal the existence of more sophisticated advisory services from these advisory organizations.

6.2 Farmers diversity and role of advisory in innovation uptake processes

What is the relationship between different types of farmer and advisory providers in the decision-making process?

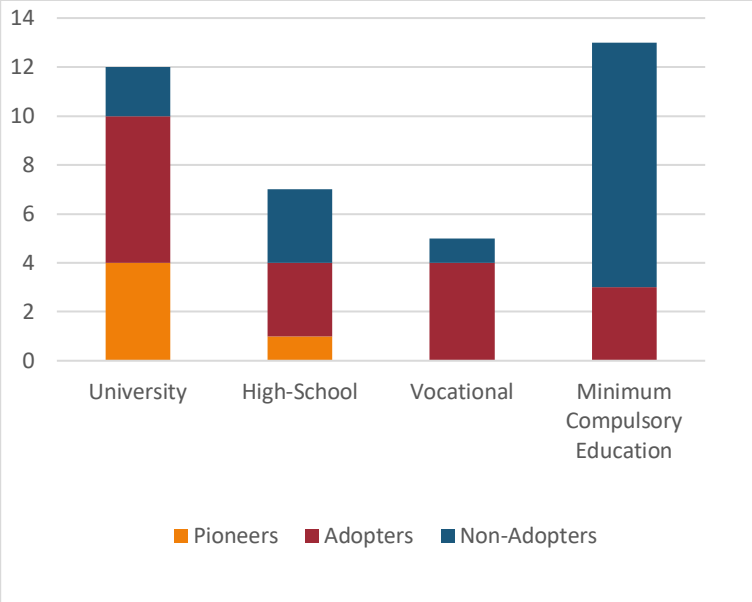
The ranking of preferences of advisory organizations during the different phases of the TCM model (see Section 6.1) reveal the general pattern of interactions between farmers and advisory organizations. Nevertheless, a more nuanced picture can be created of the preference of pioneers, adopters and non-adopters for particular advisors over others. Their choices are also likely influenced by the sociodemographic variables and farm characteristics each of the category of farmers, at least to the extent that the AGRILINK survey and field research was able to reveal.

In the region of Brasov, where the steep slopes of mountainous areas do not allow for intensive agriculture, the vast majority of farmers are **subsistence farmers**. This category of farmers usually owns 1-2 cows, or just enough sheep to be able to produce some cheese for household consumption. For them, farming is a lifestyle, rooted in family tradition, and the produce obtained is for household consumption, complementing the food bought through additional incomes from paid labour or other social benefits. For this category of farmers, the informal networks of neighbour farmers or family are the most important source of information about innovations, alongside the internet. These subsistence farmers are also usually unwilling to pay for independent consultants to apply for RDP measures or other commercial services and remain largely passive recipients of advisory services from public or private organizations in the area (such as the local DAJ or NGOs). Within the sample though, a second category of **commercial farmers** is emerging. These farmers own 10 or more cows, they are seeking to professionalize, and to increase their herd. This category is looking for innovative tools, equipment, they are also networking more with independent consultants, professional advisory systems and looking for opportunities to obtain public funding for their farm development plans. Commercial farms in HNV areas in Brasov are therefore also the pioneers of technological innovations in haymaking.

For the southern Romanian region of Giurgiu, where the studied innovation was direct marketing, the **level of education of the farmers clearly influenced their decision and ability to become**

innovation adopters. As shown in Figure 23 below (and discussed more extensively in section 5.2.1.1) pioneers are found exclusively among University and High-school graduates, while non-adopters are the lowest educated of the group, following predominately Minimum Compulsory Education. While these two opposite types of farmers seem to be distributed at either side of the educational spectrum, adopters seem to be well-represented among all educational groups.

Figure 23 - Education levels of Pioneers/Adopters/ Non-adopters interviewed in Giurgiu county



The aforementioned dynamics can also be explained by the fact that, in the lack of professional advisory services who can trigger the interest of farmers regarding the innovation, pioneering entrepreneurs have to rely on their own background in marketing/sales, or on their informal or formal professional networks in order to develop these new direct marketing channels.

