



Prospects for Farmers' Support:  
Advisory Services in European AKIS

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**Agricultural Knowledge and Innovation Systems for an Inclusive Europe**

## **WP3 – AKIS in the EU: The inventory**

### **FINAL REPORT**

#### **Volume II – Country informations**

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## Preface:

The final report of WP3 is the synthesis of the single reports for EU-27 member states, based on qualitative interviews, diagrams and a quantitative survey partly done by project consortium members, partly by other national experts. The objective of this synthesis report is to create an overview of the European AKIS situation in 2013. Hence, findings from the national reports were aggregated and summarised although we are aware that in many cases we may not have been able to include all relevant sources of information. We therefore request that the readers keep this in mind when looking at the figures with care. The structure of final report is similar to that of the national reports which have been done according to a common conceptual understanding of key issues developed by the project team. All national reports can be accessed through the PRO AKIS website ([www.proakis.eu](http://www.proakis.eu)).

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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 the EU-27, with a particular focus on agricultural advisory services. The characteristics includes AKIS description, history of advisory services, public policy, funding schemes, financing mechanisms, advisory methods and human resources, clients and topics, programming and planning of advisory work and a section on how the Farm Advisory System (FAS) was implemented.

This report represents an output of the Work package WP3 titled “AKIS in the EU: the Inventory” which is a part of the PRO AKIS project (Prospects for Farmers’ Support: Advisory Services in the European Agricultural Knowledge and Information Systems’).

The countries of the European Union are highly diversified in terms of territory, population, society and economy, especially in terms of their structure of agriculture. There is over 12 million agricultural holdings across the EU-27 working on 172.8 million hectares of land, which is the main field of influence for agricultural advisers. The average size of each agricultural holding in the EU-27 was 14.4 hectares in 2010. There is a stark contrast in the structure across the EU; on the one hand there is a large number (5.9 million or 49%) of very small farms (less than 2 hectares in terms of size), on the other hand, a small number (3%) of very large farms (over 100 hectares) that use half (50%) of the farmland in the EU-27.

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. Findings from the 27 country reports were presented at three regional workshops across Europe in February (in Copenhagen and Paris) and March 2014 (in Krakow), discussed with stakeholders and experts, and feedback integrated in the reports.

One of the formal definitions of AKIS is: “AKIS is a set of agricultural organizations and/or persons, and the links and interactions between them, engaged in generation, transformation, transmission, storage, retrieval, integration, diffusion and utilization of knowledge and information, with the purpose of working synergistically to support decision making, problem solving and innovation in agriculture” (Röling and Engel, 1991). This concept emphasizes the process of knowledge generation and includes actors beyond the research, education and advice sectors. More recently, the AKIS concept has evolved as it has acquired a second meaning (innovation) and opening up AKIS to more public tasks and to the support of innovation (Klerkx and Leeuwis, 2009).

In the European Union countries there is no unified AKIS system. In fact, each country has built its own system determined on the basis of legislation acts, ownership of research institutions and advisory organisations, structure of education, sources of financing, characteristics of farm-holding and farm-holders – their needs and expectations as well as necessity of implementation of CAP and local agricultural policy.

In general, it is possible to notice many similarities in AKIS consistency. In the majority of countries the public sector (on national, regional and local level) is represented in AKIS as a

supplier of information, funding and also as an advisory provider. Sometimes it combines two or even three of these functions. Concerning research and education actors – their function in AKIS is not only that of a knowledge and innovation creator, or an educator, but also a provider of advisory services. The private sector is widely represented in AKIS. In some countries, like Italy, the number of independent consultants has exceeded 80 thousand. In some countries, there are only few private advisory companies, but with a large number of advisors (e.g. in Finland or Sweden). A similar situation is noticeable concerning farmers-based organisations, where the number of organisations as well as the number of advisors is significant (e.g. in France). NGOs do not play a very significant role in AKIS (excluding Poland, where the number of NGOs is 10 thousand).

In fact, in each surveyed country the AKIS system is different in terms of historical conditions, the number of actors, the number of levels (national, regional or mixed level), sources of knowledge and information, sources and system of funding, ownership of advisory service organisations / companies, models of AKIS organisation, leadership and management etc. This prove the decentralization of AKIS and differentiation in linkage within AKIS actors which are formal/informal but also strong or weak.

There is no unified AKIS structure (in terms of its consistency, management and funding) in the EU-27 member states. Despite many common features, there are also some significant differences related to the history of advisory services, forms, types and groups of advisory clients, sources of support, internal policies, economic goals and objectives, priorities and importance of agriculture in the national economy, the interrelationship between education, science, research and practice economy, and finally, the organisational structure of the state. For these reasons, analysing the AKIS systems in surveyed countries and extracting findings cannot be generalised for whole EU.

There is a new role of public administration in pluralistic systems for an effective coordination of complex public-private relations within AKIS and regulatory work – diffusion of new regulations.

There is also need for creation of the platform of knowledge and information exchange between AKIS actors.

Although the AKIS within EU countries is not unified, in general, in the structure in all surveyed EU countries we can notice six significant elements within the AKIS: creators of agricultural policy (government institutions, state agencies, local governments, parliaments), research and education organizations, providers of advisory services, users of advisory services, producers of input (suppliers) and output (food processors, wholesalers and other enterprises).

Creators of agricultural policy are responsible for the shape of agricultural policy, the binding law and exercising it in terms of quality, health, safety, environmental protection etc. Research and educations organizations deal with generating new knowledge to consistently strengthen the system in the scope of innovation, with analysis of efficiency of the applied production technologies, developing new management systems in particular links of AKIS, as well as comprehensive and specialist education of new staff for all AKIS links. Producers of input and processors of output are represented by organizations or institutions, natural or legal persons,

providing farmers with means of production and services, thus supplying them with fertilizers, pesticides, seeds, farm animals, machines, and also granting loans and credits and pay subsidies and donations. Processors of output are represented by natural and legal persons, producer organizations, enterprises, which purchase agricultural products, store, sort, process, transport and sell them in wholesale and retail sale. One of the most important element are providers of advisory services represented by advisors who deal mainly with market information, promotion of agricultural, economics and organizational innovations, constant education and solving the problems of agricultural practice, sometimes in cooperation with representatives of science. The last users – farmers, owners of holdings and rural population are the main element of AKIS, are the focus group for all stakeholders within AKIS.

Each of these elements is more or less strongly related to others. Thus, every change in one link of the system causes particular effects in other links and vice versa. Therefore, advisory services cannot function all by themselves, separately from other links of the AKIS system.

The advisory systems have different background in individual EU-27 countries and are deep embedded in history, economy and social relations.

Regarding to history of advisory system, the start points have roots in deep history of individual country policy and economy, e.g. the start-up of advisory services was even in XVIII century (i.e. in: Denmark, Finland, Sweden), at the beginning of XIX century (in: Poland), at the beginning of XX century (Austria, Germany, The Netherlands, Lithuania – till 1945, United Kingdom), in the middle of XX century (in: Cyprus, Greece, Ireland, Italy, France, Malta, Portugal, Slovenia, Spain), as well as in the end of XX century (in: Bulgaria, Czech Republic, Estonia, Germany - Eastern FS after re-unification, Latvia, Lithuania, Slovakia, Romania).

There is a considerable diversity within the EU countries regarding the way how advisory services are delivered and the extent to which the state is involved.

There is no unification in term of policy, funding, number and type of institutions and organisations within AKIS, ownership, type of clients, type of advice and advisory methods used. In some countries there is a wide range of institutions and organisations involved in AKIS (e.g. public sector, research and education, private sector, FBOs, and NGOs), in some countries the number of institutions and organisations involved is much less (some sectors are not present). Also the linkages and co-operation between them are diverse – in some cases more strong and formal, in other weak or informal.

With the changes caused by globalisation, we can observe rapid changes in the economic, social and political processes. Globalisation puts pressure on farmers to become more competitive, which requires increasing knowledge and skills, fast access to reliable information and innovation. All of this requires appropriate amount of funds. Increasingly, intervention of the public sector in agricultural expansion depends more and more strongly on the will of taxpayers, who – already satisfied with food security – are not favourable towards agricultural subsidies. It is clear that government subsidy extension will require innovative and stronger effectiveness of advisory work and drawing significant attention to tasks of extension work, which should implement innovations, meet current challenges and farmer needs.

Regarding the type of advisory organisation, it can be noticed, that generally, there are different types of institutions and organisations – public, private, FBOs, NGOs, as well as freelancers. The dominant type of public (fully and semi-public) advisory organisations is in: Bulgaria, Czech Republic, Estonia, Germany (in 5 states), Greece, Hungary, Ireland, Latvia, Poland, Slovakia, UK (Scotland and North Ireland); private (non-profit and profit) in: Denmark, Finland, Germany (in 5 states), The Netherlands, UK (England and Wales); FBOs (chambers of agriculture, farmer unions, farmer associations, farmer co-operatives) in: Austria, Belgium, Cyprus, France, Germany (in 7 states), Italy, Lithuania, Luxembourg, Malta, Portugal, Romania, Slovenia, Spain and Sweden.

The recognized sources of financing of agricultural advisory services are: public funds (on national or regional level), private funding (directly payment for services from farmers entrepreneurs or NGOs), membership fee, production levies, taxes in pesticides and EU funds. The mixed system of financing (mainly public-private) dominates in all EU-27 countries. Even in those countries such a Great Britain, the Netherlands, Germany (5 eastern federal states), Denmark, Finland and Lithuania, where advisory services providers are private organizations, there also they use public funds as a different kind of subsidies.

Regarding the major target groups for dominant types of advisory organisations, there are in general the following clients: (a) for public advisory organisations – medium and small commercial farms, and young farmers; (b) for private (profit and not profit) organisations – large, medium and small commercial farms; (c) for FBOs – medium, large and small commercial farms and producers' groups.

There appeared new clients of agricultural advisory services. These are: increasing group of young farmers, family as a whole, rural inhabitants, newcomers (emigrants), woman and NGO.

Looking at the main topics of advisory services in surveyed countries we noticed that there are some differences between the groups of clients. The main topics of advisory for large and medium commercial farms are: plant production, animal production, accounting, taxes, cross-compliance and environmental protection. For small commercial farms there are similar topics plus rural development and diversification issues. There is also a lot of new recognized topics of advice as new challenges for advisory services as well for research projects e.g. renewable energy, bioproducts, GMO, precision farming, biogas production, climate changes – farming for a better climate, water management, natural resources management, biodiversity, SMEs – starting, running and developing.

There is trend of decentralization and fragmentation (vertical and horizontal) of advisory services (e.g. France, Greece, Portugal, Spain, Poland), commercialization and privatization of public organizations, increasing competitions between suppliers of advisory services and overlapping of activities but also increasing role of new providers of advisory services such as NGOs and FBOs. There is also lack of coordination body, e.g. Poland, Greece, Portugal.

Due to introduction of commercialisation of advisory services we can observe that year by year more individual methods in advisory are present. Also more frequent became group methods, especially address to focus group. For this reason, at present, much bigger attention is paid to quality of advisory services and professional (subject matter) knowledge of advisors and their

communication skills. The results of research are not bringing detail information in this subject. But, in general, we can point out, that in surveyed countries there are different systems of evaluation of advisors' skills and abilities, resulting in professional certification.

One of the important tools in managing any organisation is planning and programming. The analysis of country reports in term of planning and programming of advisory work shows that all surveyed organisations use planning in their activity. Some of them work according to long-term planning, other work rather according to short-term plans or annual plans. For some organisations advisory work is part of programme of their supervisors. The differences in the methods used for building the advisory plan have been noticed – some organisations use participatory methods (introduced farmers into planning process). In general, the question still open is how far advisory plans/programmes can fulfil clients' needs in terms of recognising them in advance, or another question arises – is it possible to plan the farmers' needs in advance?

The full description of all providers is difficult to achieve for different reasons. First of all, there are many types of providers, and not for all of them official census or accreditation is required. Another reason is strong dynamism in advisory field, changing extremely fast, becoming increasingly globalised and creating a lot of hybrid, multi-function organisations, which are becoming new actors in AKIS (improving their number) or becoming new players on the market of advisory services, compete with traditional actors, and replacing them.

Each Member State was legally obliged to set up a national FAS offering advice to farmers. The FAS had to cover at least the statutory management requirements and the 'good agricultural and environmental condition' (GAEC) referred to in Articles 4 to 6 of Council Regulation (EC) No 73/2009. However, the field of advice was not limited to cross-compliance standards: the Member States could decide to include other issues. Each national FAS may be run by one or more designated authorities or by private bodies. Since the 2008 CAP Health Check, each Member State was free to decide (on the basis of objective criteria) which categories of farmers will have priority access to the FAS, without any further criteria being laid down at EU level. Farmers use the FAS on a voluntary basis and remain responsible for acting on the advice they receive. The FAS as laid down in the first pillar of the CAP may be funded under the second pillar through two measures (Articles 24 and 25 and recitals 18 and 19 of Council Regulation (EC) No 1698/2005).

From the country reports we learned that in around half of the Member States the FAS specific service was set up as a complementary to the existing extension services. In the other cases the FAS was interwoven with the existing extension services. Generally (in 23 MS), the FAS is coordinated and supervised by public bodies, except Slovenia and Estonia. Most Member States have established a system for the accreditation of FAS operating bodies and a system for certification of advisors. This role is played in most countries by the Ministry of Agriculture (national or regional) or its subordinate unit or regional authorities.

Farmers had free access to one-to-one on-farm advice (4 MS – Austria, Bulgaria, Latvia, Slovenia), or partially (mixed) contributed to the costs of that advice (20 % to 80 % of the full cost) (17 MS), entirely covered these costs (real costs) (2 MS - Denmark, Ireland). In Germany, Italy and Spain cost for farmer differ upon region. In 17 Member States the FAS started

operation in 2007 but in the rest of them – later (10, e.g. Bulgaria, Germany and Slovenia in 2008, Cyprus, Latvia, Poland and UK in 2009, Romania in 2010, Malta and Portugal in 2011).

The Farm Advisory System in EU-27 includes one or more operating organisations e.g. one FAS organisation operates in Austria, Luxembourg and Slovenia – as a Chamber of Agriculture and in Finland – ProAgria Group. In other countries FAS is created by a set of different operating bodies such a public or semi-public agricultural advisory organisations, research institutions and colleges, private non-profit and profit firms, individual consultants, farmers’ unions, associations, cooperatives, agencies. Because of this reason we identified countries with five different operating body status:

- public – Austria, Bulgaria, UL - Scotland and North Ireland,
- private non-profit - Latvia,
- private profit – Belgium Fl, the Netherlands, UK - England,
- private mixed – Portugal, Denmark, Estonia, Finland, Greece, Malta,
- mixed (private/public) – Belgium Wa., Cyprus, Czech Republic, France, Germany, Hungary, Ireland, Italy, Lithuania, Luxembourg, Poland, Slovakia, Slovenia, Spain, Sweden, UK – Wales.

Measure 114 “Use of Farm Advisory Service” co-financed farmers in 20 MS except: Austria, Belgium Wa., Bulgaria, Finland, France, Ireland and Slovenia.

Additionally measure 115 “Setting up of Farm Advisory Services” was used by two federal states of Germany, some regions in Italy, in Malta, Portugal and Spain.





