AKIS and advisory services in *Portugal*

Report for the AKIS inventory (Task 1.2) of the i2connect project

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Executive summary

The main aim of the report is to provide a comprehensive description of the Agricultural Knowledge and Information System (AKIS) in Portugal, with a particular focus on advisory services. The description includes history, policy, funding, advisory methods and a section on how the Farm Advisory System (FAS) was implemented.

This report represents an output of the H2020 i2connect project. It is one of 30 country reports that were produced in 2020 by project partners and subcontractors for compiling an inventory of Agricultural Knowledge and Information Systems. AKIS describe the exchange of knowledge and supporting services between many diverse actors from the first, second or third sector in rural areas. AKIS provide farmers with relevant knowledge and networks around innovations in agriculture. The report is an update of the previous Portuguese AKIS report, developed as part pf the PROAKIS project in 2014

In the last 6 years, Portuguese agriculture and rural areas have faced a reorganisation both at social and economic levels, including a sharp reduction in the number of farms and a significant decrease and ageing of the population. The changes that occurred during this period favoured the emergence of new stakeholders, claiming innovation to meet their needs, and the development of new networks (between farmers/foresters, farmers/foresters and knowledge and information providers, farmers/foresters and farming and forestry based associations), modifying the pre-existent relationships among the actors, both at local and national level.

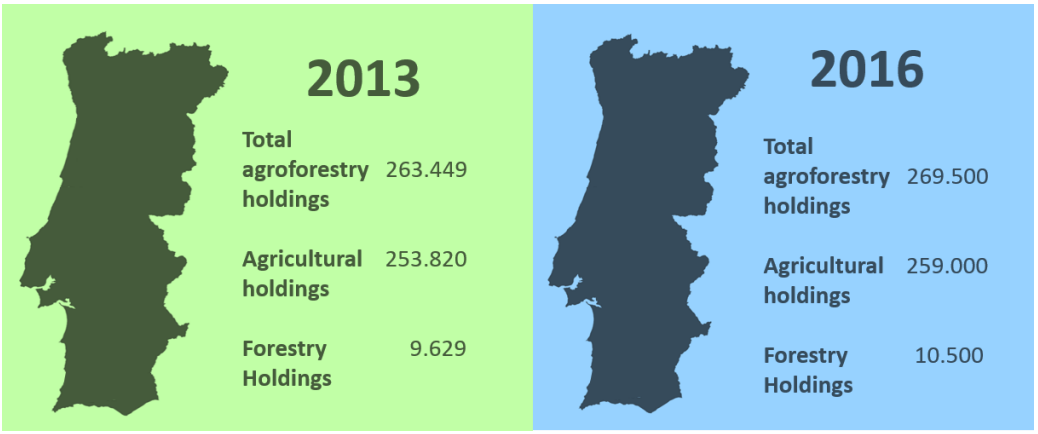
Presently, the Portuguese AKIS is characterised by the large number and diversity of actors, as well as the organisational fragmentation and relatively low coordination by the State. This is especially evident both with advisory services, an activity that tends to be performed by many farm-based organisations, and with knowledge and information providers that are mostly supported by small private companies. The other AKIS actors are within research and education and national and regional directorates, both of which are coordinated by the State.

The interactions between the Farms and Forestry and Farming Based Associations and Knowledges and Innovation Providers is strong while the Research and Education sub-system is weakly connected to the Farming and Forestry Based Associations. In addition, the linkages between the National and Regional Directorates, Research and Education and Farms and Forestry is also

weak. In general, the Portuguese Research and Education has limited dialogue to the other AKIS actors.

1. Main structural characteristics of agricultural and forestry sector in Portugal

The population in Portugal is about 10.3 million people. In 2016 there were more 4% agroforestry holdings, more 2% agricultural holdings and 8.3% forestry holdings. Since 2013 there has been an increase in the area (14 ha on average) and on the economic dimension of agricultural holdings in Portugal. The total standard output has increased 16.5%, since 2013, to 19.9 thousand euros.



More than 70% of agricultural holdings are specialized (2/3 of their total standard output), highlighting specialisation in herbivores and permanent crops. 1/3 of the Utilised Agricultural Area (UAA) has produced 44.6% of the total livestock. Although in Portugal forestry is the main business complement of agricultural holdings, since 2013 there has been an increase of 18% of unused forest land.

The average age of the Portuguese farmer is the oldest in EU28, 65 years. According to 2016's Farm structure survey, 34% of individual farmers are women and the academic background of 71.4% was only elementary school. In 2016 the family farming population was about 628 thousand individuals, which represents 6.1% of the resident population in Portugal, with a 20.8% decrease in the family farming population since 2009. In 2016, the family workforce weighed 87% while in 1989 it accounted for 94% of the agricultural workforce.

Although a significant number of producers have ceased agricultural activity since 2009 (-15.2%), the UAA has not changed significantly, remaining at 3.6 million hectares (39.5% of the total country area). The land structure of agricultural holdings continued to evolve positively, with an increase in average

size (UAA per holding) from 12 ha in 2009 to 14 ha in 2016. In 2018 forest was the principal use of the Portuguese soil, together the different forestry spaces make up about 70% of the country's area.

In 2016 more than half of the UAA (58.0%) was operated by production units with 100 or more hectares, which represented only 2.4% of farms. It should be noted that a small number of large farms (261 farms with 1,000 or more hectares of UAA) operated 12.3% of the national UAA. In contrast, small farms (less than 1 ha), despite accounting for 19% of the total, cultivated only 0.7% of the UAA. The regional composition of the UAA reflects in a very synthetic way the specificities of national agriculture, with arable land, permanent crops and permanent pastures being fairly distributed in the North and also in the Centre, while in the Algarve and in the Autonomous Region of Madeira permanent crops predominate. In the Azores, permanent pastures are practically the expression of monoculture, while in the Alentejo they also constitute the majority of UAA.

The harvested production in 2018 of the main arable crops in tons would be maize (714); rice (161); wheat (68); barley (60) and rye (17). In 2018 the amount of cereals produced for grain decreased 25% since 2000. The area of cereals also decreases by 48% in this period, whilst there was an increase of 1.73 t/ha in productivity.
Regarding the production of vegetables and fruits in tons is tomatoes (104); apples (264); oranges (341); carrots (92); onions (54) and peaches (43). Since 2000 there was a 24% decrease in the production of fruits and a 53% decrease in the production of vegetables.
The livestock unit numbers in 2016 are represented by cattle (1,567 thousand); pigs (1,875 thousand); sheep (2,200 thousand) and goats (390 thousand). Cattle was the only one that recorded an increase in headcount compared to 2009 (+9.5%). The average number of cattle per holding rose from 28.6 head in 2009 to 36.1 head in 2016.

In the same period there was an 8% reduction in apparent fertilizer consumption. There was a 60% increase in the area of organic farming mode, an increase from 151 461 ha in 2009 to 252 812 ha in 2017. Reaching in 2017, 7% of the UAA and 4 267 farmers.

Regarding forest data, the main crop in Portugal in 2015 was the Eucalyptus with an area of 856 Kha, more 59 Kha than in 2010. The second major crop is the Pinus pinaster, with an area of 718 Kha, less 85 Kha than in 2010. Both these

crops are the main forestry production in the continent, in Madeira and in Azores. The remaining crops have different expressions in the 3 regions, in the continent the top three other crops are Cork oak tree, Scarlet oak tree and Oak tree, whilst in Azores the other crops are Cryptomeria, Japanese pine tree and Beechwood of the islands, and, finally, in Madeira the top three are Oak trees, Acacia and other hardwoods.

According to a study made by the National Forest Strategy in 2006, forest and associated space contribute, each year, 982 thousand euros to the Portuguese economy. Being the production activity responsible for 876 thousand euros, with an average yearly production of 11,5 million of m^3 of wood, 100 kton of cork (corresponding to half of the world production) and finally 8 kton of resin, 70 kton of pinecone and 25 kton of chestnut. Forest biomass is one of the main sources of energy used today in Portugal and is, among the renewable energy sources, the most easily usable at any time of the year. In a recent assessment, the potential availability of biomass for energy production was estimated at 2.2 Mt/year.