These pioneers were also not professional farmers when they began, but developed the farming business due to lifestyle changes such as unemployment or inheriting a farm. This indicates that the crosspollination of professional domains, as well as their pre-existing rural-urban connections (especially to a large consumer market such as Bucharest), has led to the development of new business opportunities, and ultimately to innovation.

Overall, while both case studied demonstrate the weak and fragmented nature of the advisory system in Romania, **the particular set-up of their R-FAS largely depends on the characteristics of each region, and the types of innovation studied**. For the case of retro-innovation in hay-making in **Brasov, the HNV nature of the landscape also attracted the presence and interest of actors such as NGOs**, who are interested in promoting environmentally friendly haymaking techniques to preserve biodiversity. For Giurgiu, the new direct marketing channels developed would have not been a lucrative business without proximity to the large urban consumer market of Bucharest.

In both regions the few advisory suppliers promoting the innovation directly or indirectly are still mostly using **traditional methods of disseminating information**, namely one to one interactions, phone calls or trainings (in the case of supermarkets and the regional DAJ offices). In the case of input and equipment

sellers, there is increased use of online channels such as websites and YouTube videos, but farmers also consult youtube and other second hand equipment re-sellers in order to inform themselves throughout the three phases of the TCM model. More awareness from the side of advisory organizations regarding the increasing importance of online channels for farmers could help them improve their services; this is especially for younger farmers (under 40 y.o.), who are more technologically apt. Overall, the digital skills of farmers remain low, so advisory organizations should consider pairing potential online services with offline demonstrations, in order to help unskilled farmers to upgrade their skills.

6.3 Transformation of advisory suppliers and farmer's innovation uptake processes

How does the transformation of advisory providers landscape influence farmers' decision-making and uptake of innovation?

As mentioned in Sections 5.1.2.3 and 5.2.2.3, **the restructuring of the public advisory services since 2010 have had a considerably negative effect on farmers, their adoption of innovation and other good practices**. The chronical understaffing and under-resourcing of **regional DAJ offices** prevents them from having an impact on a significant number of farmers in their regions. While a 2010 assessment of supply and demand of advisory services indicated the interest of many farmers for support in drafting applications for RDP measures (Stefanescu et al, 2013), current public services are almost entirely geared towards this purpose. This leaves a considerable and unfilled gap in terms of building farmers capacity and education regarding technical, agronomical, zoo technical, market and innovation matters, which has not been successfully filled by other AKIS actors, such as agronomical high-schools or universities.

Independent consultants have followed the market trend and the demand of farmers (especially more commercially-oriented ones) for support for RDP measures applications. Considering the commissions that independent consultants are allowed to charge as part of successful RDP projects, this niche was also the most lucrative business-wise. While their numbers increased considerably over the years, according to some AKIS experts interviewed, this has not led to more creativity or diversity of services, but only to a lowering of commissions charged due to increased competition. This has likely made it more accessible for Romanian farmers to make use of their services, however many smaller and more subsistence farmers interviewed are still reluctant to engage with them and have a negative perception regarding their services.

In the lack of impartial advisory services, able to advise farmers on the costs and benefits of various direct marketing schemes is reduced to the information available through informal networks of family members and fellow farmers. While the relation of adopters in Giurgiu with **consumers** seems to have been mutually beneficial, **contractors, traders and, in particular supermarkets**, seem to have increased power over farmers in dictating their own conditions for entering their direct marketing schemes. Other actors from the commercial realm, such as **input and equipment providers** also gain a broader audience from farmers, as they are one of the only sources of information regarding innovations available. While in the case of low-tillage hay making equipment there is little concern regarding their negative effects, in what concerns the agro-chemical market in Romania there are huge concerns regarding the partial information which these input providers offer to farmers.