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## List of abbreviations and acronyms

AAFS	The Academy for Agricultural and Forestry Sciences "Gheorghe Ionescu - Sisesti"
ABL	Arbeitsgemeinschaft Bäuerliche Landwirtschaft (Syndicate of Traditional Agriculture)
ACOT	The Agricultural Training Council (Translated from Irish Gaelic)
ADAS	Agricultural and environmental consultancy (UK)
ADESVA	Technological Centre for Agro-Food (Huelva, Andalucia)
AEA	Agricultural Entrepreneurs Association
AES	The Agricultural Extension Service
AFIP	l'Association de Formation et d'Information Pour le développement d'initiatives rurales
AFOCG	The Associations de Formation Collective à la Gestion
AGROALIMED	Institute for Agricultural Research of the region of Valencia, Polytechnical University of Valencia, CSIC and INIA
AGROBIO	The Portuguese Association of Organic Agriculture
AGROCERT	Agricultural Products Certification and Supervision Organization
AHA	Andreas-Hermes-Akademie (Andreas Hermes Academy)
AIA	National Breeders' Association
AICs	Agro-Industrial Complexes
AINIA	Technological Centre for Agro-Food (Huelva, Andalucia)
AJAP	The Association of Young Farmers of Portugal
AKIS	Agricultural Knowledge and Information Systems
AMS	Agricultural Municipal Services
ANDA	The National Association for Agricultural Development
ANVUR	The National Agency for the Evaluation of Universities and Research Institutes
APA	Agricultural Paying Agency
APA	Provincial Breeders Association
APCA	Assemblée Permanente des Chambres d'Agricultures
APIA	The Agency for Payments and Intervention in Agriculture (Romania)
APRD	Agency for Payments for Rural Development
ARDBA	Association of Rural Development and Business Advisors (Lithuania)
ARI	Agricultural Research Institute
ARSIA	Region agency for agricultural development and innovation
ASAJA	Agricultural Association of Young Farmers
ASTA	Administration des Services techniques de l'Agriculture (Administration of Agricultural Technical Departments)
ASU	Aleksandras Stulginskis University (Lithuania)
ATEVA	The Technical Association of Winegrowers of Alentejo
ATRIA	Associations for the Integrated Treatment in Agriculture
AVDBC	The Association of Village Development and Business Consultations (Lithuania)
AWU	Annual work unit
BICREF	Biological Conservation Research Foundation
BIOG	Bio-Bauere-Genossenschaft Lëtzebuerg (Organic farmer's association)
BLE	Bundesanstalt für Landwirtschaft und Ernährung (German Federal Agency for Agriculture and Food)
BMEL	Bundesministerium für Ernährung und Landwirtschaft (Federal Ministry for Food and Agriculture)
BÖLN	Bundesprogramm Ökologischer Landbau (Framework Program for Ecological Agriculture)

CAAs	Agricultural service centers
CAC	County Agricultural Chambers (Romania)
CACO	County Agricultural Consultancy Offices
CAFRE	College of Agriculture, Food and Rural Enterprise (Northern Ireland, UK)
CAFs	Tax assistance centers
CAFS	Chamber of Agriculture and Forestry of Slovenia
CAP	Common Agricultural Policy
CAP	The Confederation of Portuguese Farmers
CARL	Chamber of Agriculture of the Republic of Lithuania
CASDAR	The Special Account for Agricultural and Rural Development
CBGP	Centre of Biotechnology and Plant Genomics
CC	Cross Compliance
CDR	Centrum Doradztwa Rolniczego (Agricultural Extension Centre)
CECRA	Certificate for European Consultants in Rural Areas
CER France	Advisory organisation
CESAR	Project “Complementing EU Support for Agricultural Restructuring in Romania”
CETA	The Centre d'Etudes des Techniques Agricoles
CEVTD	The Consultancy, Extension and Vocational Training Department
CFP	Common Fisheries Policy
CIAL	Institute for Research in Food Sciences
CIDA	Interregional Committee for Agricultural Advisory
CIFA	Centre for Research and Agricultural Training of Cantabria
CIFDA	Interregional Training Centre for Agricultural Advisory
CITA	Centre for Research and Agro-Food Technology of Aragon
CIVAM	Centres d'Initiatives pour Valoriser l'Agriculture et le Milieu rural
CNA	The National Confederation of Agriculture
CNJ	The National Federation of Young Farmers and Rural Development
CNR	National Research Council
COAG	Coordinator of Organizations of Farmers and Stockbreeders
COMPAG	National Federation of Agriculture Products Traders
CONFAGRI	The National Confederation of Agriculture Cooperatives and Farm Credit Cooperatives
CP	The Peasant's confederation
CRA	Agricultural Research Council
CRA-W	Centre de Recherches Agronomiques de Wallonie
CRP	Centre de Recherche Publique (Public Research Centre)
CSIC	National Research Council
CTAEX	Agro-Food Technological Centre of Extremadura
CU	Cooperative Union
CUMA	Coopératives d'Utilisation du Matériel Agricole
DA	Development Agency
DAAS	Danish Agricultural Advisory Services
DAFA	Deutsche Agrarforschungsallianz (German Alliance of Agrarian Research)
DAFM	Department of Agriculture, Food and the Marine (Republic of Ireland)
DARD	Department of Agriculture and Rural Development (Northern Ireland, UK)
DBV	Deutscher Bauernverband (German Farmer's Federation)
DEFRA	Department of Environment, Food and Rural Affairs (UK)
DESIPAP	Development of Extension Services to Improve Primary Agricultural Production
DIP	Deutsche Innovationspartnerschaft (Agricultural Innovation Partnership)

DLG	Deutsche Landwirtschaftsgesellschaft (German Agricultural Society)
DLR	Dienstleistungszentrum Ländlicher Raum (Service Centre for the Rural Area)
DLV	Deutscher LandFrauenverband (German Rural Women´s Association)
DLV	Dutch: Dienst Landbouwvoorlichting (Agricultural Extension Service)
DRAF	The Regional Directions in Charge of Agriculture
DVS	Deutsche Vernetzungsstelle (German Networking Agency for Rural Areas)
EAA	Economic accounts for agriculture
EAFRD	European Agricultural Fund for Rural Development
EAGF	European Agriculture and Guarantee Fund
EIP	European Innovation Partnership
EKDD	National Centre for Public Administration & Local Government
ELGO	incorporating the ex-semi-autonomous organisations NAGREF, OGEEKA,
DIMITRA	AGROCERT and ELOGAK
ELOGAK	Greek Organisation for Milk and Meat
ERDP	Estonian Rural Development Plan
ESITPA	School of Agricultural Engineering, France
ESU	European size units
Evira	Finnish Food Safety Authority
FADN	Farm Accountancy Data Network
FAR	The Found to facilitate research
FAS	Farm Advisory System
FAServices	Farm Advisory Services
FASRB	The Farm Advisory Service Registration Board
FATA	The Federation of Agriculture of Trás-os-Montes and Alto Douro
FBO	Farmer-Based Organisation
FCEL	France Conseil Elevage
FILL	Fördergemeinschaft Integrierte Landbewirtschaftung Luxembourg (Association to promote integrated agriculture in Luxembourg)
FIRB	The Investment Fond for Basic Research
FIRST	The new Fund for investment in scientific and technological research
FMS	Farm Management System
FNDA	National Fund for Agricultural Development
FNGDA	Federation of farmers' groups for agricultural Development
FNSEA	The National Federation of Farmers' Unions
Fondagri	Fondation for agricultural advisory services
FORESTIS	The Portuguese Forestry Association
FTCIS	Farmer´s Training and Consulting Information Centre (Lithuania)
FVM	Ministry of Agriculture and Rural Development (Hungary)
GAEC	Good Agricultural and Environmental Condition (Part of the minimum requirements of the FAS)
GAK	Gemeinschaftsaufgabe zur Verbesserung der Agrarstruktur und des Küstenschutzes (Federal Fund for Agriculture and Coastal Protection)
GDA	Groupe de développement agricole
GDP	Gross Domestic Product
GDS	Groupe de Défense Sanitaire
GEOTEE	The Geotechnical Chambers of Greece
GIS	Groupes d'Intérêt Scientifique
GKC	Green Knowledge Cooperative
GPP	Office of Planning and Policy
GQS	Gesamtbetriebliches Qualitätssicherungs-System (Quality Management System)

HACCP	Hazard Analysis and Critical Control Points
HEIs	Higher Education Institutes
HNV	High Nature Value Farming Systems
HUF	Hungarian forint
I+DEA	Centre for Research and Agro-Food Development (Segovia, Castilla y León)
IAEI	Institute of Agricultural Economics and Information
IALB	Internationale Akademie Land-und hauswirtschaftlicher Beraterinnen und Berater (International Academy of Rural Advisors)
IBLA	Institut fir Biologesch Landwirtschaft an Agrarkultur Luxembourg (Institute for organic agriculture)
ICIA	Institute for Agricultural Research of Canary Islands
ICONA	The Institute for the Conservation of the Nature
ICT	Information and Communication Technologies
ICVV	Science Institute of the Vine and Wine
IDELE	Livestock Research Institute
IFA	Individual Farmers Association
IFAP	Financial Institute of Agriculture and Fisheries
IFAPA	Institute for Agricultural and Fishing Research and Training of Andalusia
IFEE	Institute for Forestry Extension and Education
IMIDA	Research and Agricultural and Food Development Institute of Murcia
IMIDRA	Research and Rural Development, Agricultural and Food Institute of Madrid
INEA	National Institute of Agricultural Economics
INGACAL	Institute of Agro-Food Quality of Galicia
INIA	Instituto Nacional de Investigacion y Tecnologia Agraria y Alimentaria (the National Institute of Agricultural Research) (Portugal)
INIA	National Institute for Agricultural and Food Research and Technology (Spain)
INIAP	Instituto Nacional de Investigaçã Agrária e das Pescas (the National Institute for Agriculture and Fishing)
INRA	The French National Institute for Agricultural Research
INRAN	National Research Institute for Food and Nutrition
INRB	The National Institute of Biological Resources
INTIA	Institute of Technology and Agro-Food Infrastructures of Navarra
IPIMAR	National Institute for Ocean Resources Research
IR	Izba Rolnicza (Farmer Agricultural Chambers)
IRFAP	Research and Training Institute for Agricultural and Fishing of Balearic Islands
IRSTEA	The National Research Institute of Science and Technology for Environment and Agriculture technologies
IRTA	Institute of Research and Agro-Food Technology of Catalonia
IRYDA	National Institute of Reform and Agricultural Development
ISMEA	Institute of Services for the Agricultural and Food Market
ISO	International Standardization Organization
ITA	The Agricultural Technical Institutes; Technical Research Institutes
ITAB	Technical Institute on Organic Research
ITACYL	Agricultural Technological Institute of Castilla and León
IVIA	Institute for Agricultural Research of the Region of Valencia
IVV	Institut Viti-Vinicole (National Institute for Viticulture)
JA	The union of young farmers (France)
KCA	Knowledge Centre for Agriculture (Denmark)
KEGE	Local farmers' training centres
KEPPYEL	Centre for the quality control of propagation materials & fertilizers

KIM	Koperattiva ta Min Irabbi l-Majjal Ltd. (Pork Breeders Cooperative Pork Ltd.)
KKL	Kriterien-Kompendium Landwirtschaft
KPH	Koperattiva Produtturi tal-Halib Ltd (Milk Producers Cooperative Ltd.)
KSH	Hungarian Central Statistical Office
L'UNIO	Union of Farmers and Stockbreeders
LAAS	Lithuanian Agricultural Advisory Service
LACC	Local Agricultural Consultancy Centers (Romania)
LDAs	Local Development Associations
LEADER	Liaison entre acteurs de développement de l'économie rurale (Links between the rural economy and development actions)
LEAF	Linking Environment and Farming (England, UK)
LFI	The Rural Training Institute
LIAE	Lithuanian Institute of Agrarian Economics
LNIV	Laboratório Nacional de Investigação Veterinária (the National Institute for Veterinary Medicine Research)
LRATC	Rural Advisory and Training Centre (Latvia)
LSU	Livestock unit
LTA	Lycée Technique Agricole (Technical College for Agriculture)
LTO	Land-en Tuinbouw Organisatie Nederland/Dutch Organisation for Agriculture and Horticulture
LWK	Landwirtschaftskammer (Chamber of Agriculture)
MA	Managing Authority (of the RDP) (Malta)
MAF	Ministry of Agriculture and Food (Bulgaria)
MAFF	Ministries of Agriculture, Fisheries and Food (Denmark)
MAGOSZ	National Association of Hungarian Farmers Societes and Co-operatives
MAKIS	Project “Modernization of the Agricultural Knowledge and Information System”
MAMAOT	Ministry of Agriculture, Ocean, Environment and Spatial Planning
MARD / MOARD	Ministry of Agriculture and Rural Development
MCAST	Malta College of Arts, Science & Technology
MEPA	Malta Environment and Planning Authority
MFA	Multifunctional Agriculture
MIPAAF	Ministry of agriculture forestry and food policies
MIUR	Ministry of Education, University and Research (Italy)
MMM	The Ministry of Agriculture and Forestry (Finland)
MNVH	the Hungarian National Rural Network
MoA	Ministry of Agriculture
MOAM	Malta Organic Agricultural Movement
MOSZ	The National Federation of Workers' Councils
MRDF	The Ministry of Rural Development and Food (Greece)
MRJC	Mouvement Rural de Jeunesse Chrétienne
MSDEC	Ministry for Sustainable Development, the Environment and Climate change (Malta)
MSKL	Central Association of Farming Advising Centres
MTA	the Hungarian Academy of Science
MTT	Agrifood Research Finland
NAAC	The National Agency of Agricultural Consultancy
NAAS	National Agricultural Advisory Services (Bulgaria)
NAGREF	National Agricultural Research Foundation
NAKVI	the Rural Development, Training and Consultancy Institute

NARS	National Agricultural Research System
NÉBIH	Hungarian National Foodchain Safety Authority
NGO	Non-Governmental Organisation
NRDN	The National Rural Development Network
NRDSP	The National Rural Development Strategy Plan 2007-2013
NSOM	National Statistics Office of Malta
OB	Operational bodies
OCA	Agricultural County Office
ODR	Ósrodek Doradztwa Rolniczego (the Provincial Advisory Centre)
OECD	Organisation for Economic Co-operation and Development
OGA	Other gainful activity
OGEEKA	Organisation of Agricultural Vocational Education, Training and Employment
ONVAR	Organismes Nationaux à Vocation Agricole et Rurale
OOO	Onderwijs, Onderzoek, Ondernemerschap - Education, Research, Entrepreneurship
OPAs	Agricultural Professional Organization
OPEKEPE	Greek Payment Authority of Common Agricultural Policy
OTRI	Office for Transfer of the Results of Research
OVO	Openbaar Voortgezet Onderwijs - Public Secondary Education
PA	Paying Agency
PASEGES	Pan-Hellenic Confederation of Unions of Agricultural Co-operatives
PCIA	Pole for Independent Advice
PEGEAL	Regional laboratory of agricultural extension and fertilizer analysis
PGs/Pos/OPs	Producer Groups
PNR	National Research Program (Italy)
PRIN	The found for Research Project of relevant national interest
PROAGRI	National Agricultural Investment Program
PSOE	The Socialist Party
R&D	Research & Development
RAAS	Regional Agricultural Advisory Services (Bulgaria)
RAES	The Rural, Agricultural and Economical Societies (Sweden) (In Swedish: Hushållningssällskapet)
RAO	Rural Advisory Offices (Latvia)
RC	Rural Coordination
RDP	Rural Development Programme
RIAFE	Research Institute for Agricultural and Food Economics
RMT	Réseaux Mixtes Technologiques
RPA	Regional Paying Agency
RSPB	Royal Society for the Protection of Birds (UK)
SAC	Scottish Agricultural College
SCAC	Slovak Commerce and Agricultural Chamber
SCAR	The Standing Committee on Agricultural Research
SEARS	Scotland's Environmental and Rural Services
SECTI	System of Science, Technology and Innovation of Extremadura
SER	Service d'Economie Rurale (Department for Rural Economy)
SERIDA	Regional Service of Research and Agro-Food Development of Asturias
SFA	State Fund Agriculture
SFCH	Slovak Food Chamber
SGIT	The General Sub-Directorate of Research and Technology
SGPCP	The General Sub-Directorate of Foresight and Coordination of Programmes

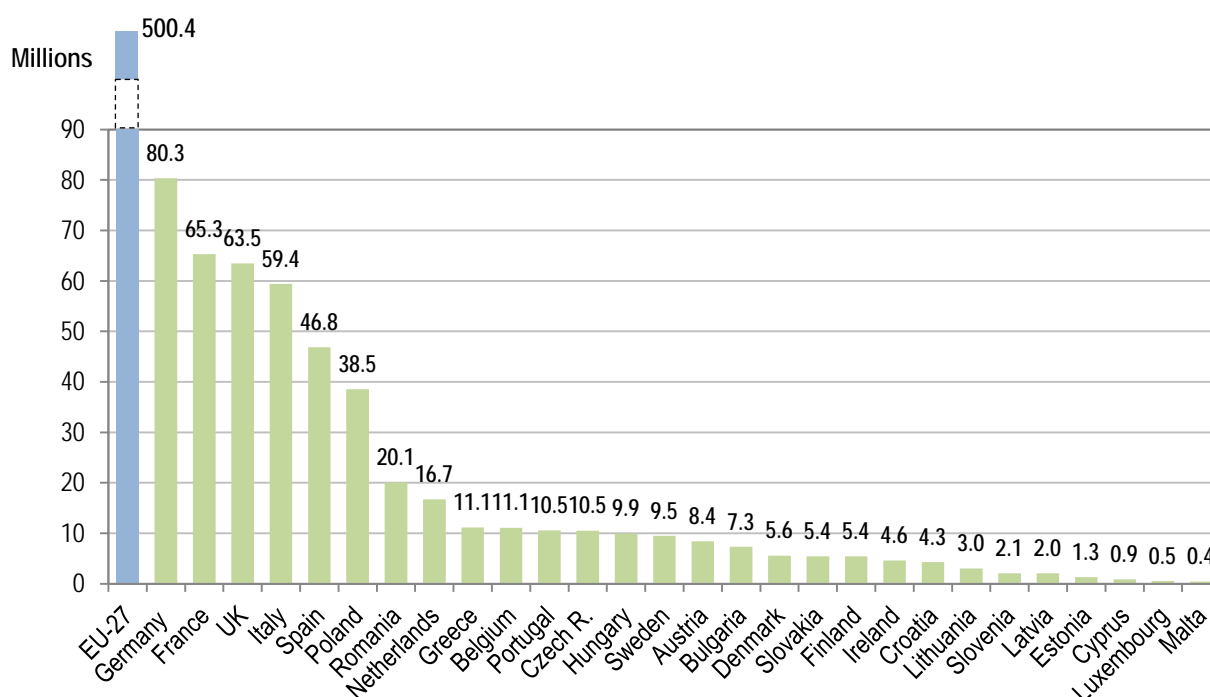


SITA	Research and Agricultural Technology Service of Castilla-La Mancha
SMEs	Small and Medium Size Enterprises
SMFs	Small and Medium Farms
SMR	Statutory Management Requirements
SRUC	Scotland's Rural College
TAA	Total agricultural area
TAC	Territorial Advisory Centres
TOKAA	Local Centres for Rural Development
TP	Technological platforms
TRAME	A network of federations
UAA	Utilised Agricultural Area
UMT	Unités Mixtes Technologiques
UNFOs	National Union <i>Olive oil mills</i>
UNIMA	National Union of Agricultural Mechanisation Companies
UPA	Union of Small Farmers
USDA	United States Department of Agriculture, USA
UTAD	University of Trás-os-montes e Alto Douro
VAS	Veterinary Advisory Services (UK)
VLK	Verband der Landwirtschaftskammern (Federation of Agricultural Chambers)

## Chapter 1. Main structural characteristics of agricultural sector of the EU-27<sup>1</sup>

The countries of the European Union are highly diversified in terms of territory, population, society and economy, especially in terms of their structure of agriculture.