During the last century, there have been significant changes of the use of soil and of the continental land occupation. In the first half of the 20^{th} century there was a clear growth in the agricultural and forest areas, due to a decreased in uncultivated fields. In the 1960 there was a rise in the area of Eucalyptus and there was a spike in the Pinus pinaster' area in 1980. Moreover in between 2015 and 2018 there were 150 Kha of Eucalyptus burned down as well as 135 Kha of Pinus pinaster. In total 329 Kha burned down during this period.

In Europe 40% of forest is publicly owned, however in Portugal only 3% of all forest land are owned by the state, and, whilst 92% are privately owned, only 4% are managed by industrial companies.

As of 2018 there were recorded 135 Forest Producers Organisations in the Portuguese Institute for Nature Conservation and Forest Management (ICNF), as well as an, yearly average of joint land management of 1,1 Mha due to Forest Intervention Zones (ZIF).

2. Characteristics of AKIS

2.1. AKIS description

In Portugal, the creation of knowledge is closely linked to all AKIS participants, and there is transfer of this knowledge between all of them. There is currently a logic of knowledge flow between the different links, between science, political actors, industry and farmers.

The most empirical, practical and applied knowledge is generated among farmers/foresters and their peers and this knowledge should also be transferred to the education and research system. The logic of co-knowledge, co-creation of content and co-development of solutions for the sector is currently used in all innovation clusters, both at national and European level. Sometimes the great difficulty is the opposite, i.e. passing on scientific knowledge to farmers/foresters in a way that is perceptible and applicable. Communication and dissemination of the results of all research is therefore essential for this flow of knowledge to be effective and efficient.

Knowledge in the agricultural sector and associated innovation has increased in recent years, mainly due to a greater link between the different actors in the value chain, and the existence of many innovation projects at national and international levels. There are already a series of national actors involved in European consortia under the Horizon 2020 programme, meaning that in the coming years there will be this sharing at national and European level and a greater application of innovation in the agricultural sector in Portugal.

Innovation projects should serve as a launch pad for economically viable solutions, applicable to the market and recognized by consumers and society in general. The great difficulty of the agroforest sector is the ability to communicate in a sexy, attractive, and irreverent way, demonstrating to society that this is an innovative sector, fundamental to the economy, job creation and above all responsible for feeding the world.

2.1.1. AKIS actors and knowledge flows

The Portuguese AKIS is composed by a series of actors with specific objectives, with a different set of actors and different connections between them. These actors can be divided into four main groups and Farms & Forestry, the central group. The four main groups are: Farming & Forestry Based Associations,

Knowledge & Innovation Providers, National & Regional Directorates, Research & Education. This way, the AKIS can be described as four main groups, contributing for the central group Farms &Forestry.

These actors are both public and private, and the former may or may not have profit making objectives. The public actors are mostly linked to such areas as policymaking, regulation, planning and monitoring public funds as well as research, education, knowledge transfer and demonstration. The non-profit actors are farmers' organisations, cooperatives and interprofessional associations that, besides lobbying and policy related and administrative roles, are involved in providing technical advisory, training, information transfer and extension, communication and benchmarking. The private actors can be linked to knowledge and innovation providers providing farm equipment and service providers, or advisory consultancy firms, agroindustry and forestry industries and more.

The first main group, Farming & Forestry Based Associations, is represented by the confederation of farmers, farmers and forestry associations, interprofessional associations, cooperatives and producer organisations. Their mission includes technical advisory, training, communication, dissemination, benchmarking, funding investment projects, multiactor knowledge network, policy recommendations, sectorial advocacy

The second is Knowledge & Innovation Providers comprises advisory consultants, sectorial private companies, service providers (ICT, seeds, farming inputs, machinery…), innovation hubs (competence centres, digital innovation hubs, collaborative laboratories), software and hardware providers, agroindustry, forest industries, technological clusters, retail & distribution. Their tasks include knowledge transfer, technical advisory, training, innovation brokers, communication, dissemination, private funding, benchmarking and Multiactor Knowledge Networks

The third main group, Research & Education includes agricultural universities, polytechnic institutes, professional agricultural schools, R&TD institutions, the National Agrarian & Veterinarian Research Institute (INIAV) and the Portuguese Sea and Atmosphere Institute (IPMA). They're in charge of research, education, knowledge transfer, demonstration, technical publications, multiactor knowledge transfer.

And finally, the fourth group, National & Regional Directorates, includes the Ministry of Agriculture, the Ministry of Science, Technology & Health Education and the Ministry of Environment & Climate Action. It also includes regional directorates for agriculture, and the National Rural Network. They're in charge of policies, regulations, territorial planning, public funding, audits & control and environmental & biodiversity guidelines.

All these four main groups have different objectives and provide different services/ resources to Farmers and Foresters, the central group of the AKIS.

Fifteen experts were interviewed, representing the different sectors identified, including the agriculture and forestry sector. They were asked to comment on the diagram and the level of interaction between them, including with farmers and forestry.

The links between the main groups and Farms & Forestry were divided in three options: weak, medium and strong links. The connections are described in the table below:

Table 1 - Portuguese AKIS connections

	Farming & Forestry Based Associations	Knowledge & Innovation Providers	National & Regional Directorates	Research & Education	Farms & Forestry
Farming & Forestry Based Associations		Strong	Medium	Weak	Medium
Knowledge & Innovation Providers	Strong		Medium	Medium	Strong
National & Regional Directorates	Medium	Medium		Medium	Medium
Research & Education	Weak	Medium	Medium		Medium
Farms & Forestry	Strong	Medium	Weak	Weak	

2.1.2. Policy framework at the national level

Policies are of different natures and may be directing international agreements on certain practices (resource consumption, environment, etc.); or they may be of a pro-active nature in terms of industry and sector interests. In both cases, it is essential that policies dictate the rules of operation of the agricultural and forestry sector and consequently its strategic objectives and general and specific goals, which align and change according to the community framework.

Usually the policy framework supports innovation in agroforestry by setting national investment priorities, managing resources and creating the conditions for the sector to develop. On the one hand, by encouraging investment and funding under Portugal 2020, Horizonte 2020, Lisbon 2020, PDR2020 or other R&D partnerships, involving the sector as a whole and introducing innovation and research (technological, environmental, business, investment, etc.) such as Operational Groups, Competence Centres and more. On the other hand, public policies are very much based on a huge administrative and bureaucratic burden, so the measures defined do not always succeed in adequately supporting the definition of strategic objectives for agriculture, forestry and rural development. In addition, support must be linked to results and evaluated differently so that the focus of these partnerships is not the response to the "administrative burden" but rather a response to problems and a search for solutions.

Other handicaps are non-compliance with deadlines and management difficulties on the part of state bodies, and the inability of many agricultural and forestry companies to deal with more formal requirements and to monitor the implementation of these projects.

2.1.3. Coordination Structures

Existing national agreements on knowledge exchange are explained in different programmes and with different governance and coordination structures, some examples being the Rural Development Plan (PDR) 2014/2020, which has an area aimed at Innovation and Knowledge with different training and knowledge exchange operations (e.g. Operational Groups) between actors in the sector and the National Innovation Agency (ANI), whose mobilising programmes aim at creating new products, processes or services with a high technological and innovation content that contribute to the value chain.

There are structures for the coordination of financial instruments dispersed among the different ministries, with IFAP - Instituto de Financiamento de Agricultura e Pescas, I.P., being the most important. However, its operation does not assess the possibilities of synergies, complementarities, and impacts, focusing on operational and processing issues, not on common strategies and objectives. While funding at regional level is structured through RIS3 (Research and Innovation Strategies for Intelligent Specialisation), managed by different Commissions for Coordination and Regional Development (CCDR).

It is important to recognise that there has been an effort to develop specific, sectoral or thematic research and innovation agendas by Foundation for Science and Technologies (FCT), but synergies between national, regional and sectoral strategies remain to be created and integrated into the various support programmes in a coordinated manner.

In terms of national agreements on the exchange of knowledge, Competence Centres and Technology Centres act as platforms for this purpose. They aim to increase the level of knowledge and the exchange of experiences, bringing together production and SCTN (National Scientific and Technological System). That’s why the National Rural Network, EIP-Agri's focal point in the country, brought them together to set up an Innovation Working Group, which helps to define political support measures for this area.