NGOs have, in some cases and regions at least, supplemented the demand for advisory services, but only to the extent that this matched their mission, and funding opportunities at the time. This is certainly the

case of the environmental NGO ADEPT in the northern part of Brasov, but similar services are completely missing from the advisory landscape of Giurgiu.

In this weak and fragmented advisory landscape, it is not surprising that **the single most important source of information for farmers across Romania is that provided through their trusted informal networks of family members and neighbour farmers**. While for higher-educated pioneer farmers in Giurgiu, these informal networks might involve innovation experts (such as marketing and website experts), for most other farmers the socio-economic limitations of their networks also limit their access to new information and maintain their path dependency. With the increasing 4G internet penetration in many rural areas, younger farmers in particular are increasingly accessing also online channels, triangulating information heard from neighbours with online offers and Youtube instructions in order to fill their knowledge gaps throughout the three phases of the TCM model. More commercially-oriented farmers attend larger agricultural fairs around the countries. However both these and the long-standing agricultural TV and radio programs (such as Viata Satului and Antena Satelor) followed by older farmers tend to promote equipment and innovations appropriate for larger commercial farmers and particular types of agribusiness models, to the detriment of the majority of small farms in the country who cannot afford them.

The lack of diversity and perspectives taken by the available advisory providers has been negatively affecting Romanian farmers, and in particular smaller farmers, and hampering their competitiveness in a landscape increasingly taken over by supermarket chains and big agri-business. While both the case study of Giurgiu and Brasov show that innovation is still possible in spite of these challenges, their narratives show that this has largely been due to the determination, solidarity and resilience of the farmers rather than to an enabling and diverse advisory environment, responsive to their full range of informational and innovation needs.

7. Case study narratives

This section was removed due to GDPR regulations.

8. Conclusions

Insights and Highlights

The **most important source of information** for the small farmers surveyed in the two contrasting regions of Brasov and Giurgiu county is that which they gain via their **trusted informal networks of family members and neighbouring farmers** supplemented by specific sources of specialist advice which they may seek out if sufficiently motivated and well placed to access this advice. For example, if they deal directly with a machinery dealer or are connected with a value chain where they can communicate directly with business consultants etc.

This rather *ad hoc* arrangement is not surprising given the 'weak and fragmented' state of the publically-funded farm advisory system in Romania, but this is **unlikely to be the only contributory factor** since even with an effective advisory system in place it is acknowledged in the literature that farmers still:

- **Generally share information and knowledge** with a great diversity of actors, including input suppliers, purchasers of produce, NGOs etc.;
- **Turn to friends and family** as important of sources of information and advice, especially for small and/or family farms where the "farm household" rather than the "farmer" is the decision-maker, and;
- Tend to be **most influenced by proof of successful farming methods** by their peers.

It is also clear that farmers are more than capable of both innovating themselves and adopting the innovation of others under these circumstances. Although it must be noted from the individual narratives that this has largely been due to the **determination, solidarity and resilience of individual farmers or groups of farmers** rather than the support of any specific advisory provider or enabling environment.

This raises **question** as to what might be the most effective way of implementing/strengthening a publically-funded advisory system for small farmers in Romania. There is certainly a clear need for the **existing public advisory system to be better resourced** (e.g. with vehicles and fuel!) – if only to permit the advisors to actually travel, meet with farmers and make themselves available to address the information needs of farmers on a one-to-one basis. But given the huge numbers of small farms and the importance of the social networks that exist between them, it seems reasonable that a **new advisory model** is needed that focuses upon a) the **facilitation of much greater peer-to-peer exchange of knowledge and experience**, supplemented by b) **access to specialist technical assistance and demonstration facilities as appropriate**. Furthermore it is desperately important that any advisory system developed for small farms is viewed as part of an **integrated small farm AKIS** with appropriate attention and resources committed to facilitating / encouraging access to **basic agricultural education**, dedicated **research facilities** and a **flexible approach to innovation support**.

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