EU-27 was inhabited in 2012 by 500,355 thousand people – food consumers. The largest populations are in Germany (80.3 million), France (65.3 million), UK (63.5 million), Italy (59.4 million), Spain (46.8 million) and Poland (38.5 million). The countries with the smallest populations are Malta (417.5 thousand), Luxembourg (524.8 thousand), Cyprus (862.0 thousand), Estonia (1.3 million), Latvia and Slovenia (2.0 million) (Fig. 1).



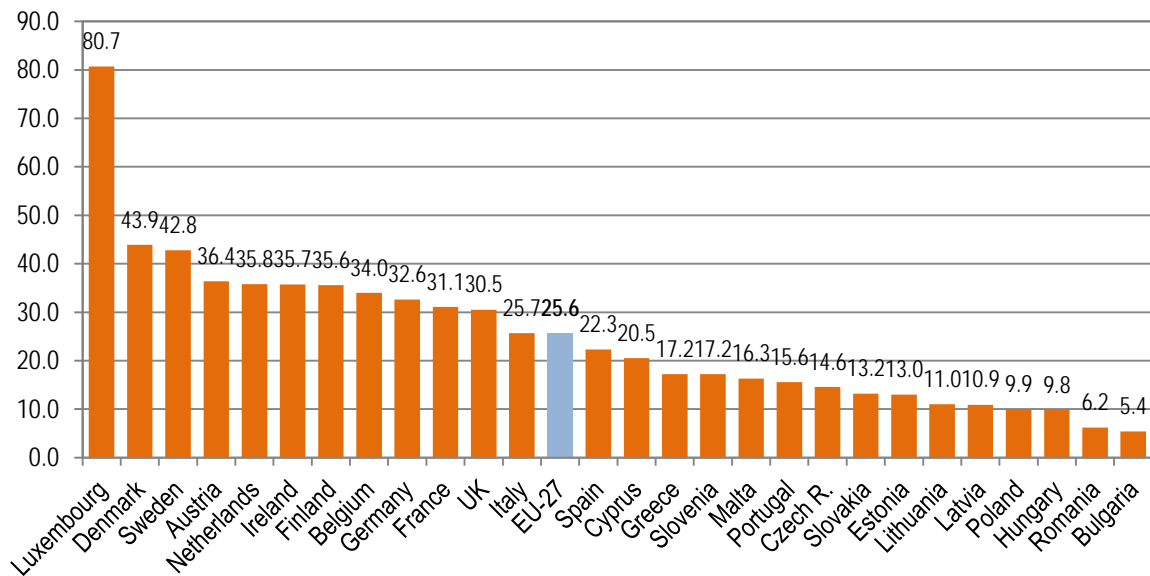
**Figure 1.** Average population in the EU-27 (in millions), 2012

Source: own study based on Eurostat data

Gross domestic product (GDP) at market prices per inhabitant is on average 25,200 Euro in EU-27 (in 2012). The highest level is reached in: Denmark (43,900 Euro), Sweden (42,800 Euro), Austria (36,400 Euro), Netherlands (35,800 Euro), Ireland (35,700 Euro) and Finland (35,600 Euro). It is the lowest in Bulgaria (5,400 Euro) and Romania (6,200 Euro). A relatively low GDP level can also be observed in Hungary, Poland, Latvia, Estonia and Slovakia (9,800 – 13,200 Euro) (Fig. 2).

<sup>1</sup> This chapter was elaborated based on “Farm Structure Statistics” 2012, [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Farm\\_structure\\_statistics](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Farm_structure_statistics) and other statistical data of Eurostat, <http://epp.eurostat.ec.europa.eu>

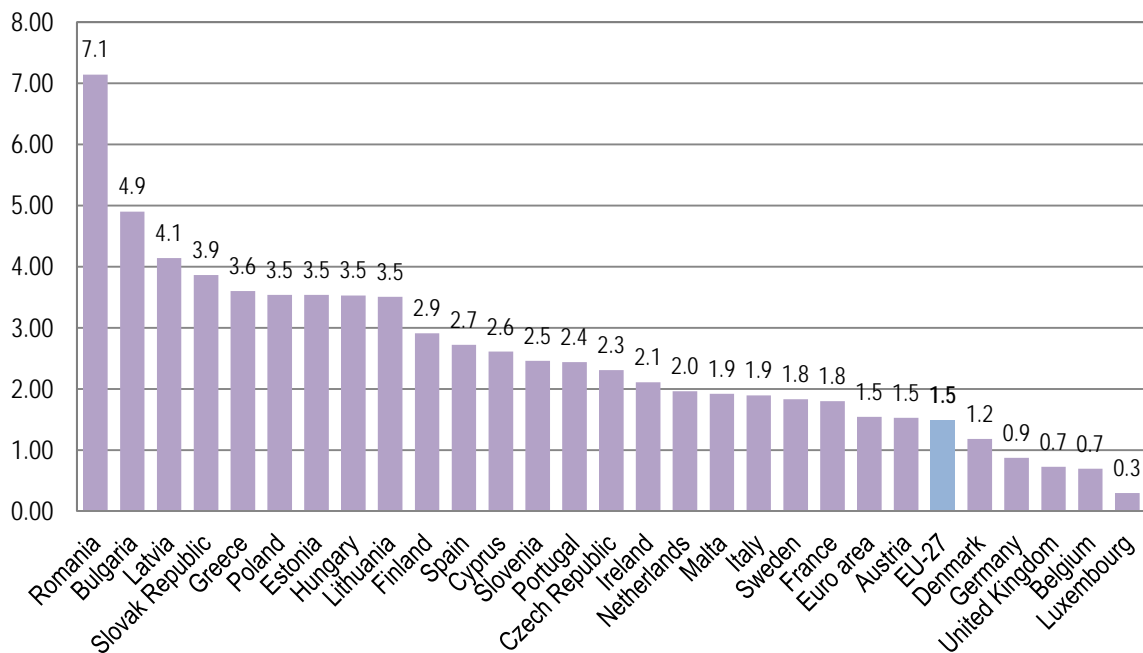
Thousand



**Figure 2.** Gross domestic product at market prices in Euro (in thousand) per inhabitant in EU-27, 2012

Source: own study based on Eurostat data

The share of agriculture in GDP (2010) on average EU-27 is low and amounts to 1.48%. This share is negatively correlated with the GDP level of a given country, i.e. the higher the GDP level of a given country, the lower the share of agriculture in its formation. It is in Belgium 0.69%, UK 0.72%, Germany 0.87%, Denmark 1.18%, while in Romania it is as much as 7.14%, Bulgaria 4.90 %, Latvia 4.14%, Slovakia 3.86% and Greece 3.60% and in Poland, Estonia, Hungary and Lithuania – 3.5% (Fig. 3).



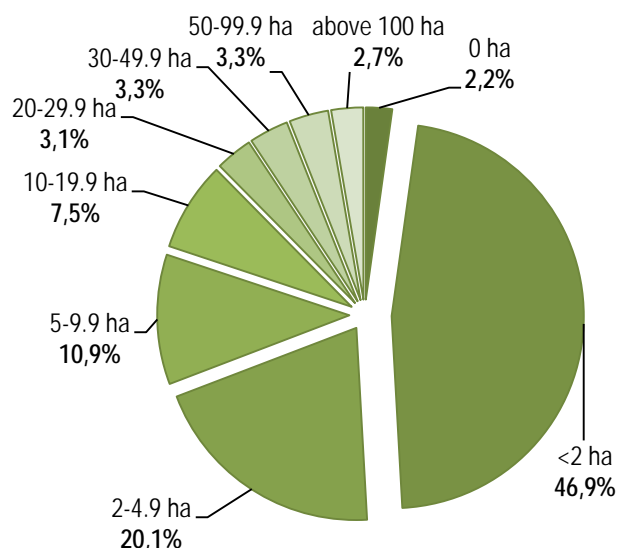
**Figure 3.** Agriculture in GDP in the EU-27 countries (in %), 2010

Source: own study based on Eurostat data

## 1.1. Number and structure of agricultural holdings

The structure of agriculture in the Member States of the European Union varies as a function of differences in geology, topography, climate and natural resources, as well as the diversity of regional activities, infrastructure and social customs. A short analysis on the structure of agricultural holdings helps to assess the situation across the EU-27 referring to AKIS and agricultural extension systems evaluation.

There were 12 014.78 thousand agricultural holdings across the EU-27 in 2010 working on 172.8 million hectares of land (UAA – the utilized agricultural area) or 40.3% of the total land area of EU-27, which is the main field of influence for agricultural extension advisers. The average size of each agricultural holding in the EU-27 was 14.4 hectares, compared with 12 ha per holding in 2003. There is a stark contrast in the structure across the EU; on the one hand there is a large number (5.9 million or 49%) of very small farms (less than 2 hectares in terms of size) using a small proportion (2%) of the total land area that is used for farming in 2010 and, on the other hand, a small number (3%) of very large farms (over 100 hectares) that use half (50%) of the farmland in the EU-27 (Fig. 4).



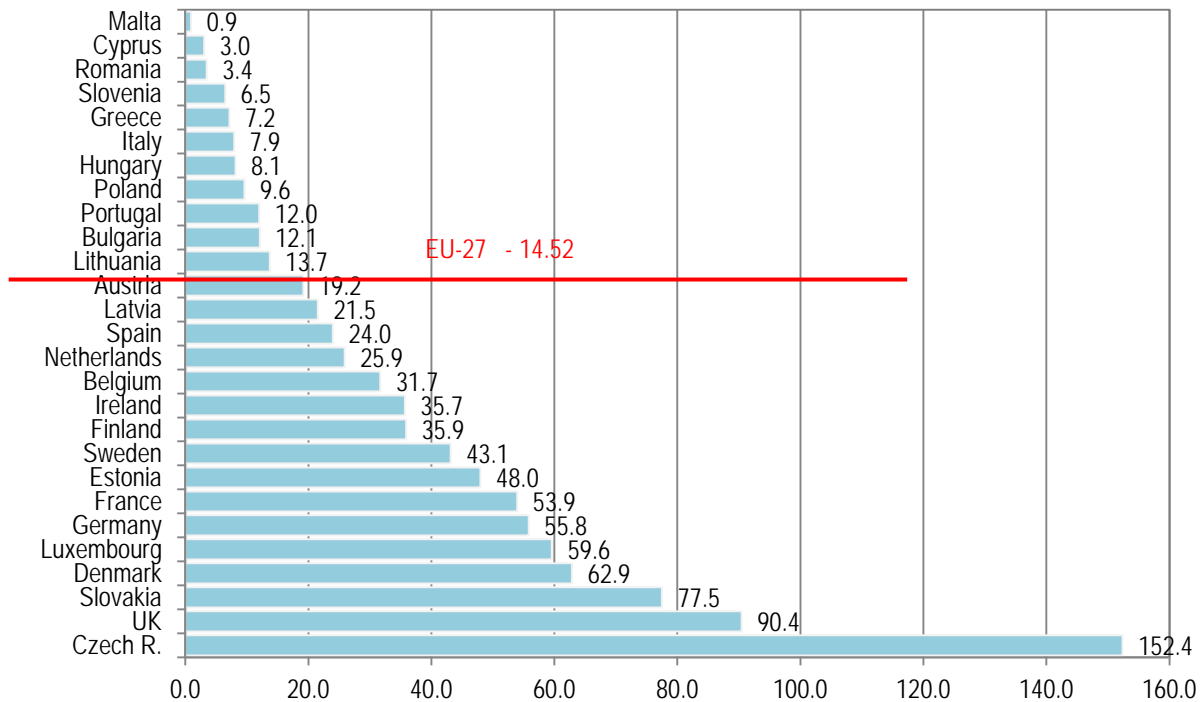
**Figure 4.** Structure of agricultural holdings by size of the holding in the EU-27 (12,014.78 thousand = 100.0%), 2010

*Source: own study based on Eurostat data*

Almost one third (32.2% or 3.9 million) of all agricultural holdings in the EU-27 were in Romania. These holdings can be characterized as small: three quarters of holdings in Romania were below 2.0 hectares in terms of size (average size is 3.45 ha). One in four of the EU-27 holdings were in Italy (1.6 millions, 13.5%) and Poland (1.5 million, 12.6%) and these too can be characterized as small (on average below 10.0 ha in terms of size). The small average size of holdings is also in Malta (0.91 ha), Cyprus (3.05 ha), Greece (4.57 ha), Slovenia (6.47 ha) and Hungary (8.12 ha).

The highest average size of holdings is in Czech Republic – 152.4 ha as a result of small number of very large farms, and in UK – 84.4 ha which is six times as high as the EU-27 average in

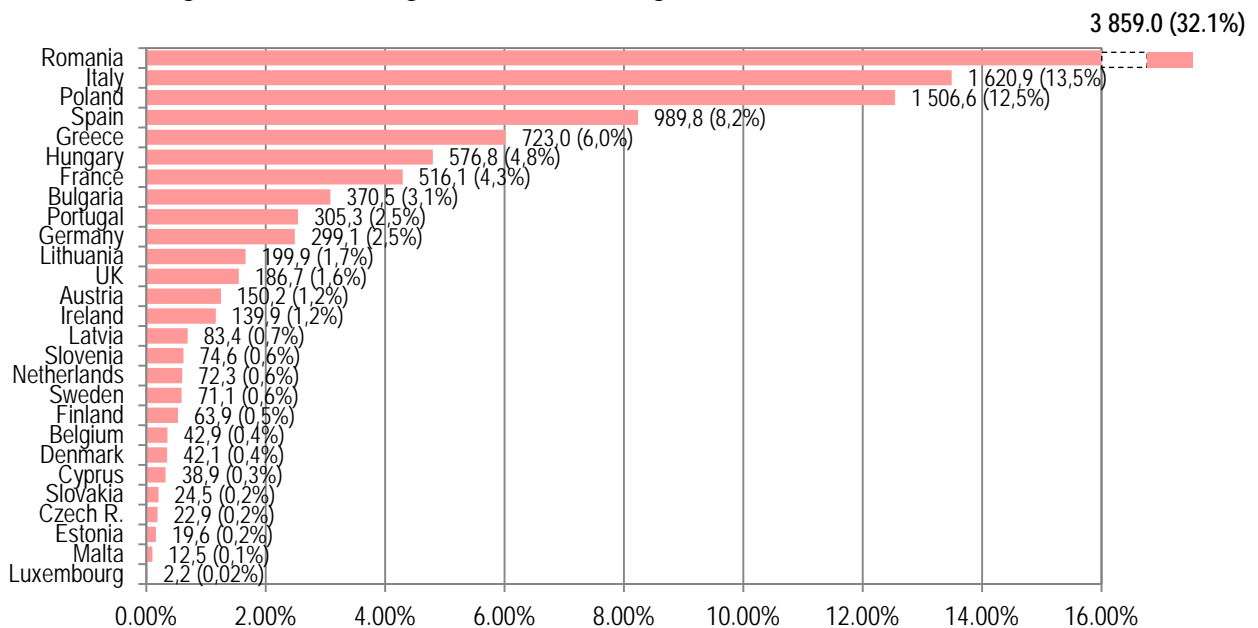
2010. The high average size of farm is also in Slovakia – 77.5 ha, Denmark – 77.5 ha, Luxembourg – 59.6 ha, Germany – 55.8 ha and France – 53.9 ha (Fig. 5).



**Figure 5.** Average utilized agricultural area (UAA) per holding in the EU-27 (ha), 2010

Source: own study based on Eurostat data

There is also large number of holdings in Spain (1.0 million, 8.3%), Greece (0.7 million, 5.6%), Hungary (0.6 million, 4.8%) and France (0.5 million, 4.3%). These seven member states account for 81.2% of agricultural holdings in the EU-27 (Fig. 6).