2.2. Portuguese AKIS diagram

Figure 2 - Overview of AKIS actors in Portugal

3. History of the advisory system

In general, in Portugal, the practice of public agricultural extension has been sporadic and mostly disorganized. Until the mid-70's the major programs gave emphasis to information and demonstration campaigns and the transmission of technological messages not adapted to the local social and economic circumstances (OECD, 1980: 161). The services reached few farmers and the field workers were simultaneously engaged in a variety of regulatory functions. Madureira (1980, 1-2), as well as Teixeira (1980, 4), pointed out that the technical assistance initiatives lacked consistency and continuity, and were based on government policy problems, not on problems identified or demanded by farmers. Besides, the central services were overemphasized and the contact with the farming communities was rather limited.

The Revolution of April 1974, and the new democratic orientation of the State opened up the possibility of trying out new paths and models. Throughout 1975, 1976 and 1977 various laws were approved leading to major changes: regionalization through the creation of Regional Agricultural Services; and launching of extension, through the new Rural Extension Services. A General Directorate of Rural Extension, a central level department, was also created. Its main objectives were to support the rural extension services, at the regional and local levels, in the organisation, planning, training, and evaluation tasks.

The first organised extension programmes, planned along the lines of the Training &Visit System, were initiated in 1978/79. However, these programmes were only implemented in some sub-regions of the country (Cristóvão, 1986). In 1982 the National Institute for Agricultural Research was transformed into the National Institute for Agricultural Research & Extension, in order to better link both subsystems, but the experience was short lived. In 1983 the Programmes to Support Regional Agricultural Development, included initiatives in the fields of extension and professional training (Cristóvão, 1985). Universities such as University of Trás-os-montes e Alto Douro (UTAD) played a role in up-grading the qualifications of public extension staff in the late 1980s and early 1990s and a study associated to this programmes identified competencies for their training (Koehnen and Cristóvão, 1993).

In January 1986 Portugal became a member of the EEC and in 1990 a major programme - PROAGRI - was launched, with the objective of strengthening the capabilities of farmers' organisations in the areas of management and technical

support to members and non-members. PROAGRI reflected the prevailing privatisation views. It is important to stress that cooperatives and farmers' associations were frequently weak, in both organisational and financial terms. On the other hand, the transfer of functions to such organisations was not accompanied by changes in extension practices, and the top-down and linear perspectives of the State services remained dominant.

The existence of public agricultural extension after PROAGRI is questionable. In the mid 90's the government created 300 new "Agricultural Zones" and the so called "family technicians": each municipality corresponded to an "Agricultural Zone", and each "Zone" had a team of agents, of whom a number of farm families was assigned, in order to allow a more personalized contact. The emphasis was placed on information, particularly on Common Agricultural Policy measures and policies, and practices tended to be quite bureaucratic. After this period and in spite of this measure, technical support to agricultural development became a function of many institutions and services, especially cooperatives and farmers' associations, in a more or less fragmented and dispersed fashion, the exception being the existence of networks or some form of articulation and coordination between them (Cristóvão, 1999).

(Extracted and adapted from AKIS report 2014 - PRO AKIS project. Authors: Alberto Baptista, Artur Cristovão, Timothy Koehnen, Lívia Madureira, Miguel Pires - UTAD/CETRAD)

4. The agricultural and forestry advisory service(s)

Portuguese AKIS consist of by a group of actors that can be divided into four main groups, all directly linked to Farms & Forestry. The four main groups are: Farming & Forestry Based Associations, Knowledge & Innovation Providers, National & Regional Directorates, Research & Education. All these four main groups have different objectives and provide different services/ resources to Farmers and Foresters.

These organisations operate in the following NUTS II, a nomenclature created by Eurostat in the early 1970s with the aim of harmonising the statistics of the various countries in terms of the collection, compilation, and dissemination of regional statistics:

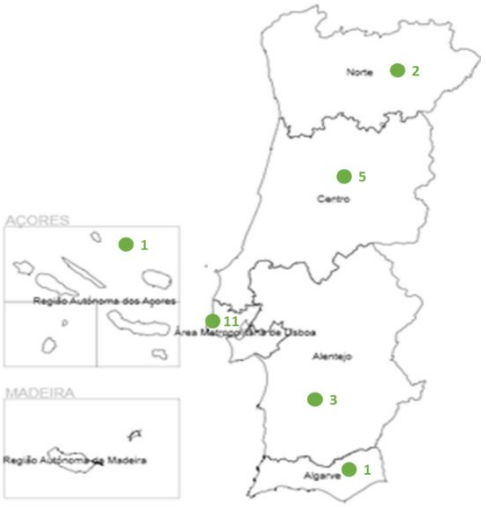


Figure 3 - Survey responses in the different NUTSII

Representativeness was ensured, both in the agricultural and forestry sectors, with the collection of questionnaires not only from the main Portuguese advisory entities, but also from other private and public entities, so that the answers could demonstrate the reality of advisory services in Portugal.

4.1. The overview of all service suppliers

4.1.1. Public agricultural services

The policy of the Ministry of Agriculture over the past two or three decades has been characterized by the transfer of various functions to farmers' associations and other private organisations, including technical advice, preparation of agricultural investment projects, access to different subsidies, training and information exchange.

Presently, the Ministry of Agriculture, Ocean, Environment and Spatial Planning includes the Secretaries of State for Agriculture, Forestry and Rural Development, Ocean, Environment and Spatial Planning, and Food and Agribusiness Research, in a very complex structure with central and regional services.

The five Regional Directorates for Agriculture and Fisheries are the operational services closer to farmers and agricultural development agents. According to the law, these services should “Encourage actions and intervention projects in the rural areas and programmes or plans of integrated rural development, and support farmers and their associations, as well as rural populations” (Decreto-Lei no. 7/2012, de 17 de Janeiro). However, today their major functions have to do with policy monitoring and evaluation, production of statistical data, reception, review, approval, monitoring and validation of investment projects supported by public funds, implementation of regulatory actions, coordination of licensing processes, and implementation at the regional level of the policy orientations in such areas as forestry and natural resources management.

Each Regional Directorate has a variable number of sub-regional delegations, composed of nuclei (a set of municipalities) and local technical teams (at municipal level). For instance, in the Northern Region there are 6 delegations, 26 nuclei and 47 local technical teams. In the past, the regional services were present in all municipalities, but today, given a sharp reduction of human resources – from about 2000 people in 2007 to less than 750 in 2013 -, most local teams operate on an itinerant fashion, visiting each municipality only once or twice a week.

In Alentejo, Southern Portugal, the four sub-regional delegations are called Regional Services and have eight poles and offices in some municipalities. The agents are involved in routine work and give some occasional technical support.

In the three regional experimentation centres "field days" are held four or five times per year, to present some technical innovations to potential users, with the contribution of higher education institutions, research centres and farmers' organisations. These centres develop several experimental and demonstration projects in the areas of agriculture, olive groves, vineyards and extensive livestock production, in collaboration with several research bodies and other institutions.

In the field visits the local agents use office facilities provided by the municipal governments, cooperatives, associations, training centres, schools and other public services and organisations. In these visits, the agents receive people who present, for instance, technical or commercialization related problems or pose questions regarding the available policy instruments or agricultural investments. The advice is provided free of cost.

In some cases, the services cooperate with the municipalities, which today are very active in the promotion of rural development initiatives, like farmers' markets, box schemes, community gardens and land banks. Additionally, the Regional Directorates provide several services in such areas as soils and plant analysis, animal health, public hygiene, pest management, some of which are subject to payment. All Directorates have webpages in which extensive information concerning their areas of intervention is available.

Each Directorate is a case, but globally the regional services tend to be quite removed from the field and only occasionally perform advisory related functions. Their training activities were transferred to farmers' organisations and the training centres tend to be underused, information is mostly available through internet, local agents visit the municipalities on a rotational basis, generally to answer questions raised by farmers, and farm experimentation and demonstration activities are scarce. In general, the regional agricultural technicians have fewer staff than six year ago, while performing, above all, desk-type policy related functions linked to investment projects supported by public funds, and a variety of other regulatory actions.