**Figure 6.** Number of agricultural holdings (in thousand) and % of share in the total number of holdings in the EU-27, 2010

Source: own study based on Eurostat data

The number of agricultural holdings decreased between 2003 and 2010 in all Member States, except Malta and Sweden. The largest drops were observed in Estonia (-46.6%), Bulgaria (-44.2%), Latvia (-34.4%) and Poland (-30.7%).

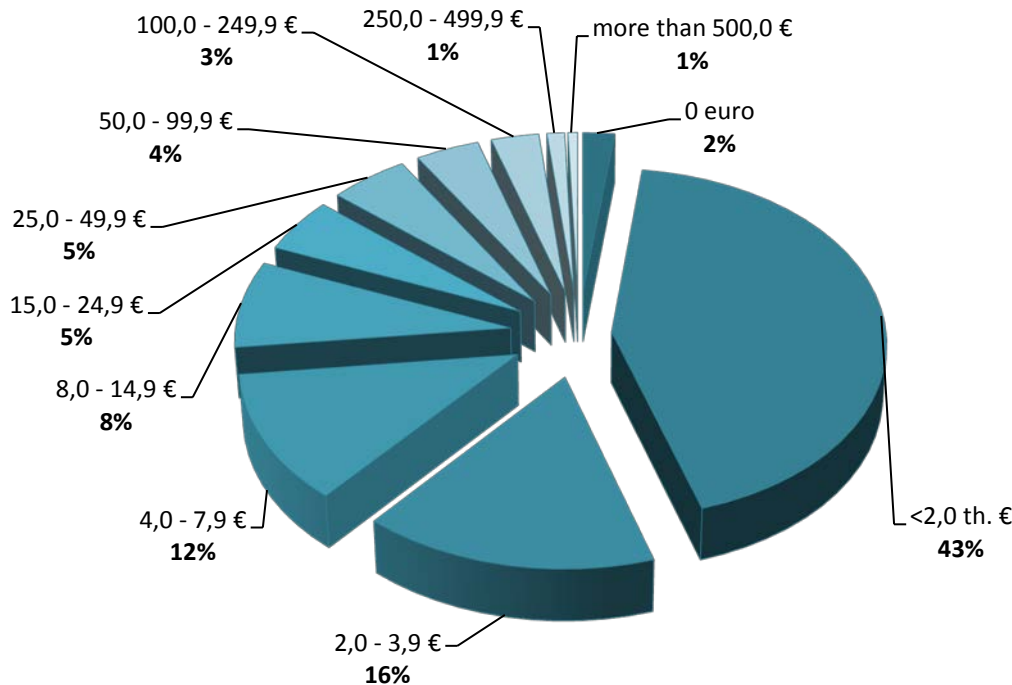
The weakest territorial structure, taking into account the share of small farms (less than 2 ha) in general can be observed in Malta (88.8%), Bulgaria (83.1%), Hungary (79.0%), Cyprus (75.2%), Romania (74.3%), also in Greece (51.7%), Italy (50.9%) and Portugal (50.4%). A majority of farms, larger than 20 hectares is in Luxembourg – 65.5%, UK – 60.7%, Ireland – 57.7%, Finland – 57.0%, Denmark – 55.1%, France – 54.3% and Germany – 54.0% (Table 1).

**Table 1.** Structure of agricultural holdings by size of the holding in the EU, 2010

Country	Zero ha		< 2.0 ha		2.0 – 4.9 ha		5.0 – 19.9 ha		Over 20.0 ha		Total
	number	%	number	%	number	%	number	%	number	%	
Belgium	950	2.2	4,270	10.0	4,450	10.4	11,990	28.0	21,210	49.5	42,870
Bulgaria	13,150	3.5	294,960	79.6	30,390	8.2	17,550	4.7	14,430	3.9	370,490
Czech Rep.	290	1.3	1,980	8.7	1,260	5.5	8,130	35.6	11,210	49.0	22,860
Denmark	1,590	3.8	520	1.2	950	2.3	15,840	37.6	23,210	55.1	42,100
Germany	1,410	0.5	14,260	4.8	11,690	3.9	110,470	36.9	161,310	53.9	299,130
Estonia	150	0.8	2,210	11.3	4,250	21.7	7,540	38.4	5,460	27.8	19,610
Ireland	130	0.1	2,210	1.6	7,380	5.3	49,330	35.3	80,840	57.8	139,890
Greece	6,190	0.9	367,160	50.8	183,820	25.4	133,350	18.4	32,540	4.5	723,060
Spain	22,500	2.3	270,280	27.3	232,800	23.5	252,810	25.5	211,400	21.4	989,800
France	9,490	1.8	66,580	12.9	62,690	12.1	96,790	18.8	280,550	54.4	516,100
Italy	5,290	0.3	819,360	50.6	357,670	22.1	306,270	18.9	132,310	8.2	1 620,880
Cyprus	490	1.3	28,710	73.9	5,620	14.5	3,040	7.8	1,000	2.6	38,860
Latvia	320	0.4	9,590	11.5	18,390	22.1	40,150	48.1	14,930	17.9	83,390
Lithuania	260	0.1	32,310	16.2	84,830	42.4	61,370	30.7	21,140	10.6	199,910
Luxembourg	20	0.9	200	9.1	160	7.3	390	17.7	1,440	65.5	2,200
Hungary	42,790	7.4	412,740	71.6	46,060	8.0	45,970	8.0	29,250	5.1	576,810
Malta	340	2.7	10,790	86.1	1,120	8.9	270	2.2	10	0.1	12,530
Netherlands	1,700	2.4	8,000	11.1	11,000	15.2	21,080	29.1	30,560	42.3	72,320
Austria	1,080	0.7	16,160	10.8	30,220	20.1	59,180	39.4	43,540	29.0	150,170
Poland	7,960	0.5	355,220	23.6	468,200	31.1	553,460	36.7	121,770	8.1	1 506,620
Portugal	1,400	0.5	152,460	49.9	77,060	25.2	52,150	17.1	22,210	7.3	305,270
Romania	134,710	3.5	2,731,730	70.8	727,390	18.8	226,050	5.9	39,150	1.0	3,859,040
Slovenia	190	0.3	20,280	27.2	24,920	33.4	25,790	34.5	3,470	4.6	74,650
Slovakia	740	3.0	8,720	35.7	6,290	25.7	4,290	17.5	4,420	18.1	24,460
Finland	400	0.6	1,440	2.3	4,340	6.8	21,310	33.4	36,390	57.0	63,870
Sweden	740	1.0	560	0.8	7,630	10.7	30,000	42.2	32,170	45.3	71,090
UK	4,130	2.2	4,500	2.4	8,020	4.3	55,540	29.7	114,610	61.4	186,800
EU-27	258,410	2,2	5,637,200	46,9	2,418,600	20,1	2,210,110	18,4	1,490,530	12,4	12,014,780

Source: own study based on Eurostat data

This contrast is also reflected in the economic size of holdings. Out of the 12.0 million agricultural holdings in the EU-27 in 2010, 5.1 million holdings (42.7%) had a standard output less than 2000 Euro, and was responsible for only 1.4% of total agricultural output (Fig. 7).



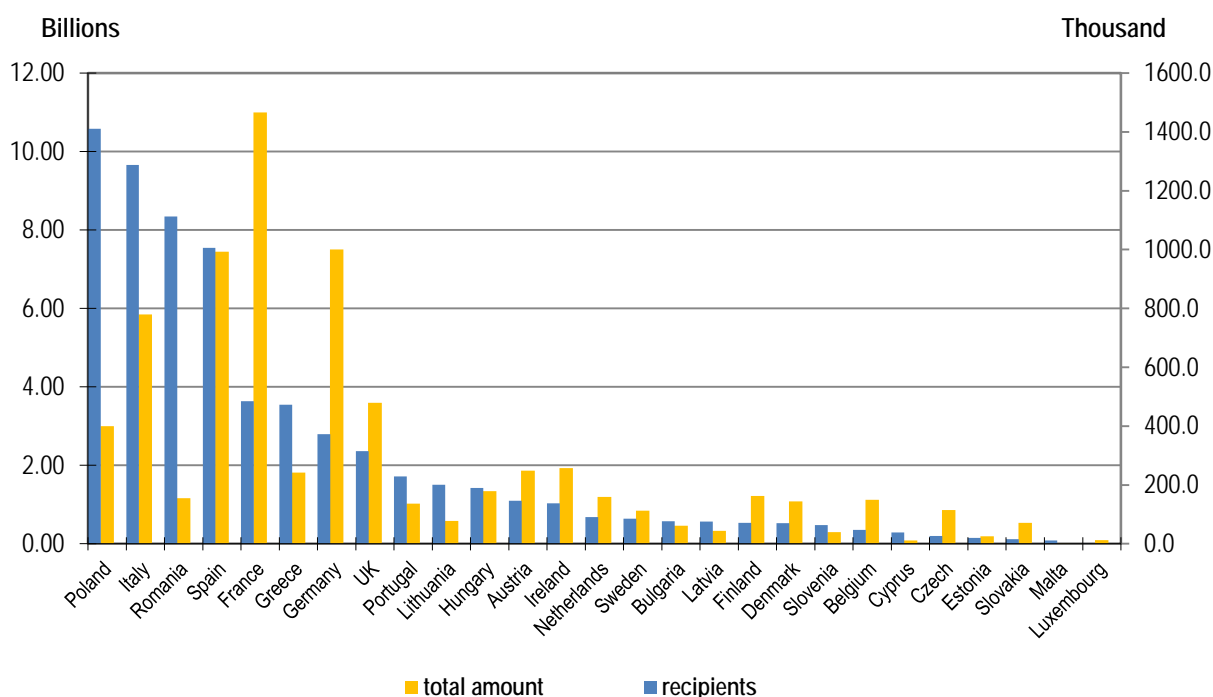
**Figure 7.** Structure of agricultural holdings by standard output size classes (in thousands) in the EU-27, 2010

*Source: own study based on Eurostat data*

On the other hand, 5.3% of holdings that had a standard output in excess of 100,000 Euro accounted for over two third (68.6%) of overall agricultural economic output. It is worth noting that agricultural holdings with standard output over 15,000 Euro, which represent only 19.1% of the total number of holdings in EU provide 90.5% of total standard output. Over three quarters (76.4%) of total standard output in EU-27 which was 305 947.6 million Euro was created by farms in France – 16.6%, Italy – 16.2%, Germany – 13.6%, Spain – 11.2%, UK – 6.4%, Poland – 6.2% and the Netherlands – 6.2%.

EU farmers can get direct payments under CAP with a yearly budget of around 40 billion Euro. Direct payments ensure a safety net for farmers in the form of a basic income support, separated from production, stabilizing their income stemming from sales on the markets, which are subject to volatility. Direct payment also contributes, in combination with cross-compliance, to providing basic public goods delivered through sustainable farming. The number of agricultural holdings in EU-27 which received direct payments in 2009 was 8,060,359 (67.4% of the total number), and the value of paid subsidies was 56,420 million Euro (7.2 thousand Euro per farm). Direct subsidies are used to the greatest extent by: France (10.9 million Euro, 19.4% of overall subsidies of EU, 22.7 thousand Euro per farm), Germany (7.5 million Euro, 13.3%, 20.1 thousand Euro per farm), Spain (7.4 million Euro, 13.2%, 7.4 thousand Euro per farm), Italy (5.8

million Euro, 10.4%, 4.5 thousand Euro per farm), UK (3.6 million Euro, 6.4%, 11.4 thousand Euro per farm) and Poland (3.0 million Euro, 5.3%, 2.1 thousand Euro per farm) (Fig. 8).



**Figure 8.** Number of agricultural holdings (in thousand) receiving direct payments and its amount in the EU-27 (in billions), 2009

Source: own study based on Eurostat data

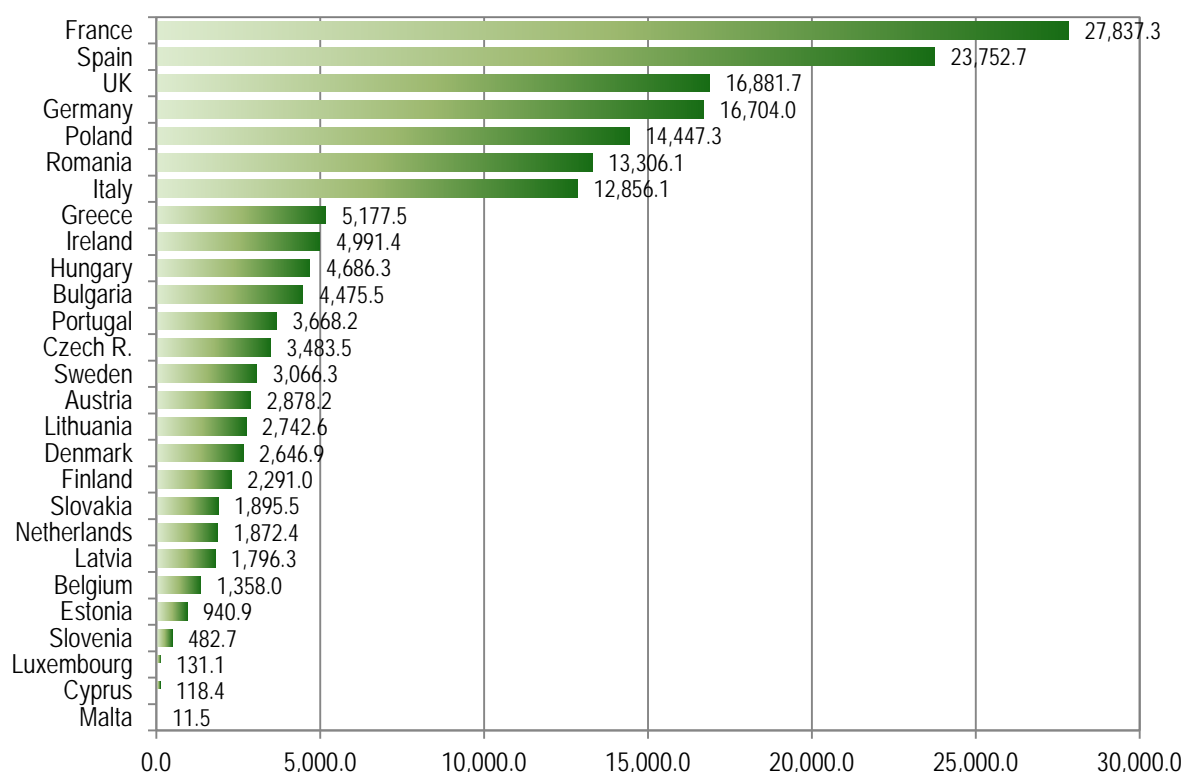
Diversification in territorial payments between EU countries is also due to high amounts of rates of direct payments, per hectare per annum. According to the existing legislation, average rates for the years 2007-2013 were the highest in Malta – 696 Euro, the Netherlands – 457 Euro, Belgium – 435 Euro, Italy – 404 Euro, Greece – 384 Euro, Cyprus – 372 and Denmark – 363. They were the lowest in Latvia – 95 Euro, Estonia – 117 Euro, Lithuania – 144 Euro, Romania – 183 Euro, Portugal – 194 Euro, Slovakia – 206 Euro and Poland – 215 Euro.

## 1.2. Agricultural land use

Rural areas occupy ca. 91% of the EU area, and are inhabited by 56% of population of EU-27. Agrarian lands being the main and the traditional field of impact of advisory services are 40.3% of overall area of EU-27.

Considering the utilized agricultural area, France (27.8 million ha, 16.2% of the total UAA of the EU-27) had the largest area, followed by Spain (23.7 million ha, 13.8%), Germany (16.7 million ha, 9.7%), UK (15.7 million ha, 9.2%), Poland (14.4 million ha, 8.4%), Romania (13.3 million ha, 7.8%) and Italy (12.8 million ha, 7.5%) (Fig. 9).





**Figure 9.** The agricultural utilized area (UAA) in 1 000 hectares and % of share in EU-27, 2010

Source: own study based on Eurostat data

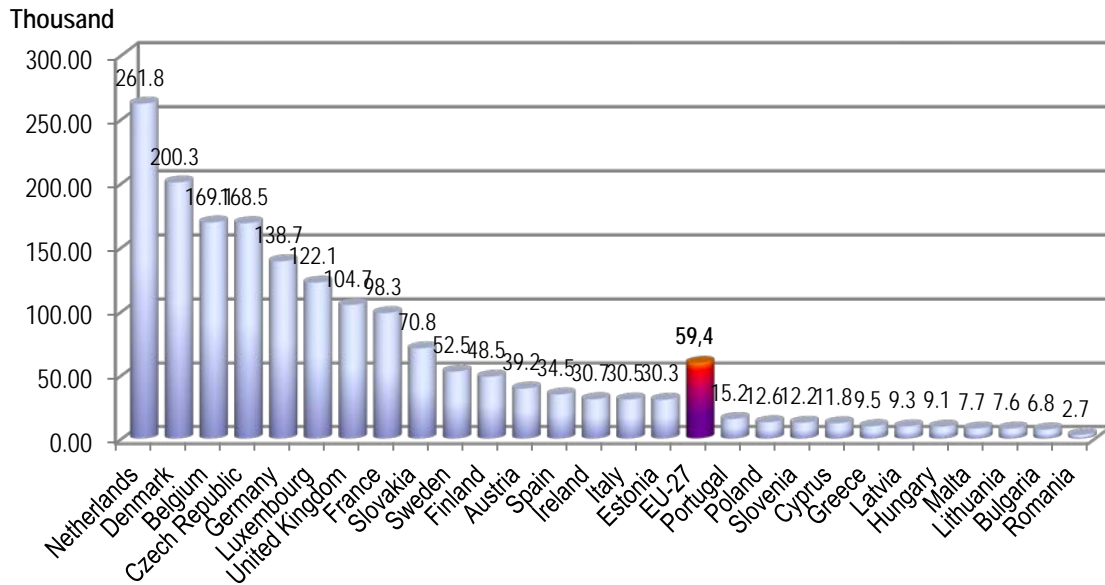
The utilized agricultural area (171,428,450 ha in EU-27) decreased in eighteen Member States between 2003-2010 and increased in nine. The largest decreases were recorded in Cyprus (-24.3%), Slovakia (-9.4%) and Austria (-8%) and the highest increases Bulgaria (+24.7%), Latvia (+19.9%) and Estonia (+18.0%). UAA largest share of the total area characterized: UK – 70.6%, Ireland – 64.9%, Denmark – 62.0%, Romania – 59.4%, Hungary – 57.4%, Luxembourg – 50.7%, Poland – 50.2% and the Netherlands – 50.1%, and the lowest: in Sweden and Finland – 6.8%, Estonia – 9.0% and Cyprus – 12.7%.

Agricultural holdings, which have more than 30 ha (9% of the total number in EU-27) farm on 75% of utilized agricultural area.

The average standard output per agricultural holding in EU-27 in 2010 was 25,464 Euro and extremely differ among Member States, the highest level was in Netherlands (261,753 Euro), Denmark (200,257 Euro), Belgium (169,870 Euro), Czech Republic (168,513 Euro), Germany (138,716 Euro) and Luxembourg (122,072 Euro). The lowest standard output was in Romania (2,700 Euro), Bulgaria (6,847 Euro), Lithuania (7,635 Euro), Malta (7,653 Euro), Hungary (9,086 Euro), Latvia (9,320 Euro) and Greece (9,505 Euro) (Fig. 10).

The value of final output at production prices of the agricultural industry in 2011 was in EU-27, 385 038 million Euro and increased by 30.8%, as compared to 2000.

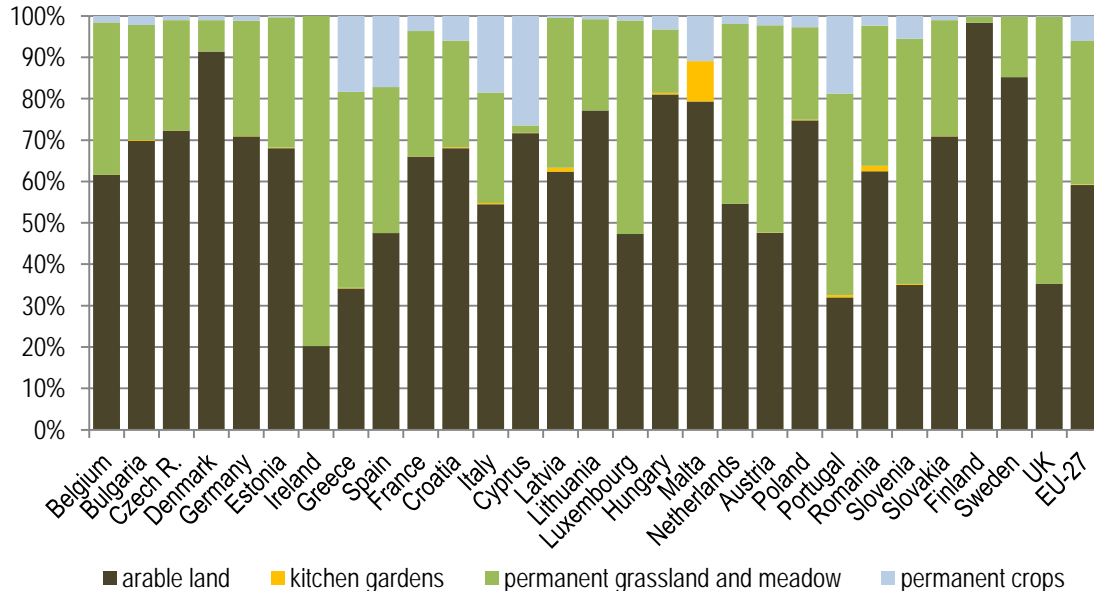
The largest producers among the countries of EU are as follows: France – 18.0%, Germany – 13.6%, Italy – 12.3%, Spain – 10.5%, UK – 6.9%, the Netherlands – 6.6% and Poland – 5.7%.



**Figure 10.** Standard output per 1 holding in thousand euro in EU-27, 2010

Source: own study based on Eurostat data

In the structure of UAA the average share of arable land in EU-27 was 59.1%, of land under permanent grassland – 34.6%, land under permanent crops – 6.1% and kitchen garden – 0.2% (Fig. 11).



**Figure 11.** Structure of utilized agricultural area by type of crops in EU-27, 2010

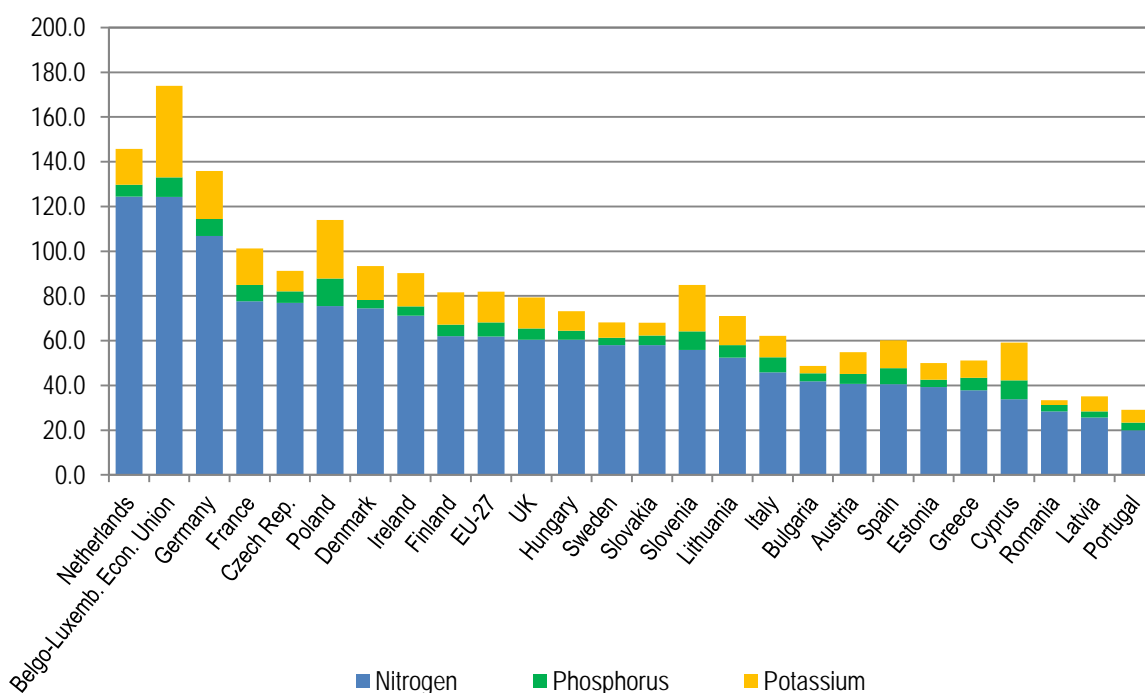
Source: own study based on Eurostat data

The majority of arable land in 2010 was used for cereal production. The highest percentage of arable land is in Denmark (56.9% of total area), Hungary (46.3%), Poland (38.7%), Romania (38.4%) and Germany, Lithuania, Czech Republic and Malta ca 32%, average for EU-27 is 24.5%. The share of permanent grassland (pastures and meadow) is highest in Ireland (50.6% of

total area), and UK (45.9%). There is also quite a high share of grassland in Luxembourg (26.1%), the Netherlands (21.8%), Austria (20.65%), Portugal (19.8%) and Romania (19.1%).

The proportion of UAA occupied by permanent crops was relatively high in some of the Mediterranean countries, the highest shares (over 25%) being in Cyprus and Greece.

The estimated consumption of manufactured fertilizers in the EU-27 (excluding Malta) was on average 81.7 kg of nutrients (nitrogen, phosphorus and potassium together) per hectare of utilized agricultural area, in 2010 (Fig. 12). The Benelux countries reported the highest level (173.9 kg per hectare) of nutrient consumption from manufactured fertilizers. They were followed by Netherlands (145.8 kg), Germany (135.9 kg), Poland (114.0 kg), France (101.2 kg), Czech Republic (91.3 kg), Denmark (93.3 kg) and Ireland (90.2 kg). In contrast, Portugal, Romania and Latvia reported the lowest levels of fertilizer consumption, about 30 kg per hectare.

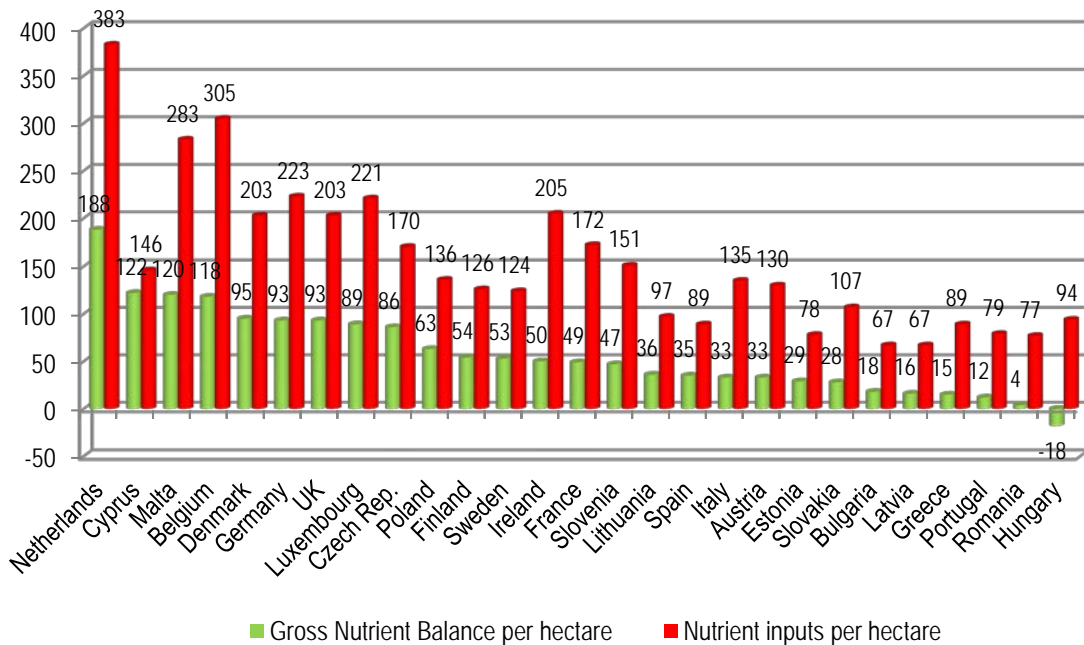


**Figure 12.** Consumption estimate of manufactured fertilizers (kg per hectare) in EU-27 by countries (Malta not available), 2010

Source: own study based on Eurostat data

The gross nitrogen balance indicator provides an insight into the links between agricultural nitrogen (N) use, deposits of N in the environment and the sustainable use of soil N resources. It indicates the total potential risk to the environment (air, water and soil). Between 2005 and 2008, the gross nitrogen balance for the EU-27 remained relatively stable, with an estimated average 49 kilograms of N per hectare of agricultural utilized area. In the EU-15 the gross nitrogen balance fell from 66 kg over the period of 2000-2004 to an estimated average of 58 kg over the period of 2005-2008. In the Central and Eastern European countries which joined the EU in 2004 and 2007 (Poland, Slovenia, Slovakia, Estonia, Lithuania, Latvia, Czech Republic, Hungary, Romania and Bulgaria) the gross nitrogen balance was much lower than in the EU-15, with an estimated average of 33 kg/ha over the period 2005-2008. The nitrogen surplus is highest in

countries in the North-West of EU (the Netherlands – 188, Belgium – 118, Denmark – 95, German – 93, UK – 93 and Luxembourg – 89) and the Cyprus – 122 and Malta – 120 (Fig. 13).

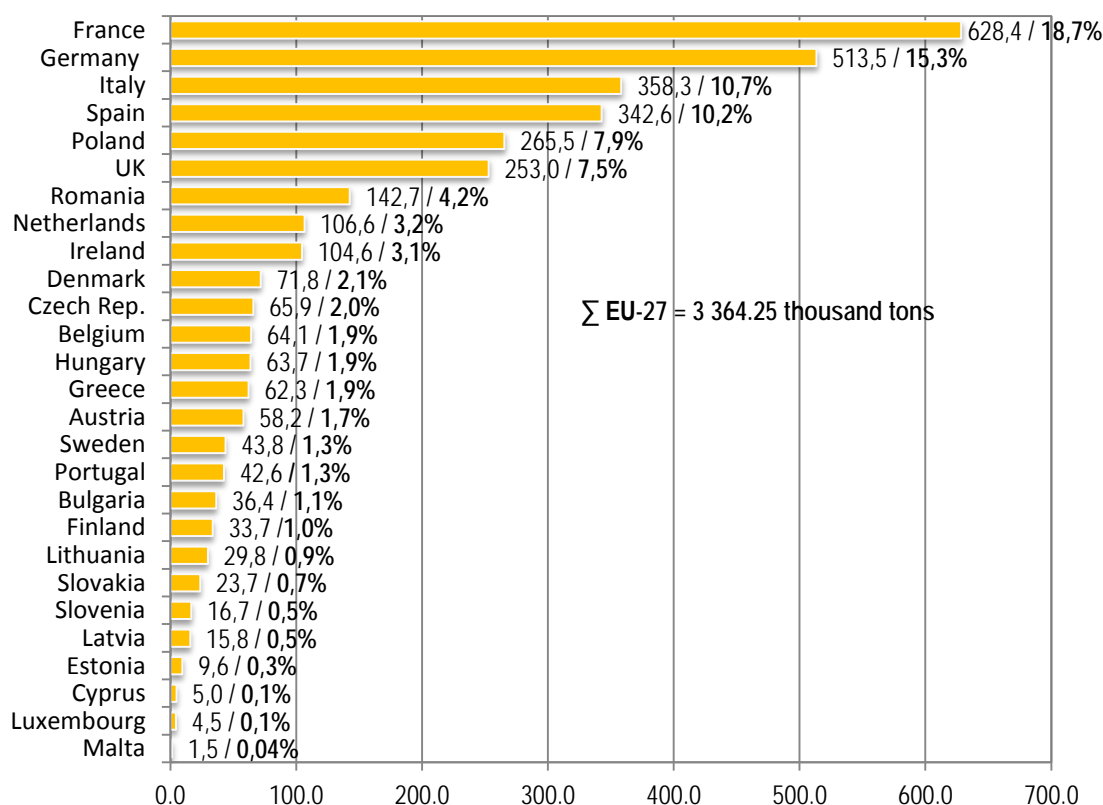


**Figure 13.** Gross Nutrient Balance (kg per hectare) in EU-27 by countries, 2010

Source: own study based on Eurostat data

The yield of agricultural and horticultural crops can be severely reduced as a result of infestation by pests and diseases. In order to protect crops before and after harvest, plant protection products are used. The available statistical data imply that plant pesticides consumption is very diverse, from very high in Italy (6.62 kg of pure component of pesticides per 1 ha) and the Netherlands (4.97 kg), Slovenia (2.87 kg), France (2.81 kg), Germany (1.77 kg) to low in Latvia (0.41 kg), Estonia (0.42 kg), Sweden (0.50 kg), Ireland (0.56 kg) and Slovakia (0.75 kg).

Among various activities in the area of agriculture and environment, the need for air protection in the agricultural utilized area is an equally important task, ensuring cleanliness of water resources located there. An air pollutant, which is produced in substantial quantities in the course of the broadly understood agricultural production, in particular animal production, is ammonia  $\text{NH}_3$  – a gaseous, inorganic nitrogen compound. Emission of this compound causes particular environmental disturbances. Agricultural activities in the EU-27 resulted in the emission of 3.4 million tons of ammonia in 2010. This represented a decline of almost 30% when compared with the level emitted in 1990. Nevertheless, agriculture was still responsible for the vast majority (93.3%) of total emissions in the EU. France accounted for almost one fifth (18.7%) of ammonia emissions from agriculture in the EU-27 in 2010. Germany accounting for the highest proportion (15.2%). The high emission is also in Italy (10.6%), Spain (10.2%), Poland (7.9%) and UK (7.5%) (Fig. 14).