4.1.2. Farmers' organisations

In the agriculture sector, in Portugal, there are three major umbrella farm-based organisations: The Confederation of Portuguese Farmers (CAP), the National Confederation of Agriculture (CNA), and the National Confederation of

Agriculture Cooperatives and Farm Credit Cooperatives (CONFAGRI). The latter, unlike the two initials, includes exclusively cooperatives. These organisations have lobbying as a major function, but their affiliated organisations (associations and cooperatives) perform a variety tasks in the territories where they are located, some of which are connected to AKIS.

Confederation of Portuguese Farmers (CAP)

According to the information in the CAP website, this is a socio professional Organisation, created in November 1975, that groups over 300 organisations nationwide, including federations, wine cooperatives, regional associations, sectorial associations and other cooperatives. It maintains permanent contacts with their affiliates through national and regional meetings, by identifying needs and problems of national agriculture and forwarding the same to technical analysis and specialized studies. The CAP aims to defend the interests of Portuguese agriculture in the country and abroad, safeguarding the economic component of the activity in the promotion of a dignified quality of life for all farmers who wish to continue their activity. It works to warn and engage the Government in achieving critical infrastructures, defending an agricultural policy that respects the integration of Portugal in the European Union and a healthy and proper participation in the Single Market.

As a representative of the socio-professional agricultural associations, the Organisation has the status of Partner in the national Social and Economic Council – Permanent Commission for Social Dialogue. It is also represented in many other consultative bodies of different public authorities. The CAP has a permanent delegation in Brussels and participates in all Agricultural Committees, Advisory Groups and other European organisations (COPA, GEOPA, USSE, CEPF, FIPA, EESC, etc.)

Among the various specialized technical services provided by CAP to farmers, two deserve to be mentioned: training, with three Agricultural Training Centres already established; and direct aid to agricultural holdings, provided through a network of 15 Rural Information Centres, covering all the country. The Organisation publishes a monthly magazine devoted to agricultural policy, agricultural economics, and current technical issues (“Farmer Magazine”).

In general, the following services are provided: training (the Organisation is accredited in all areas: diagnosis, planning, design, organisation and promotion, development/implementation, monitoring, evaluation and other interventions);

application for farm subsidies; Farm Advisory Services; livestock management (personalized telephone information service); “Visto by CAP” (a new consulting service in the food safety area, fully geared for producers and processors of food in rural areas, helping them to meet the legal requirements in this area, particularly in the application of the principles of hazard analysis and critical control point - HACCP); demonstrations and applied research projects; and young farmers contests.

It is important to mention that the advisory tasks are exclusively performed by the affiliated organisations, at the regional and local levels, using different approaches and methods, being training and informational the crucial ones. Most information initiatives have to do with the EU policy and agricultural investment projects.

A leader of a Farm Management Centre affiliated with this confederation was interviewed. It is a non-profit organisation operating with mixed funding, mostly private (60%), with the remaining from the State and the EU. It has four advisors, three with college degrees. All advisors have more than 12 years of experience and are certified in cross compliance and advisory topics. The advisory services are charged to farmers, per hour of service or according to packages. Most work is done individually, especially through farm visits and occasionally by telephone. The organisation serves about 1,000 farms, mostly small ones with an average of 5 ha, and deals more often with plant and animal production questions, followed by stable design, bookkeeping, taxes, cross compliance, and rural development/rural tourism. Agricultural accounting, taxes and farm management are considered important topics to meet the challenges of CAP 2013-2020. The university is classified as the main knowledge source and cooperation partner. The Centre has a strategic annual plan developed internally, keeps records of advisory work, and has incentives to reward the performance of advisors.

4.1.3. National Confederation of Agriculture (CNA)

The National Confederation of Agriculture (CNA) was established in 1978, in Coimbra. Its programmatic basis is the "Carta da Lavoura Portuguesa”, which defines it as "the organised expression of family farms." Among other principles, it assumes the "current concerns about the construction of an agriculture that meets the quality requirements of products, environmental protection,

preservation of rural areas, concerns for health and work, and the enhancement of the income and quality of life for Portuguese farmers".

The CNA is primarily composed of farmers associations although it also involves other associations focused on the broader context of rural development (a total of about 80). With the mission of defending the social and professional interests of farmers, it develops the provision of a wide range of technical services and participates in various consultative organisms, such as the

Economic and Social Council, the major one. Among the services developed by the CNA and associated organisations are: training (North, Central and Alentejo Regions); National Animal Identification and Registration (a network of service centres throughout the country applying rules for identification, registration and movement of bovine, sheep, goats, swine and equine); support to applications for subsidies and information (legislation, manuals, leaflets and posters, also available online).

As in the case of the Confederation of Portuguese Farmers, most advisory and training tasks are performed by the affiliated organisations, at the local and regional levels. The central body of CNA has a very light structure and most technicians are based in the local and regional associations. Training is the main activity of the organisation (about 50% of staff activities), followed by a variety of tasks related to CAP programmes and instruments (30-40%), and farmer advisory services is minimum (only 10%). Funding is mostly public, and the interviewed leader stressed that the organisation has no permanent human resources, a fact that limits its intervention.

4.1.4. CONFAGRI National Confederation of Agriculture Cooperatives and Farm Credit Cooperatives

Established in 1985, with the aim of contributing to the growth and development of a balanced and effective Cooperative Sector, the CONFAGRI is the structure representing agricultural cooperatives in Portugal. It has about 500 affiliated agricultural cooperatives and agricultural credit cooperatives, organised in Federations and other structures, representing an annual turnover well in excess of 7,500 million euros. In fact, the cooperatives are responsible for a significant part of the processing and marketing of agricultural products, and the Agricultural Credit sector is the leading financial group acting in the Portuguese rural world. The economic importance and role of cooperatives is evident in

different sectors, such as wine, milk and olive oil. In the case of wine, for example, the cooperative sector, in 2010/2011, was responsible for 43% of the production.

In June 1996, a new model was implemented for collecting applications for income support, resulting from the CAP reform, which, in some areas, came under the sole responsibility of the major agricultural organisations. Since then, the Confederation and its affiliates accounted for over 50% of the applications submitted by farmers for income support, in activities such as arable crops and animal production, among others.

The Confederation has established several protocols with Agriculture Ministry services, to perform various functions, from training and informational, to management of applications for income support and other tasks related with the Common Agriculture Policy programmes and measures.

At the individual level, agricultural cooperatives play multiple roles, and some of them have technical teams to provide support and advice to farmers. The dynamism of cooperatives is variable, but many continue to have an important role in the system of information and advice to farmers. Once again, the economic importance and role of cooperatives is evident in different sectors, such as wine, milk and olive oil. In the case of wine, for example, the cooperative sector, in 2010/2011, was responsible for 43% of the production.

4.1.5. Other farmer-based organisations

Besides these major national level farmer based organisations, that bind a number of other numerous associations and cooperatives as its members, there are a very large number of other autonomous organisations that develop various support services to farmers, including training, information transfer and advice, at different territorial scales. Some are national and more generalist, like the Association of Young Farmers of Portugal (AJAP), the National Federation of Young Farmers and Rural Development (CNJ); others are more specialized, like the Portuguese Association of Organic Agriculture (AGROBIO) or the Portuguese Forestry Association (FORESTIS); and still others have a regional character, like the Federation of Agriculture of Trás-os-Montes and Alto Douro (FATA) or the Technical Association of Winegrowers of Alentejo (ATEVA).

It is important to underline the case of AJAP, a national association created in 1983 to represent young farmers at the national and international levels, and to

support agricultural and rural development in different ways (informational, training, technical and legal support, access to CAP instruments, etc.). This organisation has only individual members but works closely with about 50 organisations (Associations, Cooperatives, Farm Management Centres), which serve as their extension arm. AJAP has 30 offices spread throughout the country and a total of 45 technicians who generally have a higher education degree in agriculture or animal production, some with a specialization in olive production, viticulture, or horticulture. The staff is paid with public funds from various sources (Common Agricultural Policy measures, FAS, Rural Development Programme, Training Programmes) and concentrates most attention (about 55% of time) in advisory work, followed by project applications (25%), farm investment projects (15%) and training (5-10%), supporting a total of about 16 thousand farmers, mostly on an individual bases. This organisation presented a high number of applications to FAS, according to the interviewed member or about 50% of the total, as he said mainly due to their proximity to farmers.

4.1.6. Organic farming

Support to organic farming is quite scarce. The Ministry of Agriculture is practically absent in this field, being an exception, the case of the Autonomous Region of Madeira, where a specialized Technical Division of the Regional Agrarian Services was created 10 year ago, involving 25 staff members performing information, farmer advisory services, experimentation and administrative tasks. At the national level there is the Portuguese Association of Organic Agriculture (AGROBIO) that publishes a journal and promotes producer-consumers linkages, organic farmers' markets, annual fairs and information to consumers. Besides this, there is a small set of consultancy firms and independent consultants, and the occasional involvement of municipalities and development associations. Training in this field has been promoted by the above-mentioned farm-based organisations, as well as by private ones. The interviewed consultant works with 20 to 25 farmers who pay a fixed amount to receive regular visits. This individual also manages a small firm that publishes the only technical magazine of organic farming in the country ("Segredo da Terra"), as well as the publication of manuals and brochures, and facilitates a community of experts in this field, who regularly meet to share experiences and knowledge.

4.1.7. Overview

In general, the following conclusions can be drawn: 1) the three Confederations, as umbrella organisations, are active at the national and European levels, developing various lobbying functions, and organise and promote the delivery of a variety of services to their affiliates and farmers, some of which relate to AKIS; the interventions in the territory and at field level are held by its local and regional members; 2) there is a very large number of diverse organisations providing some kind of support and advice to farmers, in a very fragmented and not necessarily articulated fashion; 3) in many instances this work is primarily linked to the applications for grants and financial support available through the Common Agriculture Policy.

4.1.8. Private consultancy firms and services

A great number and variety of private consultancy firms also provide advice and support to farmers. Many are linked to the agro-industrial and food distribution sectors, as well as to farm input and equipment companies (seeds, fertilizers, pesticides, machines, etc.), and have grown tremendously in the last decades, occupying the space and functions that the state has left open.

Many large companies, including multinationals, have commercial teams selling their products to farmers and farm businesses, and simultaneously giving technical advice. Some examples are companies selling Phyto-pharmaceuticals, animal feed and food additives, agricultural equipment and machinery, animal health products, as well as laboratory networks in areas like hygiene and food quality. Also, the large food distribution chains provide a kind of commodity extension system to farmers with whom they have supply contracts.

Besides these, there is a very high number of micro and small private consultancy firms that deliver various services for agriculture, scattered throughout the territory and developing activities such as consulting in specific areas (vineyards and wine, forestry, irrigation, environment, Agro tourism, etc.), training, project planning and management, management and accounting, support for agricultural subsidies, marketing services, new technologies, etc. In the Douro region, for instance, there are private consulting firms with qualified technicians specialized in grape production, winemaking, and marketing studies.

Many small and medium Agro-food industries have partnerships with universities and research centres to conduct applied research and experimentation in order

to answer specific practical problems within their activity. Some large businesses have their own research and product development departments and teams. It is, in most cases, applied research aimed at solving specific problems or developing a given product.

4.1.9. Local development associations

In the early 90's, with the new EU promoted LEADER Initiative, new Local Development Associations (LDAs) were created in all rural areas. In the first phase (1991/92), in the case of Portugal, 19 LEADER regions were established, each one being managed by one such Association and animated by a technical team named Local Action Group (LAG). Presently, there are 53 regions and Associations (each one with a LAG), organised in a national Federation, called "Minha Terra" (My Land). These Associations are, in most cases, local alliances or partnerships, involving institutions from various sectors (agriculture, forestry, small and medium enterprises, tourism, education, etc.).

The activities of these organisations are quite diverse, with the major aim to "animate" rural territories and diversify the economy, promoting revitalization initiatives in many different domains. They represent one of the new faces of rural advisory service, more decentralized, with a wider focus, based on multidisciplinary teams and participatory methods. In this section an overview of these advisory service actors is presented, based on previous research and considering a sample of 17 out of the 53 LDAs (Cristóvão and Baptista, 2012).

The creation of many LDAs resulted from the union of a group of people and organisations linked to rural areas. They decided to mobilize efforts to boost and integrate local resources thereby creating wealth and promoting social, cultural and economic development. The LDAs have as members, in general, a wide range of public and private entities based within their territories of action, including local governments (municipalities and parish councils), schools, natural parks, tourism offices, cooperatives, tourism associations, producers' associations (agriculture, forestry, crafts), social welfare institutions, cultural and recreational associations, business associations, private businesses, individual persons, among many others. In many of these associations local authorities have a key role, occupying, for example, leading positions in the Boards of Directors, Fiscal Council and General Assembly, but are not the majority of the membership.

The primary mission of these Associations is the promotion of rural local development, to improve the living conditions of the population, including the social, cultural and economic circumstances of the concerned territories. To achieve this broad mission they have a wide range of specific objectives, such as: diversification and promotion of the local economic activity, notably by promoting local production systems, tourism and recreation; use and valorisation of endogenous resources; protection of cultural, historical, architectural and environmental heritage; organisation of events with the purpose of spreading the traditions and products of their region; promotion of education and vocational training according to local needs and resources, targeting in particular the questions of employability and job creation; promotion of employment by supporting Small Medium Enterprises (SMEs), entrepreneurship and business development; and provision of social services to the elderly and fight against poverty and social exclusion.

The participants and recipients of the actions are also very different, depending on the characteristics of projects, and include farmers, artisans, unemployed men and women, entrepreneurs (trade, tourism, Agro-industry, crafts), associations and other non-profit organisations, and disadvantaged groups, such as minorities and isolated elderly people. In general, the activities and even the human resources of the LDAs were heavily formatted according to the national and EU programmes to which they apply for and within the framework of which they evolved and are operating.

The number of employees of these LDAs is relatively low, with an average of 16, ranging from 4 to 49. The number of employees is generally related to the number and diversity of activities. Regarding gender, there is a clear predominance of women (76%), which correspond, in general, to three in four employees. The education level of the employees of these LDAs is quite high, representing those who have a college degree, 81%. Of the remainder, only about 11% had schooling at or below the 9th grade. The analysis of the age of employees of LDAs shows that they are relatively young. The age group most represented is the one between 31 and 40 years, with 41%, then the group immediately below, between 19 and 30, with 35% of employees. Only 24% have over 41 years, without any employee over the age of 65

(Extracted from AKIS report 2014 - PRO AKIS project. Authors: Alberto Baptista, Artur Cristovão, Timothy Koehnen, Lívia Madureira, Miguel Pires - UTAD/CETRAD)

The i2connect Portuguese online survey was carried out in October 2020 and a total of 23 of 30 (76%) institutions responded, including:

Figure 4 - Number of answered surveys by advisory category

Representativeness was ensured, both in the agricultural and forestry sectors, with the collection of questionnaires not only from the main Portuguese advisory entities, but also from other private and public entities, so that the answers could demonstrate the reality of advisory services in Portugal.

Figure 5 - Categories of advisory organisations

Private consultancy firms are well stablished across Portugal, most of them providing advising in the also provide advice and support to farmers in the interior of Portugal and of regions of low density. These private organisations are

micro and small private advisory companies that deliver several services for agriculture and forest. Farmer-based organisations are also a very important category on the advisory services in agricultural and forestry sector. Universities and Research Institutes have a very important role, developing and providing knowledge to the entire sector.

4.2. Public policy, funding schemes, financing mechanisms, advisory service providers

In accordance to the surveys outputs, one of the major problems at national level, desertification and abandonment of agricultural and forestry properties, has not been adequately addressed by appropriate public policies, and there has not been much progress in R&D on these issues (at least with practical and visible application).

Regarding territorial and resource management issues (water, energy, communications, data centres, etc.) policies should be holistic of these factors and not separate. In other words, they cannot be thought of in a sectional way (one policy for water, another for land management, another for combating climate change, another for energy, etc.), which in the end do not allow the different productive factors to be aligned.

Innovation and digitisation of the different sectors of the economy are very much an objective of the EU and the different member states, including Portugal. There are real and functional incentives for the agricultural and forestry sector, but they are still little used by their agents. We live in an age of information overload and it is not always easy for a farmer or forest producer to know what projects exist to help create Innovation on their farms. Those who provide advisory services have a decisive role here, because they are the ones who manage to bring the different agents together and empower partnerships in line with the defined policy framework.