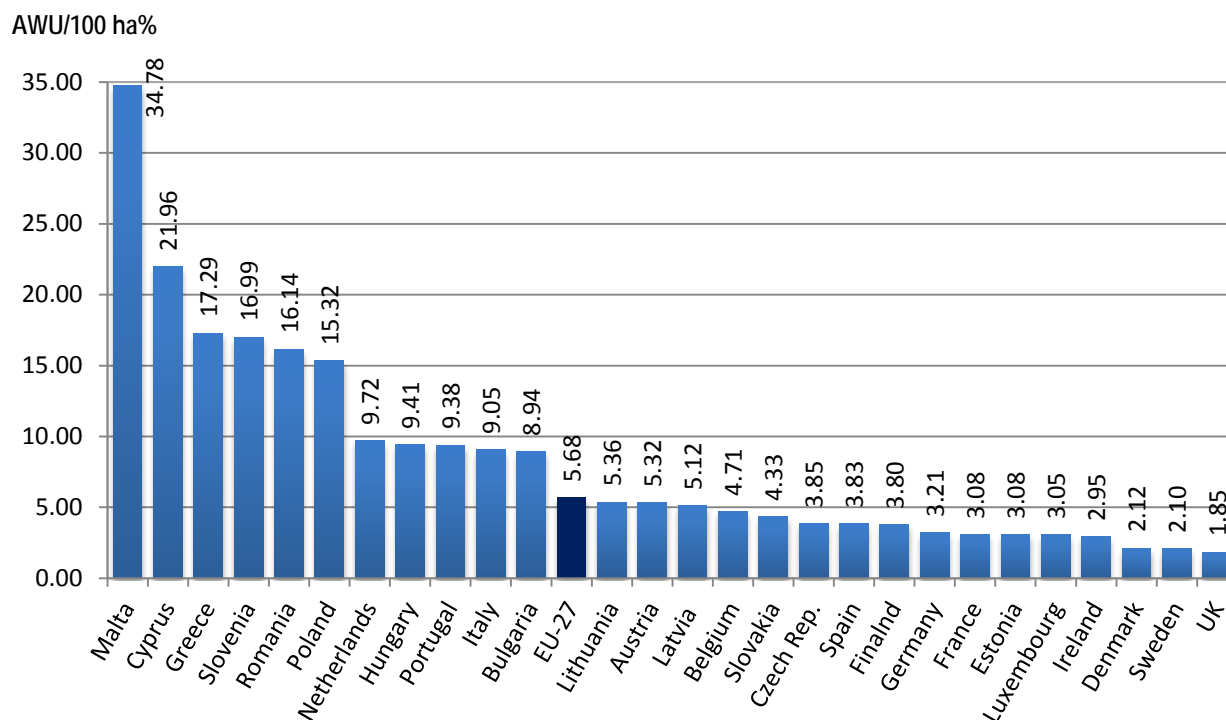
**Figure 14.** NH<sub>3</sub> emissions from agriculture (in thousand tons) and % structure in EU-27 by countries, 2010

Source: own study based on Eurostat data

### 1.3. Agricultural labour force

According to the EU's labour force survey, agriculture, forestry and fishing employed 11.3 million persons aged over 15 in the EU-27 in 2010, the equivalent of 5.2% of all the employed. The highest contribution of agriculture to employment (as a percentage of civilian employment) was in Romania (30.1%), Poland (13.8%), Greece (12.5%) and Portugal (10.9%). The lowest one was in Luxembourg (1.0%), UK (1.2%), Malta (1.2%), Belgium (1.4%), Germany (1.6%) and Sweden (2.1%).

The agricultural census estimated that 25.5 million people worked regularly in agriculture of which 23.5 million people were either owners or members of the owners' families. After taking into account the amount of time actually worked and converting this into equivalents of full-time work (measured as annual work units – AWU), the census estimated that the equivalent of 9.8 million people worked full time on farms in 2010, which gives average 5.68 for EU-27 AWU per 100 ha of UAA. The highest rate of agricultural employment in AWU per 100 ha of UAA was in Malta (34.78), Cyprus (21.96), Greece (17.29), Romania (16.14) and Poland (15.32). The lowest rate was in UK (1.85), Sweden (2.10), Denmark (2.12) and Ireland (2.95) (Fig. 15).



**Figure 15.** Agricultural employment in AWU/100 ha of utilized agricultural area (UAA), 2010

Source: own study based on Eurostat data

Farming is predominantly a family activity in EU-27; over three quarters (77.5%) of the labour input in agriculture came from the owner or member of his/her family in 2010. In Poland, Ireland and Malta family labour accounted for over 90% of the volume of work carried out in agriculture. By contrast, there was a small percentage of countries for whom non-family labour accounted for a majority of labour force (Czech Republic - 74.6%, Slovakia - 68.4%, France - 45.1%).

Farms in EU-27 are managed by managers who are relatively older. On average, as much as 53.1% managers are people above 55 years of age (23.5% from 55 to 64 years and 29.6% 65 years and over). Only 24.2% owners are in age less than 44 years (7.5% less than 35 years and 16.7% from 35 to 44 years). There is a relatively significant difference in the age structure of managers among different EU countries. The most beneficial age structure of farm managers can be observed in Poland– 40.2% managers are in age less than 44 years (14.7% less than 35 years), Austria – 38.0% (10.7%), Czech Republic – 32.4% (11.7%), Germany – 31.6% (7.1%) and France – 29.9% (8.7%).

The highest percentage of elderly farm managers, i.e. 65 years and more is in Portugal (46.5%), Bulgaria (37.3%), Italy (37.2%), Romania (37.9%), Lithuania (34.7%), Greece (33.3%), Cyprus (33.0%) and Slovenia (30.4%). An unfavourable age structure, additionally taking account of the number of people aged from 55 years to 64 years is also present in UK, Sweden, Slovakia and Latvia. It should be noted that definitely the worst situation in this case can be observed in Portugal, where only 2.6% of managers have less than 35 years and 70.4% are in age over 55 years (table 2).

**Table 2.** Percentage of farms' managers in different age by countries of the EU-27, 2010

Country	Less than 35 years [%]	From 35 to 44 years [%]	From 45 to 54 years [%]	From 55 to 64 years [%]	64 years or over [%]
Belgium	4.8	18.7	32.2	24.4	20.0
Bulgaria	6.9	12.0	18.5	25.3	37.3
Czech Rep.	11.7	20.7	26.9	28.0	12.8
Denmark	4.8	18.2	33.6	24.7	18.7
Germany	7.1	24.5	36.5	26.5	5.3
Estonia	6.9	17.6	23.8	23.4	28.4
Ireland	6.8	18.0	25.0	25.0	25.3
Greece	6.9	15.6	22.6	21.6	33.3
Spain	5.3	15.4	23.9	25.6	29.7
France	8.7	21.2	32.4	25.7	12.0
Italy	5.1	12.6	20.9	24.3	37.2
Cyprus	2.6	9.4	25.1	29.9	33.0
Latvia	5.4	17.1	26.9	20.8	29.8
Lithuania	5.9	16.1	24.5	18.8	34.7
Luxembourg	7.3	19.5	32.3	27.3	13.6
Hungary	7.1	14.6	21.2	27.9	29.3
Malta	4.8	12.1	25.8	31.4	26.0
Netherlands	3.6	20.5	31.5	26.1	18.3
Austria	10.7	27.3	35.7	18.0	8.2
Poland	14.7	24.5	32.3	20.1	8.4
Portugal	2.6	8.2	17.8	24.9	46.5
Romania	7.3	15.8	16.5	22.5	37.9
Slovenia	4.3	14.0	25.1	26.2	30.4
Slovakia	7.1	14.9	27.0	28.3	22.7
Finland	8.6	20.0	31.6	30.2	9.6
Sweden	4.8	14.8	26.2	28.7	25.6
UK	4.1	13.4	26.5	27.6	28.4
EU-27	7.5	16.7	22.7	23.5	29.6

Source: own study based on Eurostat data

#### **1.4. Farm types and production of some of the main crops**

Analyzing the farm type based on standard output in 2010 we noticed that 25% of agricultural holdings specialize in field crops (for example cereals, oilseeds and vegetables). About 20% farms specialize in permanent crop holding (for example with vineyards, olive groves or orchards). Holdings with grazing livestock (dairy cows, cattle, sheep and other ruminants) account for 15.8%, granivore holdings (pigs or poultry) for 11.6%, mixed livestock holdings for 6.5%, and mixed crop-livestock holdings for 12.8%. There are also mixed cropping holdings (4.3%), horticulture (2.0%) and non-classifiable holdings (2.0%).

The biggest producers of some of the main crops in 2011 are following:

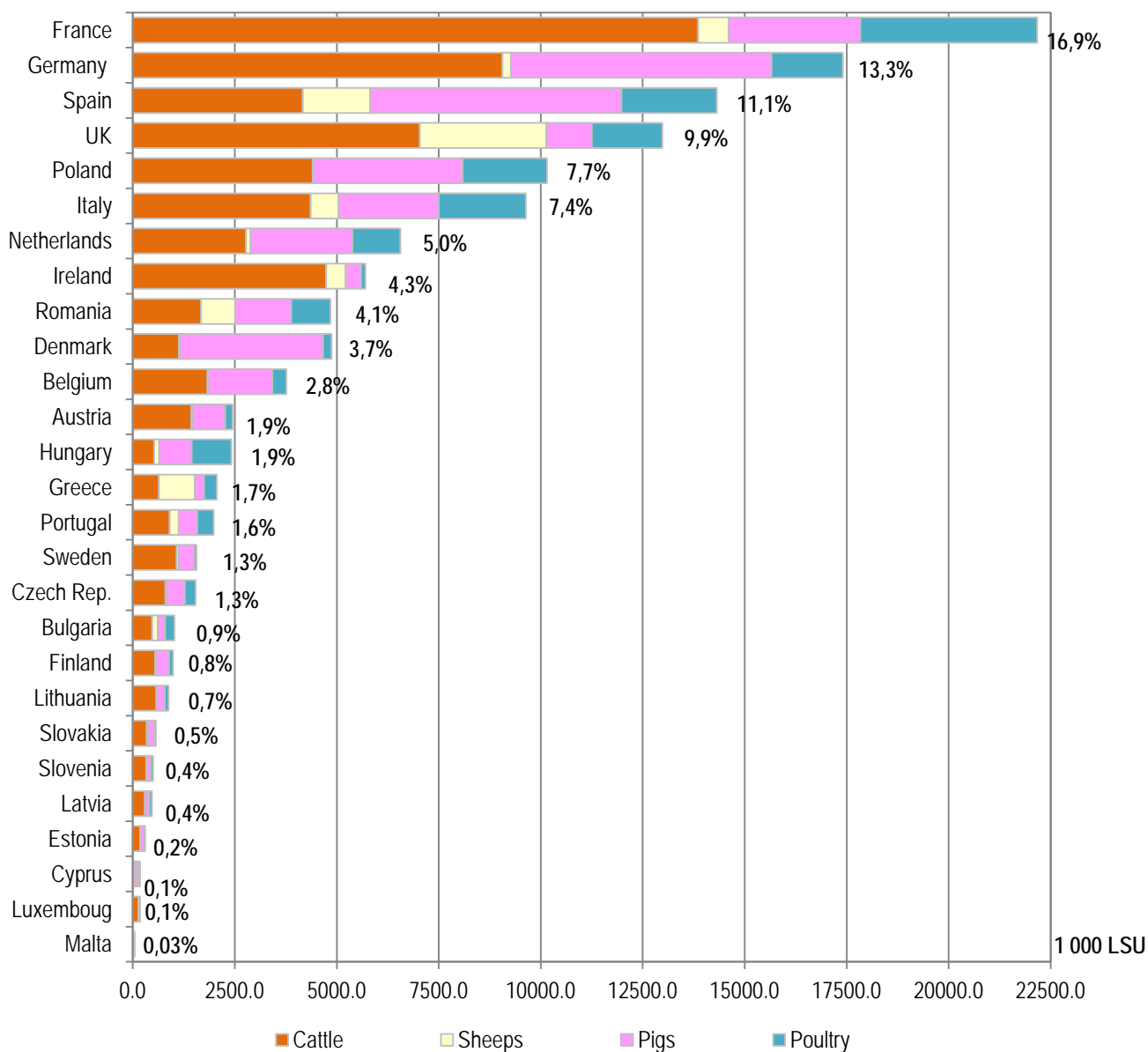
- **cereals total, including rice:** France (63.6 million tons), Germany (41.9 million tons), Poland (26.7 million tons), Spain (21.7 million tons), UK (21.5 million tons), and Romania (20.9 million tons);
- **sugar beet:** France (35.5 million tons), Germany (25.0 million tons), Poland (10.3 million tons), UK (7.3 million tons) and the Netherlands (5.9 million tons);
- **rape:** France (5.4 million tons), Germany (3.8 million tons), UK (2.8 million tons), Poland (1.8 million tons), Czech Republic (1.0 million tons);
- **sunflower:** France (1.9 million tons), Romania (1.9 million tons), Bulgaria (1.4 million tons), Hungary (1.4 million tons) and Spain (1.1 million tons);
- **wheat:** France (36.0 million tons), Germany (22.7 million tons), UK (15.2 million tons), Poland (9.3 million tons);
- **barley:** France (8.8 million tons), Germany (8.77 million tons), Spain (8.3 million tons), UK (5.5 million tons), Poland (3.3 million tons) and Denmark (3.3 million tons);
- **grain maize:** France (15.7 million tons), Romania (11.7 million tons), Italy (9.7 million tons), Hungary (8.1 million tons);
- **rye and maslin:** Poland (2.9 million tons), Germany (2.5 million tons);
- **rice (only 7 countries):** Italy (1.5 million tons), Spain (0.9 million tons), Greece (0.2 million tons), Portugal (0.2 million tons), Romania (0.065 million tons), Bulgaria (0.060 million tons) and Hungary (0.009 million tons);
- **tomatoes:** Italy (6.0 million tons), Spain (3.8 million tons), Greece (1.4 million tons), Portugal (1.2 million tons);
- **carrots:** Poland (0.8 million tons), UK (0.7 million tons), France (0.5 million tons), Germany (0.5 million tons), Italy (0.5 million tons), Netherlands (0.5 million tons);
- **onions:** Netherlands (1.5 million tons), Spain (1.3 million tons), Poland (0.6 million tons), Germany (0.5 million tons);
- **cabbage:** Poland (1.2 million tons), Romania (0.6 million tons), Germany (0.5 million tons), Spain (0.2 million tons), and Greece (0.2 million tons);
- **apples:** Poland (2.5 million tons), Italy (2.4 million tons), France (1.7 million tons), Germany (0.9 million tons);
- **peaches (14 countries):** Italy (1.0 million tons), Spain (0.8 million tons), Greece (0.6 million tons);
- **oranges (only 6 countries):** Italy (2.4 million tons), Spain (3.1 million tons), Greece (0.8 million tons), Portugal (0.2 million tons), Cyprus (0.02 million tons), and France (0.005 million tons).

Vineyard area total in production in 2011 was only in 15 Member States. The countries with the biggest areas are: Spain – 966 thousand hectares, France – 787 thousand ha, Italy – 718 thousand ha, Portugal – 180 thousand ha, Romania – 173 thousand ha, Germany – 100 thousand ha, Greece – 99 thousand ha, Hungary – 74 thousand ha, Bulgaria – 46 thousand ha and Austria – 44 thousand ha. All these countries intend grapes mainly for production of wine, as well as for direct sales (Italy, Spain, Greece and France) and for production of raisins (Greece and Spain).



## 1.5. Livestock units and production

The total livestock number in EU-27 was 133.9 millions of LSU<sup>2</sup> in 2010. About one half (47%) of which was cattle, a little over one quarter (27%) was pigs, 15% was poultry and 7% was sheep. Just over half (51.1%) of the EU-27 livestock herd was located in four following member States: France (16.9%), Germany (13.2%), Spain (11.1%) and UK (9.9%). There is also quite a large number of livestock in Poland – 7.7% and Italy – 7.4% (Fig. 16).



**Figure 16.** Livestock units by type of livestock and percentage of countries herds in the total EU-27 (in %), 2010

Source: own study based on Eurostat data

<sup>2</sup> Some livestock coefficients: 1 LSU = 1.0 dairy cow, 0.8 heifers 2 years old and over, sheep and goats = 0.10, piglets under 20 kg – 0.027, sows – 0.50, other pigs = 0.30, broilers – 0.007, laying hens – 0.014

The most milk collected in 2011 was in Germany (29.7 million tons), France (24.7 million tons), UK (13.8 million tons), Netherlands (11.6 million tons), Italy (10.5 million tons) and Poland (9.3 million tons).

The biggest producers in other livestock products are following:

- **cattle meat:** France (19.8%), Germany (14.8%), Italy (12.9%) and UK (11.9%);
- **pigs meat:** Germany (25.0%), Spain (15.5%), France (8.9%), Poland (8.1%), Denmark (7.7%), Netherlands (6.0%) and Belgium (5.0%);
- **sheep meat:** UK (39.5%), Spain (18.0%), France (11.6%), Ireland (6.6%), Italy (4.4%);
- **goats meat:** Greece (57.1%), Spain (17.7%) and France (12.6%);
- **poultry meat:** France (14.0%), UK (12.6%), Germany (11.5%), Spain (11.2%), Poland (11.2%), Italy (9.8%).

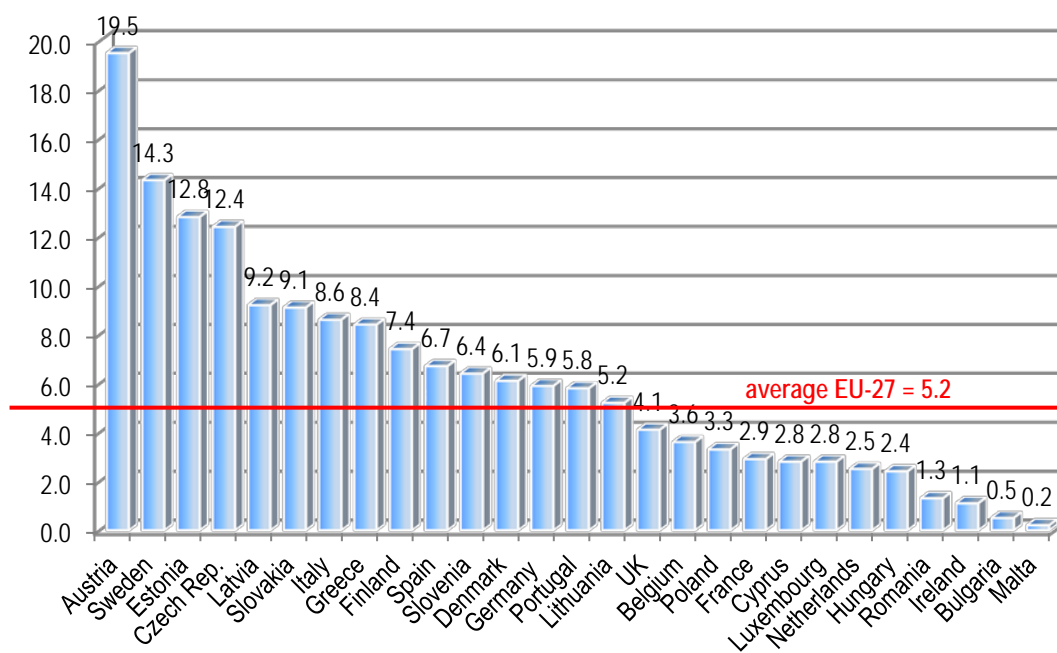
## 1.6. Organic farming

One of the innovative agricultural production systems is organic farming that eliminates the use of synthetically produced fertilizers, pesticides, growth regulators and livestock feed additives. To maintain soil productivity and fertility and to control weeds and pests, organic farming relies primarily on crop rotations, crop residues, animal manure, legumes or other green manures and biological pest control. Implementation of organic agriculture is important to meet diverse market needs.

The number of organic producers was 227,641 (1.9% of total number of agricultural holding) in EU-27 in 2010, and the organic area used by them was 9,179,900 hectares (5.2% of total UAA). The biggest number of organic holdings was in Italy (41,807), Spain (27,877), Austria (22,132), Germany (21,942), Greece (21,161), France (20,645) and Poland (20,578).

The biggest crop area under organic farming was in Spain – 1,615,047 ha and Italy – 1,113,742 ha. Areas with 500 thousand hectares and over of organic crop area were also recorded in Germany, France, UK, Austria and Poland.

Taking into account the share of total organic crop area out of the total utilized agricultural area in particular Member State of EU, we could identify the following countries, that have implemented a system of organic production to the greatest extent: Austria (19.5%), Sweden (14.3%), Estonia (12.8%), Czech Republic (12.4%), Latvia (9.2%) and Slovakia (9.1%) (Fig. 17).



**Figure 17.** Share of total organic crop area out of total utilized agricultural area (in %) in EU-27 by countries, 2010

Source: own study based on Eurostat data

## **Chapter 2. Characteristics of AKIS in the EU-27**

### **2.1. Introduction**

In general, a comprehensive and well-functioning education and extension system (in terms of transfer of knowledge and advisory) is viewed as a highly important determinant for agriculture and rural development. In addition, the efficiency of its operation expressed by strict scientific connections with all parts of the system, internal collaboration and rapid transfer of know-how is in fact the driving force for innovation. 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. More recently, it has also been referred to as Agricultural Knowledge and Innovation System.

### **2.2. AKIS descriptions by countries**

In the European Union countries there is no unified AKIS system. In fact, each country has built its own system determined on the basis of legislation acts, ownership of research institutions and advisory organisations, structure of education, sources of financing, characteristics of farm-holding and farm-holders – their needs and expectations as well as necessity of implementation of CAP and local agricultural policy. Although, there are some similarities, comparison, summarizing and to drawing conclusions is not easy. Furthermore, all information given in this chapter are findings taken from the reports prepared by country experts on the basis of their survey, and should be perceived as first appraisal, which will be still object of discussion during PRO AKIS regional workshops. It seems to be more clear for this report to present shortly the descriptions of AKIS for each country separately and give summary findings in the end of this chapter and use them to general summary and conclusions finalising the report.

#### **Austria**

In Austria the structure of AKIS system is built on three main pillars: (1) agricultural vocational education system and comprehensive secondary education; (2) adult education offering continued training in various forms; and (3) a wide range of advisory services covering particular topics. The actors of AKIS are: ministry of agriculture, federal offices and agencies, chambers of agriculture, research institute and schools, and a few NGOs. In general, the responsibilities of each unit of AKIS are clearly defined and shared on federal and regional level. Cooperation between AKIS actors is going well, although the transfer of information is rather slow, and only few organisations have direct contact with farmers (e.g. chambers of agriculture with 600 advisors, and farmers associations). In fact, private institutions, like individual and commercial organisations, cooperatives delivering services only in a very specific topics, e.g. vinery production, veterinary, accounting or legal issues, and their role in AKIS is minority. Also, the number of training institutions and organisations devoted to agricultural research are few. The Ministry of Agriculture and the Ministry of Education and Science cooperate with regard to vocational and secondary agricultural education. Beside these interactions no other specific coordinating mechanism exists.

However, looking at the first and second pillar of Austrian AKIS, it can be noticed that public research, education and extension bodies are well connected and in some cases even integrated. Cooperation and activity integration of education and extension are strong. Institutes often offer both training and advice, and for this reason, many services and activities are built with the integration of both approaches. Thus the border between education and training and advice is fluent. On the other hand the linkages between education, extension and public research institutions is less frequent and rather weak. Research and innovation are primarily pursued in public, semi-public and private institutions. Activities are oriented by programmes and tenders and organised within clusters, projects or networks of organisations from research and extension. Interaction with research and innovation in private sector therefore takes place to some extent. Cooperation between research and development with the field/practice on one side and education on the other is another cornerstone of the AKIS.

In Austria, with relevance for AKIS, there are several public policies, namely in the field of agriculture, education, science, research and innovation. A consistent AKIS policy is, however, absent. With regards to agricultural research, education and advisory services Austria follows, however, the European and national agricultural policy priorities and focuses on both modernisation and multi-functionality.

The extension and advisory system is intended to provide customized solutions and strategies for individual farms with a view to enhance the competitiveness of farms and create an attractive and vital rural area. The Ministry of Agriculture in their policy has therefore defined several themes that ought to contribute to the strategic objectives in the agriculture sector: farm and business development, sustainable area-wide agricultural production and sustainable natural resource management. In cooperation with other stakeholders the Ministry has also formulated a vision and a set of qualitative and quantitative goals for further development of agricultural education and extension. Furthermore it has launched the initiative to prepare agriculture and stakeholders for the challenges of the next decade, focusing, among others, on developing holdings and the entrepreneurship of farmers through a range of training and advisory measures. It is a good example for the ongoing development and reform of the extension system.

The Ministry of Agriculture supports advisory services through the production of training materials and the continued training of advisors in cooperation with the University of Agrarian and Environmental Pedagogy. It furthermore supports the work of advisors of the Chamber of Agriculture involved in implementation of measures of national agriculture policy. The Ministry is in charge of strategic orientation, monitoring and control of advisory services it finances. In general public support for extension will decrease in the future. Service providers will therefore have to find alternative ways of financing. Charging for cost contributions of advice will gain importance.

In Austria, agriculture plays an important role in rural development activities. There are also several systemic actors whose task is to stimulate knowledge interactions among AKIS actors, such as regional development agencies and associations of districts and the projects.

## **Belgium**

In Belgium, the main characteristic of AKIS is its decentralisation, for both regions – Flanders and Wallonia – there are two AKIS systems, with the similar actors (in Wallonia more diverse), but different sources or ways of support.

*In Flanders*, the key actors of AKIS are: two universities (directly involved in agricultural research, with faculties of agriculture, but no faculty specialised in training in advisory services); one research institute (with all sectors of agriculture, financed mainly by ministry of agriculture), 14 experimental stations, as a central element of Flemish AKIS linking and creating good relations between applied research and farmers, and providing also advise for farmers; Agency for Innovation by Science and Technology (helping Flemish companies and research centres, finance their research and projects of development); professional advisory services (plurality organisations specialised in delivery of advisory services), they are mostly private companies, formal or informal farmer groups and study clubs, and other actors); three main farmers' associations; support system (mostly private service of information and knowledge supplying farmers with input or collecting their production; education (secondary and higher education agriculture-related schools).

The Flemish AKIS benefits an important support from the regional government. This support can be differentiated in two instruments: basic funding (the so-called “institutional funding”: 67% of total) and, competitive calls (the so-called “funding schemes”: 33% of total) The region also supports knowledge platforms aiming at connecting the different actors of AKIS, for instance for foresight exercises. A main beneficiary of the institutional funding is the applied research institute, under a 3-years contract with Ministry of Agriculture (the contract stipulates that at least 57% of research should be of interest for the Ministry). Experimental stations are benefit from regular subsidies from the regional government and from provinces. The second scheme for funding is related to competitive calls. Beyond integrated research programming, there are three research programmes specific to agriculture: (1) the agricultural research grant program from the Agency for Innovation by Science and Technology (IWT) that aims at producing knowledge with the economic actors' participation; (2) demonstration projects targeted at a fast transmission of innovation practices ready for implementation at farm level; (3) the strategic plan on organic agriculture. It should be noted that co-funding is compulsory within these areas. IWT requires a contribution of private actors (farmers, farmers' associations, private consultants) within each project. IWT aims at helping Flemish companies and research centres in realizing their research and development projects through financial funding and networking. Thus, IWT is also active in the settlement of different knowledge platforms, such as the platforms for agricultural research, for aquaculture or for rural research. These platforms are active in the planning of future agricultural research policy.

*In Wallonia*, the key actors of AKIS are similar to Flanders: (1) universities (the same characteristics); (2) research institute (one major Centre de Recherches Agronomiques de Wallonie, founded by Walloon government, and benefits by experimental stations (300 ha of experimental fields); (3) knowledge brokers and advisory associations (created to stimulate interactions between actors of the Walloon agricultural R&D and to provide services for farmers) – some of them are pilot centres related to certain crops, some called “filières”, whose role is

coordination of the supply chain, and they are more market-oriented, and may act more as a broker and network organisation, with less direct investment in experimentations; (4) farmers' associations (one major union in Wallonia: the the Fédération Wallonne d'Agriculture, which distributes information through its study department); (5) Professional Advisory services: as in Flanders, there is a plurality of organisations specialised in the delivery of advisory services. These organisations are mostly private companies or farmers' associations. It should be noted here that the public sector plays a limited role in the direct supply of services. The employees of the public service of Wallonia do not propose direct services to farmers anymore. The provinces employ a few advisors but have limited resources in that respect; (6) Support system – upstream and downstream organisations within supply chains are an important part of R&D and advisory services in Wallonia. A part of this support is provided by farmers' association (with or without the support of the regional government). There are less farmers' organisation involved in the support system in plant production; (7) Education – it should be noted that education is not under the responsibility of the Ministry of Agriculture, but of the regional Ministry of Education. Technical education offers various curricula: a professional training, a qualification (6-years training), but also some possibilities to enter university. Besides, a three months internship is necessary for farmers to benefit from subsidies when starting their business. Some evening lessons are organised in that respect with the federation of young farmers.

An important dimension of the intervention of the region consists in financial support for a diversity of actors of the AKIS in Wallonia. As in Flanders, this support combines “institutional support” and “funding schemes” (competitive calls). The strategy of the region thus consists in delegating various services to different actors of AKIS, including applied research, advisory services, and brokerage. The main beneficiary of the services is the applied research institute (CRA-W). But the delegation of services is complex: the public administration of Wallonia has individual contracts and conventions with more than 70 organisations other than CRA-W, including “centres pilotes” and “filières”, but also with a variety of farmers' or local associations. This system of delegation of services generates high costs of management and administration for small amounts of support to many associations. At the moment debates are ongoing within the Ministry about the rationalisation of this system of delegation of services, especially for the support of advisory organisation.

## **Bulgaria**

In Bulgaria, AKIS is represented by different institutions, from the public sector (Ministry of Agriculture and Food) with its secondary structures and the private sector (private advisory services, independent advisors, international trade organizations, regional suppliers), farm organizations (cooperatives and few producer groups), research and education organizations, and non-government organizations (professional organisations and foundations).

Public sector in AKIS includes the following institutions responsible for capacity development in the agricultural sector: (1) Ministry of Agriculture and Food (MAF) as the main state administrative organisation, with its 11 specialised administration units that mainly work for implementing national policy and Common Agricultural Policy (CAP). The MAF has strong linkage with its secondary administrative organizations as Regional Directorates “Agriculture”, National Agricultural Advisory Services, State Fund of Agriculture and Agricultural Academy,

etc. and also with farm organisations and NGOs, and it has weaker linkage with universities and private sectors. MAF supervises 28 *Regional Directorates “Agriculture”*, whose aim is, among others, to implement state agricultural policy, to provide information to the farmers, to create a system for registered farms for direct payments, to register farmers, etc. In addition, they conduct explanatory and consultancy activities and provide specialised assistance to farmers by organising meetings and seminars on the municipal level. Frequently, they monitor some regional advisors serving for farmers and producers; and deliver professional information through training and seminars organised by themselves or regional agricultural advisory services. Under direct supervision of Regional Directorates are 234 *Agricultural Municipal Services (AMS)*. The main functions of these services are to maintain the map of resituated farmland and forest and its registers, to make registration of agricultural tenants and producers and also to register beneficiaries of direct payment for single area. *National Agricultural Advisory Services (NAAS)* is the secondary administrator at the MAF, providing consulting services and technical assistance to farmers for implementing efficient and competitive agricultural practices in Bulgaria. The budget of the Directorate includes: subsidy; own revenues; donations; grants; revenue of training and information activities; consulting services and funds received by international projects and programs. NAAS supervises 27 *Regional Agricultural Advisory Services (RAAS)*. Until now, they were responsible for writing applications for RDP measures and business plan for farmers and advising them on agricultural technology. But they also support the transfer and application of scientific and practical achievements in the field of agriculture; providing specialised consulting in the field of agriculture; organising and conducting training for farmers; assisting by providing information; and providing a set of advisory services to individuals under the conditions and requirements of the RDP measures. The RAAS often cooperate with government and non-government organizations in the field of agriculture for information, knowledge and organisation of the common events. *State Fund Agriculture (SFA) – Paying Agency (with 28 regional divisions)* provides financial support to farmers under state aid programmes, CAP and CFP of the European Union, including Rural Development Programme. (2) Agricultural Research and Education is the second actor of public part of AKIS, which includes Agricultural Academy with their Regional Research Institutes and Experimental Stations and Universities. *Agricultural Academy* is an organization for research, service and support activity in the field of agriculture, animal husbandry and food industry. Its main activities are related to the state agricultural policy. It has 25 Regional Scientific Institutes and 21 Experimental Filed Stations. Regional Scientific Institutes provide and transfer the technologies to farmers. The budget of research institutes includes state subsidies; revenue from research projects; revenue from advisory services; revenue from intellectual products; and others. *The universities* (five) provide mainly education and training to students.