On the other hand, Public policies must be the catalyst for this change and this path. Investment support must be increased if it meets the challenges of this system or if it is promoted by partner organisations. The support to the R&D System must be positively differentiated if it is promoted in a logic of Operational Groups (with partnerships between R&D, companies, and organisations). In addition, the support must be linked to results and evaluated differently so that the focus of these partnerships is not the response to the "administrative

burden" but rather an answer to the problems and a search for the application of solutions.

Nevertheless, it should be recognised that there has been an effort to develop sectorial research and innovation agendas for different agriculture and forestry sectors, but these are only documents that will hardly illuminate the agendas/measures of funding programmes, with the exception of cases where the same actors are involved in building both documents.

The current model for financing innovation in the sector is totally residual; it is enough to mention that the support for innovation under the current Rural Development Programme is less than 2% of the total funds made available by the Programme, which shows how little importance is attached to this strategic models.

Advisory organisations are mostly funded in accordance to the graphic below. Private organisations based on cost-recovery, farm-based organisations based on membership fee, and Public organisations by national/regional funds:

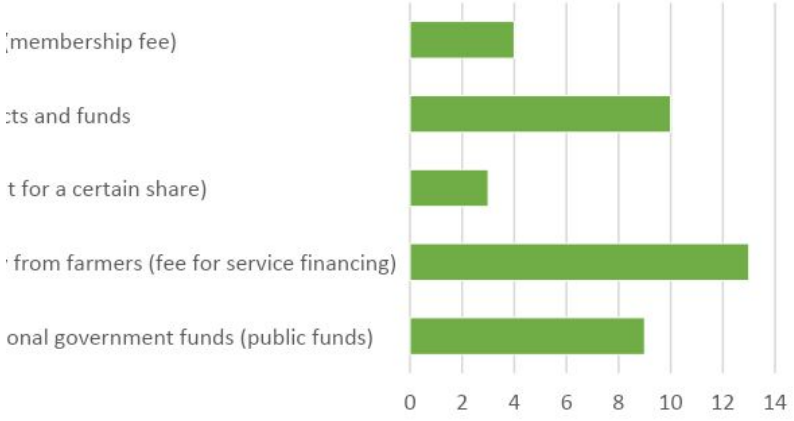


Figure 6 - Primary sources of funding for advisory organisation

From the survey, 43% of the advisory organisations did not significantly changed their budget. The ones that did, identified the main reasons:

- Farmers are more alert, considering that advisors are now more relevant, due to new pest and diseases, new crops new methods
- To support digitalisation and precision farming
- COVID19 is changing the way they do business. Advisors have an important role to facilitate adaptation

- New farmers generation, willing to have different technical expertise on their farms and business

4.3. Human resources and methods of service provision

Table 2 – Aggregated years of professional experience

Aggregated years of professional experience? 0 - 3 years	Aggregated years of professional experience? 3 - 10 years	Aggregated years of professional experience? More than 10 years
77	130	114
24%	40%	36%

Out of a total of 321 advisors represented by the organisations that answered the survey, those with experience of up to 10 years gain relevance, together with those with more than 10 years of experience.

Table 3 - Number of Women and Advisors per Total number of employees

Total number of employees in your organisation Total: Number of employees	Total number of employees in your organisation Female: number of employees	How many are advisors? Total: Number of advisors
740	321	585
	43%	79%

Almost half of the advisors are female, and 79% are advisors in the universe of organizations that responded to the survey.

Complementary to the advisory models, some of the main findings from the i2connect survey are:

Human resource

- The number of advisors is higher in full advisory organizations than in organizations with an advisory component
- Advisory organizations reported significant increases in their advisory staff due to:
    - New crops new methods
    - To support digitalisation

- Precision farming
- New farmers generation
- Farmers are more alert
- Due to diversification of services and expansion of existing ones
- Advisors are now more relevant

Education level of advisors

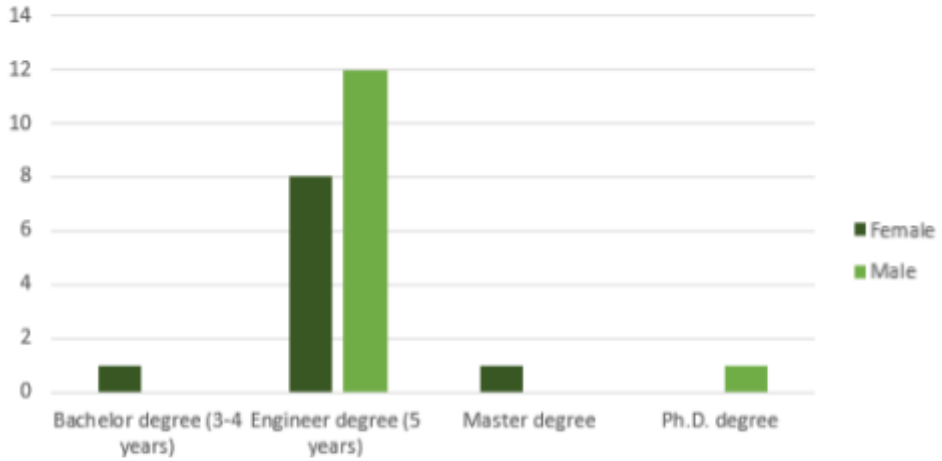


Figure SEQ Figure * ARABIC 7 - Education level of advisors by gender

- Most of the advisors has an engineer degree, with not significant differences between advisors within advisory organizations and freelancers. Overall, there is a high level of education of advisors.

Professional experience in years

- The average of the total answers collected by the survey is around 10 years or more of professional experience (76%).

Advisory certification:

Advisors

- Mainly advisors do not have a certification. In fact, they even question what does this means? They are sometimes qualified with specific training for specific advisory (organic production, Global Gap, training by National Certification Body – DGERT.
- The answers also indicate that there a few advisors know about CECRA or EUFRAS.

4.4. Clients and topics and methods

Advisory methods

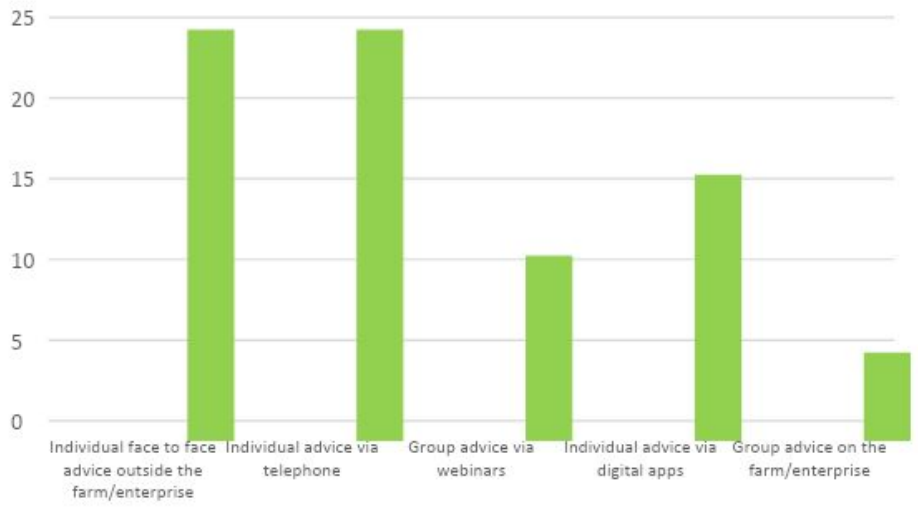


Figure 8 - Percentage of advisory methods used by the three advisory provider's categories included in the i2connect survey

It is interesting to note that the most used method is still face to face advice, but over the telephone it is also a consolidated method practiced by many advisers. On the other hand, it is important to note the evolution of the use of technological tools, namely those already used in the farming community (skype call, WhatsApp, email).

Figure 9 - Average number of clients in a year

The advisory organization have about 850 contacts with clients a year, organization with an advisory component about 580.

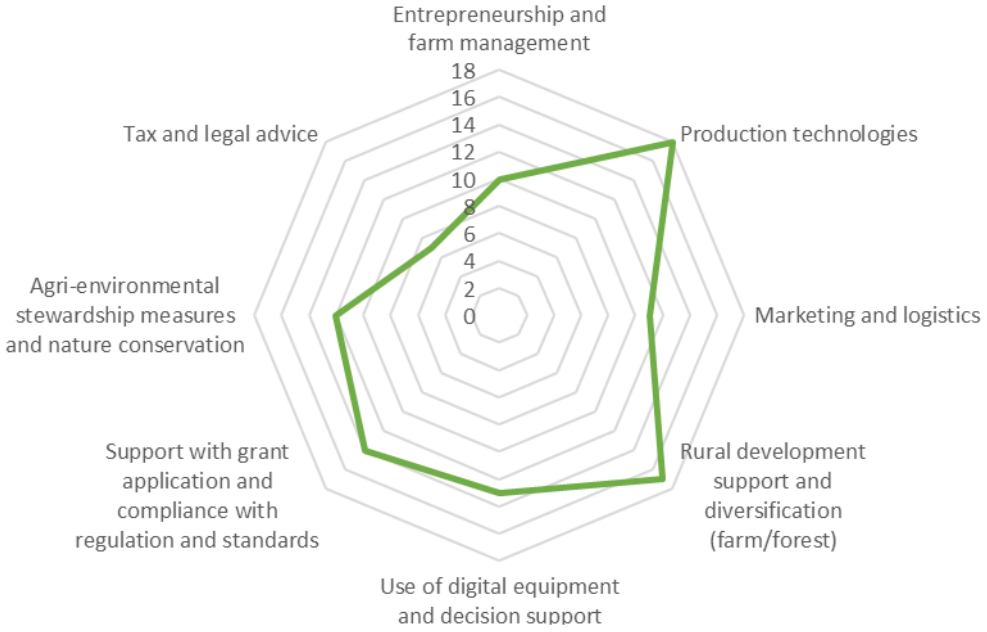


Figure 10 - Cross-cutting advisory topics most demanded by the clients

The most demanded topics by clients are production technologies, rural development support and diversification and support with grant application and compliance with regulation and standards and tax and legal advice.

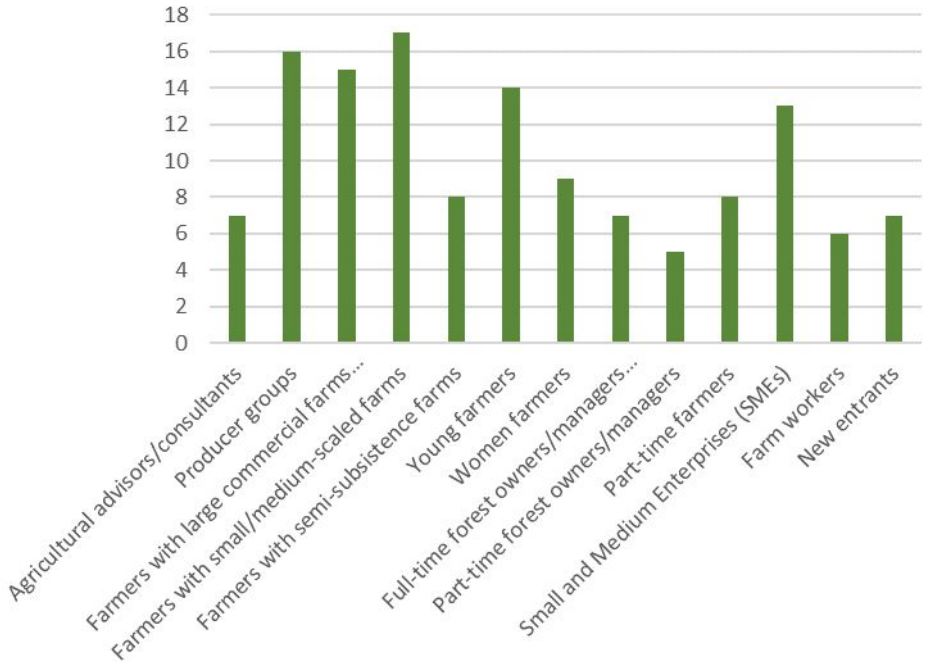


Figure 11 - Advisory organization's client groups

The most important client groups of advisory organizations are farmers with small/medium-scaled farms, producer groups, Farmers with large commercial farms (>100ha) and young farmers.

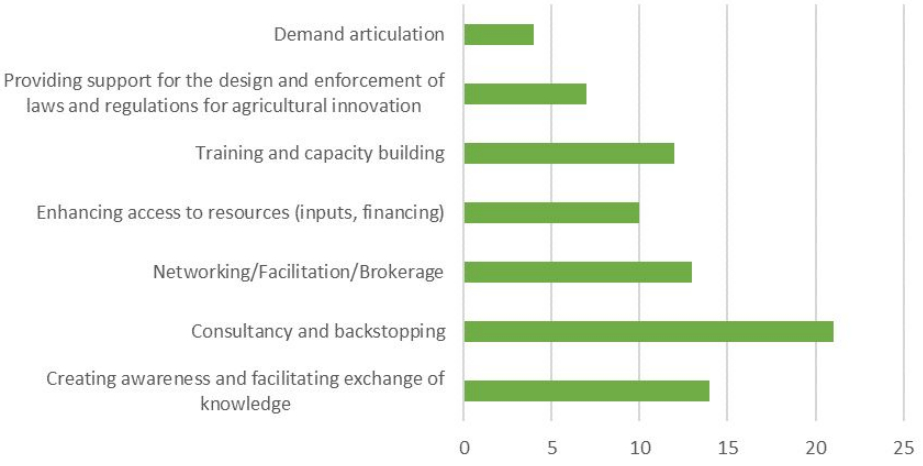


Figure 12 - Main advisory activities

The main advisory activities are Consultancy and backstopping, creating awareness and facilitating exchange of knowledge, Networking/Facilitation/ Brokerage and Training and capacity building.

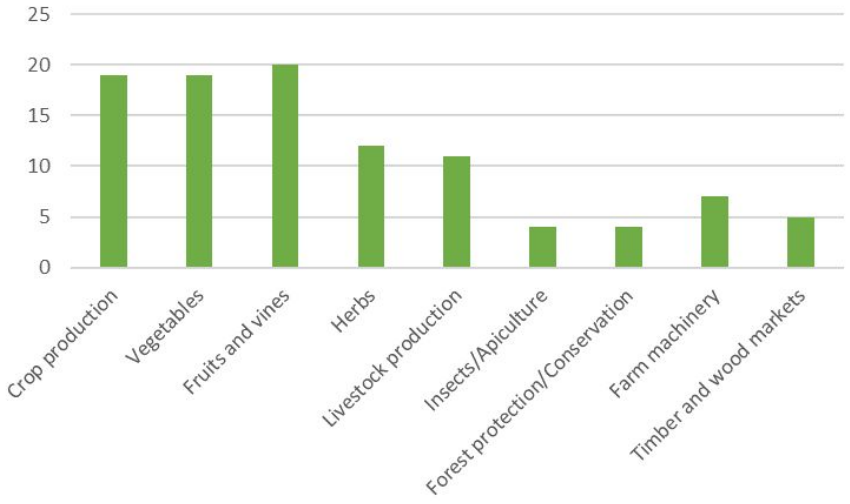


Figure 13 - Advisory topics organizations provides

Reflecting Portuguese agricultural and forestry reality, main topics are fruits and wines, vegetables, and crop production. Forest and Timber/wood markets are also very well identified.

4.5. Linkages with other AKIS actors/knowledge flows

Cooperation with private companies is quite strong, as with the Farmer based organisations. In fact, private companies are always very dynamic and willing to cooperate, along with Farmer based organisations.

The cooperation with Universities and research Institutions and with Public authorities is medium. Weak is the cooperation with NGOs, EIP Operational Groups and EU projects.

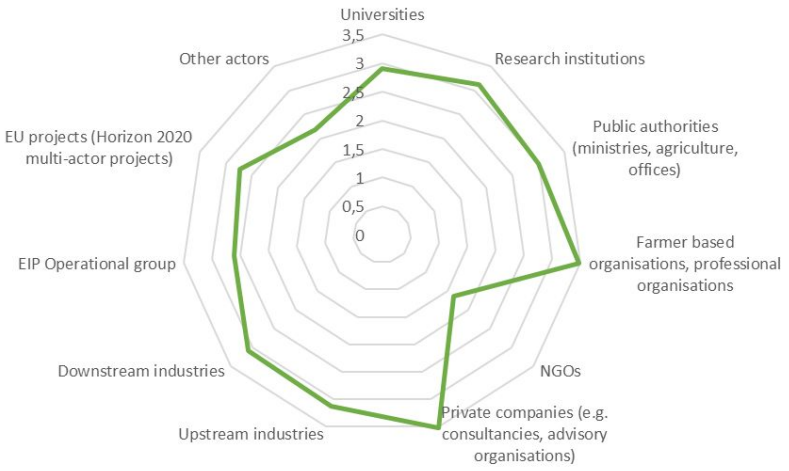


Figure 14 - Linkages within some of the AKIS relevant actors. Elaborated within Focus Group on Advisory Services within AKIS

For the Operational Groups, the reason may be that they are only now beginning the stage of dissemination and knowledge transfer. It will be something to improve, so that the link to the innovation processes are interrelated right from the beginning of these innovation projects. As far as the EU projects are concerned, there is in fact still a great distance between them and the main actors of the national AKIS.

4.6. Programming and planning of advisory work

Targeted consultation services are the most relevant services provided by advisor's organisations, followed by information dissemination and innovation support activities.

Table 4 - Programming and planning of advisory work (%)

Teaching and training activities (%)	Innovation support activities (facilitation, networking, brokerage) (%)	Targeted consultation services (business plans, credit/subsidy application, etc.) (%)	Information dissemination (face to face, via digital tools) (%)	Further development of one's knowledge and skills (participating in training programs) (%)	Others (%)
14%	18%	29%	23%	8%	8%

4.7. Advisory organisations forming the FAS and evaluation of their FAS implementation

Portugal has an Agricultural and Forestry Advisory Service (SAAF), managed by the Directorate-General for Agriculture and Rural Development (DGADR). This

system promotes advisory services in the agricultural and forestry sector, encouraging farmers and forest holders to improve the performance of their exploitation in terms of economic and environmental performance, in a context of adaptation to the existing regulatory requirements and better use of resources. These recognized entities are national, regional or district associations, cooperatives, or federations. These entities are:

- **CAP - Confederação dos Agricultores de Portugal** (Confederation of Portuguese Farmers) and a group of related entities included on the application submitted
- **CNA - Confederação Nacional da Agricultura** (National Confederation of Agriculture) and a group of related entities included on the application submitted
- **CONFAGRI - Confederação Nacional das Cooperativas Agrícolas e do Crédito Agrícola de Portugal, CCRL** (National Confederation of Agricultural Cooperatives and Agricultural Credit of Portugal) and a group of related entities included on the application submitted
- **AJAP - Associação dos Jovens Agricultores de Portugal** (Association of Young Farmers of Portugal)
- **AATM - Associação de Agricultores de Trás-os-Montes** (Trás-os-Montes Farmers' Association)
- **AGROBIO - Associação Portuguesa de Agricultura Biológica** (Portuguese Organic Farming Association) and a group of related entities included on the application submitted
- **FATA** - Federation of Agriculture of Trás-os-Montes and Alto Douro and a group of related entities included on the application submitted
- **Fórum Florestal** (Forestry Forum) and a group of related entities included on the application submitted
- **FORESTIS - Associação Florestal de Portugal** (Forestry Association of Portugal) and a group of related entities included on the application submitted
- **FNAPF - Federação Nacional de Associações de Proprietários Florestais** (National Federation of Forest Owners' Associations) and a group of related entities included on the application submitted

The Agricultural Advisory Service (SAA) was created on 8 May and operated between 2008 and 2016, date on which the Agricultural and Forestry Advisory Service (SAAF) was created, following the thematic areas:

- **Conditionality**, which covers the statutory management requirements and standards for good agricultural and environmental conditions.
- **Health & Safety**, which covers the standards laid down in the relevant Community and national legislation applicable.
- **Climate and Environment Beneficial Agricultural Practices** – Greening.
- **Maintenance of agricultural area.**
- **Water quality protection measures**, which incorporate the requirements laid down in the programme of measures in the river basin management plans regulated by Portuguese Law.
- **Sustainable use of plant protection products.**
- **Measures at farm or forestry level.**
- **First setting-up of young farmers.**
- **Minimum requirements for Agri-environmental measures.**
- **Forest management plan, which covers advice on the implementation of the forest management plan.**
- **Forest protection, which covers advisory matters relating to plant health and forest fire protection.**

5. Summary and conclusions

5.1. Summary and conclusions on sections 1 – 3

Sections 1-3 shows the wide range of actors in the current AKIS in Portugal. The Portuguese AKIS is composed by a series of actors with specific objectives, with a different set of actors and different connections between them. These actors can be divided into four main groups and Farms & Forestry, the central group. The four main groups are: Farming & Forestry Based Associations, Knowledge & Innovation Providers, National & Regional Directorates, Research & Education. This way, the AKIS can be described as four main groups, contributing for the central group Farms &Forestry.

In Portugal, the creation of knowledge is closely linked to all AKIS participants, and there is transfer of this knowledge between all of them. There is currently a logic of knowledge flow between the different links, between science, political actors, industry and farmers.

The logic of co-knowledge, co-creation of content and co-development of solutions for the sector is currently used in all innovation clusters, both at national and European level. Sometimes the great difficulty is the opposite, i.e. passing on scientific knowledge to farmers/foresters in a way that is perceptible and applicable. Communication and dissemination of the results of all research is therefore essential for this flow of knowledge to be effective and efficient.

Policies are of different natures and may be directing international agreements on certain practices (resource consumption, environment, etc.); or they may be of a pro-active nature in terms of industry and sector interests. In both cases, it is essential that policies dictate the rules of operation of the agricultural and forestry sector and consequently its strategic objectives and general and specific goals, which align and change according to the community framework.

5.2. Summary and conclusions on section 4

The online survey covered the advisory services in Portugal, for agriculture and forestry, with a geographic representation. The survey provides a valuable insight into the situation of agricultural advisory services in Portugal, but it is important to safeguard that it is based on a sample, which was intended to be representative, but which is not certain to be so.

Private consultancy firms are well stablished across Portugal, most of them providing advising in the also provide advice and support to farmers in the interior of Portugal and of regions of low density. These private organisations are micro and small private advisory companies that deliver several services for agriculture and forest. Farmer-based organisations are also a very important category on the advisory services in agricultural and forestry sector. Universities and Research Institutes have a very important role, developing and providing knowledge to the entire sector.

The most important advisory activities are consultancy and backstopping, creating awareness and facilitating exchange of knowledge, Networking/Facilitation/ Brokerage and Training and capacity building.

Reflecting Portuguese agricultural and forestry reality, main topics are fruits and wines, vegetables, and crop production. Forest and Timber/wood markets are also very well identified.

The most important client groups of advisory organizations are farmers with small/medium-scaled farms, producer groups, Farmers with large commercial farms (>100ha) and young farmers.

The most demanded topics by clients are production technologies, rural development support and diversification and support with grant application and compliance with regulation and standards and tax and legal advice.

The most frequently advisory methods used still is individual face to face advice, but there's a strong perception that online methods and apps are increasingly becoming an efficient solution.

6. Acknowledgements of partners, information sources and gaps

The research was based on literature review, document analysis, and fieldwork. Fieldwork started in June 2020, with online interviews with public services and private organisations, followed by a questionnaire applied to advisors, researchers, policy makers and other members of the AKIS. The interviews touch topics such as: characteristics of agriculture in the surveyed country; characteristics of the AKIS; history of advisory services; characteristics of the current organisation and managing structure of the main agricultural extension and advisory organisations; characteristics of the FAS; and conclusions and recommendations.

Interviews were done with representatives of governmental institutions like the Rural Nacional Network and the Nacional Agriculture and Veterinarian Research Institute. Additionally, different advisory companies, producers' organisations and Agro-industry companies were interviewed.

Subsequently an online questionnaire was applied to both advisors working in advisory companies and freelance advisors.

In addition to the fieldwork, a literature and document search was also done, consulting studies, reports, webpage materials, etc. The previous Portuguese AKIS report produced by UTAD/CETRAD in 2014, was examined with the objective of identifying references on the history of extension services in Portugal, and information about the characteristics of AKIS organisations and the implementation and performance of the FAS in Portugal.

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