Private advisory sector includes private advisory companies, independent consultants, international trade organizations and regional supplier. (1) *Private advisory companies* (540) mainly provide information and prepare applications to their clients for different measures of the RDP and the operational programs. Nowadays, some of them have not really functioned as advisors. (2) *The independent consultants* are mostly people who are former experts from RAAS or educated persons who work mainly with small scale farmers. They prepare applications mostly for the funds (112, 121 and 141) of the RDP (2007-2013). Their clients are mostly



farmers, who they know personally and recommended by people, who have already used their services. (3) *International trade organizations* are important providers of information regarding new technologies and marketing of agricultural sector. These organizations are mainly seed companies, plant protection companies, machinery dealers, etc. Their extension services to farmers are mainly relating to plant protection, machinery use and agricultural production. (4) *Regional suppliers* (trade organizations) are mostly input suppliers with well-established network with farmers. They usually provide advices on plant protection, sanitary and soil fertility measures at each particular situation in the farm. Such local trade organisations are agri-chemical shops and distributors, who work mostly with farmers on a regional level. They benefit from well-developed chemicals industry in the country. (5) *Farmer-based organizations* are represented by cooperatives and two producer groups: *production cooperatives* (420) and *producer groups* (2). One of their main objectives is advise for the members on their production through joint work with specialised trade organizations, institutions and private advisors, etc. These producer groups are private with mixed funding, 75% of the funds are paid by EU and state funds, while the rest is self-funding. (6) *NGOs* are not common in Bulgarian agriculture, but where they exist, they are well-known among agricultural producers as organisations working professionally with them. They organize practical training courses for their employers, partners (e.g. RAAS advisors) and interested farmers, agronomists, etc. (7) *The professional farmer organizations* (22) represent different sectors (e.g. milk, meat, fruits, vegetables, crop productions, etc.). They have effective partnership with all institutions and organisation related to agricultural sector. They work for developing the sectors they are involved in, suggesting decisions for the present problems and contributing with ideas for improvement. The associations are closely related to the MAF. They are included in preparation, implementation, monitoring and evaluation of the measures in the RDP 2007-2013. They organize specialized courses for their members and also take parts in training courses that cover specific and important topics related to the innovation and forthcoming changes in agriculture. (8) *The foundations* in agricultural sector work mainly for supporting and helping small scale farmers, landless and poor Roma family and specific sector such as organic farming. They focus their activities on consulting their target groups, creation and implementation of projects that support small-scale farmers. They educate and provide technical consulting on agricultural best practice in areas with a mixed ethnic groups, and also, organize workshops and seminars as bringing together policy makers and practitioners at local, national and international level.

## **Cyprus**

In Cyprus the main AKIS actors can be depicted as follows. In the first place, the Ministry of Agriculture, Natural Resources and Environment consists of three divisions, among other is Department of Agriculture and Agricultural Research Institute (ARI). The Department of Agriculture comprises 14 sections, one of which is the Agricultural Extension. Extension work is coordinated by the Extension Section at the headquarters in Nicosia in association with the six District Agricultural Offices (together making up the Agricultural Extension Service). The Extension Section comprises five sectors: Extension Program Planning and Implementation, Program Evaluation, Publicity, Home Economics, and National Rural Network. Therefore, the Extension Section coordinates all extension activities in close cooperation with the district offices (including four local agricultural farmers' training centres – KEGE). In terms of

education we can notice Higher Education Institutes (HEIs), and the Cyprus University of Technology, including the Faculty of Geotechnical Sciences & Environmental Management. Furthermore, private consultants and private (input) shops (run by agronomists), cooperatives (dealing with the processing and marketing of produces) and producers groups and, of course, individual farmers are active in agriculture.

In Cyprus the main actors generating knowledge are ARI and University, which become important players in this respect. New knowledge and technology is also imported or generated (experimental plots) by private agronomists' companies (input shops). The major linking actor between research and farmers is the Extension Section of the Department of Agriculture. The fact that ARI is an integral part of the Department of Agriculture facilitates two-way communication between research (ARI) and extension; this is, more or less, also true for the communication between extension and farmers. Links between the University and the Department of Agriculture are developing, although informally. Therefore, ARI and, lately, the Cyprus University of Technology, along with private (input) companies are the major generators of knowledge or transfer of knowledge and innovations from abroad. Furthermore, it is, more or less, commonly accepted among all actors. Private companies' agronomists as well as producer groups' and cooperatives' agronomists (esp. the ones applying quality systems) also contribute to the transfer of knowledge and technology to farmers. Finally, farmer-to-farmer dissemination plays an important role in a small country such as Cyprus.

In a sense, there is no specific policy framework or formal agreements between the AKIS actors. However, the functioning of the Extension Service covers, as a coordination mechanism, one way or another, the Cypriot agricultural needs. More or less, apart from strictly legal matters, there is contact with producer groups and cooperatives and the provision of advice to such groups. District Offices and extension officers are in contact with farmers and act as two-way communication mechanisms between the Extension Section and farmers. The Extension Section in cooperation with ARI puts together the annual extension programmes which the Section monitors and evaluates (although not always formally). On the other hand, ARI staff actively participates in the service's educational activities and tries (although without a relevant section/staff or funds) to tackle farmers' problems.

Missing links may be identified between private (input) companies and the extension service as well as between consultancy companies and the service (i.e. beyond legal matters). Such companies however may cooperate with District Offices in case production problems arise. Nevertheless, some points of criticism or concern are also put forward, mainly concerning the increasingly bureaucratic tasks undertaken by the Extension Service as a result of both the country's accession into the EU (2004) and the obligations imposed by the Troika (2013) due to the current crisis (resulting in decreasing contacts with farmers – a fact acknowledged by all actors in Cyprus). Concerns are also expressed about the adequate staffing of the Section, and more generally of the Department, which along with the pressure for the restructuring (downsizing) of the public sector by Troika, may result in downgrading of extension/advisory work. Updating extension officers knowledge (including extension methodology) has also been put forward (although not as forcefully).

Moreover, the decreasing interaction of ARI, in the last years, with farmers has to be added. Under the current circumstances both ARI and the Cyprus University of Technology are largely dependent on participation in EU-funded projects which nevertheless do not, more or less, correspond to the needs of the Cypriot agriculture. The two institutions do not have their own mechanisms to disseminate the knowledge they generate; furthermore, they are largely oriented towards publications in scientific journals and less towards publications in popular magazines or the (farming) press. An important fact (confirmed by both ARI and the University) is that (very few) farmers have started to ask for specific information related to small-scale projects (mainly analyses) which they fund.

### **Czech Republic**

In the Czech Republic, AKIS is implemented in the entire education system from primary to tertiary education level including long life adult education. Ministry of Agriculture (MoA) participates relevantly in this system in the position of creation of qualification and evaluation standards for agriculture, food, forestry and water management jobs. Cooperation of Ministry of Agriculture with Ministry of Education and with National Institute for Education, Agriculture Chamber of CR and Association of Educational Bodies for Rural Development is important for support of vocational education. Education organized (by Ministry of Agriculture) for vocational professionals is under way of accredited Yearly Education Plan. This is education and enlightenment offered in public interest, connected with activities of Ministry for agriculture, forestry, foods processing and water management public. Universities, corporate and personal bodies, which fulfilled desiderative technical conditions and which have authorized deputies who obtained professional qualifications are given authorization for examination of partial qualifications.

Main parts of AKIS are Division of Education and Advisory Services of Ministry of Agriculture (CR), Institute of Agricultural Economics and Information (IAEI), Agricultural Agencies of MoA, research and educational institutions, non-governmental non-profit organisations (for example Agrarian Chamber) and advisors. Private companies supporting agriculture by different materials play an important role in the transfer of vocational information too. There are tools within a system for synergic operation between all parts of AKIS, as advisory, educational training, information transfer and research; with respect of tool specificity.

### **Denmark**

In Denmark, AKIS system consists of following units. At the governmental level, the main official institutions are the Ministry of Food, Agriculture and Fisheries, the Ministry of Science, Innovation and Higher Education and the Ministry of the Environment, who set out the general framework and research strategies which have a profound impact on the direction of the knowledge and information system for Danish farmers. The Ministry of Food, Agriculture and Fisheries is designed to provide the framework for a development - and growth-oriented food production sector, responsible stewardship of natural resources and food safety, consumers' choice and healthy eating habits. The Ministry is responsible for policy development and implementation of the CAP and its administration and departments provide advice on legal matters. The Ministry of Science, Innovation and Higher Education established in 2011 determines and finances the Danish research areas and research priorities within agriculture,

biotechnology and life science. The Ministry of the Environment is in charge of administrative and research tasks in the area of environmental protection and planning including agricultural construction and minimisation of impacts of farming on the environment and nature. The Ministry of the Environment is responsible for advising and regulating agricultural production in order to minimise pollution.

The research and education nodes in AKIS are two main universities with agriculture-related research and education are the Aarhus University and the University of Copenhagen. The Danish Institute of Agricultural Sciences (DIAS) was transferred to the Aarhus University and is now a part of the Faculty of Agricultural Sciences. The Royal Veterinary and Agricultural University was integrated into the Faculty of Science (LIFE) at the University of Copenhagen. The Technical University of Denmark (DTU) carries out the food and agricultural research at the National Food Institute. The last two universities with agricultural and spatial planning activities are the University of Southern Denmark and Aalborg University. There are 10 agricultural colleges organised as boarding schools. These traditional agricultural educational institutions are today mostly placed in Jutland. Previously they were scattered all over Denmark. They teach modern farmers and offer special courses in farm management and economics. In addition to the 10 traditional agricultural colleges, 8 vocational schools are offering agricultural educations.

The Knowledge Centre for Agriculture (KCA) is the main Danish knowledge centre for agriculture in Denmark with expertise within all areas of agricultural activities and issues. The staff translates the newest national and international research results into new knowledge for all Danish farm advisers and farmers; participates in innovative projects and develops new advisory works and implementation of methods and practices. Alongside the Knowledge Centre for Agriculture is the Pig Research Centre. It operates like the Knowledge Centre for Agriculture within the area of pig production. It operates independently of the Knowledge Centre for Agriculture.

As other business sectors, the agricultural sector in Denmark has a GTS-institute called AgroTech–GTS-institute stands for Authorised Technological Service Institute. AgroTech delivers research-based consultancy and technological services for the farm and the agro-business industry.

The 30 existing independent local agricultural advisory centres form, together with the Knowledge Centre for Agriculture, the Danish Agricultural Advisory Service (DAAS) employing more than 3 000 persons.

The other units in AKIS are: Patriotisk Selskab, it is likewise a farmer owned advisory service traditionally servicing the large estate landowners; Veterinarian services and advising is performed by the farmer-owned “LVK–Landbrugets Veterinære Konsulentteneste” and by a large number of individuals and private veterinarian companies; The horticulture sector is served by HortiAdvice Scandinavia, which is a Danish – Dutch joint venture. A small number of small private advisory companies, typically between 1 to 8 employees/owners, offers advisory services. Most of them have specialised in one or a very few advisory subjects.

Upstream industries. Suppliers for agriculture also often provide advisory services as an integrated part of their supplies to the farmers. Among the majority of those are farmer owned companies within feedstuff, nutrients and seeds.

NGOs. The Danish Agriculture and Food Council is the nongovernmental organisation of Danish farmers and food industry including agro-business, trade and farmers' associations. The organisation was formed in 2009 through a merger of all Danish farmers' associations, existing farmers' non-governmental organisations and agro- and food-business.

## **Estonia**

Estonian knowledge and information system is composed of research, extension and educational organisations, structured and governed by the government through a sectorial agricultural policy.

The *Estonian Rural Development Plan (ERDP) 2007–2013* plays a significant role in promotion of rural life in general and in the dissemination of research information. Through the ERDP a set of measures that includes training, information and knowledge dissemination is available to different components of AKIS. An important role in financing the AKIS is the measure called “training and information activities.” This measure enables all AKIS components to apply for a subsidy to bring the necessary state and research information to the agricultural producers (farmers), food processors and private forest holders.

In Estonia, different components of AKIS have been made available to the producers and other interested parties. The Estonian AKIS is organised as follows:

(1) Governmental and coordination actors: (a) the Estonian Ministry of Agriculture – responsible for the AKIS and governing the extension services and R&D institutions, with the exception of the universities; regarding extension services the roles of the Ministry are as follows: setting legal and financial frames for the advisory system; setting up conditions and selection of the advisory centres; managing measures of the Estonian Rural Development; plan for advisory support and training activities; working out the framework of advisory services and tools on Cross Compliance and Occupational Safety issues; carrying out studies on the FAS; (b) Estonian Agricultural Registers and Information Board (ARIB), established as a government agency working in the area of administration of the Ministry of Agriculture on the basis of the Agricultural Registers and Information Centre. Establishment of the new agency was necessary in order to prepare and implement the SAPARD programme in Estonia; (c) Agricultural Board of Estonia is a governmental authority active in the area of government of the Ministry of Agriculture, which possesses the managerial function, exercises state supervision and applies the enforcement powers of the state in the areas of land improvement, plant protection, plant health, plant variety rights, seed and plant propagating materials, organic farming, fertilizers and horticultural products pursuant to and in the scope prescribed by law. The Board is financed from the state budget; (d) Estonian National Rural Network aims to facilitate flexible, open-minded and gradual development, with bottom-up initiatives based on needs and developed through cooperative activity among rural actors. The Estonian Rural Network Unit was established by the Rural Economy Research Centre (an authority under the administration of the Ministry of Agriculture) in 2008. The membership is not formal but involves bodies representing programme beneficiaries and organizations and authorities engaged in rural development including RDP implementation - Chamber of Agriculture and Commerce, numerous agricultural bodies and associations, Private Forest Union, council of environmental NGOs, Ecological Engineering Centre, rural village movement Kodukant, Association of rural Municipalities, rural tourism, non-profit organization networks, association of small- and medium enterprises,

EUROPEA, Estonian University of Life Sciences, University of Tallinn, Pärnu College (University of Tartu), and associations including agricultural and forest management advisers, environmental protection, cultural heritage protection, social inclusion organizations and Local action groups (LAGs). The duties of National Rural network include the following: exchange of the relevant expertise, support for the implementation, monitoring and evaluation of rural development policy, co-ordination of information flow between the local, national and European level: identification and analysis of positive experience gained and innovative approaches applied in the implementation of Rural Development Strategy (RDS) and Rural Development Plan (RDP), exchange of information; organisation of rural network activity and of the exchange of experience and know-how; establishment of a training programme for local action groups; support for internal and trans-national co-operation (incl. the establishment and administration of a relevant website, organisation of seminars and other events, finding co-operation partners, the establishment of the database of experts, advice to local action groups, etc.); (e) Estonian Rural Development Foundation (RDF) - Coordinating Centre (MES) was founded by the Government of the Republic of Estonia in 1993. The foundation issued guarantees to banks for credits granted to farmers and other entrepreneurs in Estonian rural areas. Today the purpose of the Foundation is to support economic development in Estonian rural areas via specific programmes implemented for promoting business activities in those areas. The Foundation's specific programmes are aimed at expanding the availability of financial resources, supporting balanced development in rural areas, disseminating information on rural life, maintaining cultural traditions, supporting vocational education, and building the image of rural life with a view to improving the business environment and creating better living conditions in rural areas. From the beginning of 2010, the RDF coordinates the system of agricultural and rural advisory services in Estonia. The Farm Advisory System is being coordinated by the Agricultural and Rural Economy Advisory Coordinating Centre, which has been designated to ensure the functioning of the Farm Advisory System, including the dissemination of information on state measures and the availability of quality advice. The Coordinating Centre provides occupation for area coordinators (crop farming, livestock farming, finance and rural development), whose responsibility is to give local advisory centres information, organize trainings and in-service trainings for advisers etc. The centre prepares action and training plans, analyses advisers' work, applies a simplified advising system, organizes the payment of advisers' basic fee, implements a mentoring system and maintains the [www.pikk.ee](http://www.pikk.ee) portal. It also develops advisory tools and advertises advisory services, seeks possibilities to cooperate with other organizations, looks for new advisers, etc.

(2) Advisory and extension actors: (a) In Estonia there is a decentralised system with 15 local advisory centres, which was initially coordinated by the Estonian Chamber of Agriculture and Commerce, but since January 2010 there has been a new coordinator – the Rural Development Foundation. The role of advisory centres is to provide individual advisory service and information to local agricultural producers and farmers. Responsibilities of the advisory services are as follows: guarantee the access to individual advisory; service and information distribution in the area; organise informational events – training days; collect feedback from the producers and forward it through the Coordinating Centre to politicians, ministries, researchers, etc.; teamwork to develop the whole system; (b) Independent private advisors and consultants from Estonia and abroad also offer advisory services for farmers and agricultural producers.

(3) Research and Education actors: (a) In Estonia, agricultural research is carried out mainly by the Estonian University of Life Sciences, Estonian Crop Research Institute<sup>3</sup> (Eesti Taimakasvatuse Instituut), Agricultural Research Centre, the University of Tartu, and Tallinn University of Technology; (b) Regarding agricultural education in Estonia, it is possible to study the specialties related to agriculture, handling of food and rural life in 10 vocational educational institutions and at the Estonian University of Life Sciences and at the Tallinn University of Technology. All vocational schools have created continuing education and retraining possibilities for adult learners. The Estonian Rural Development Foundation pays a scholarship to students of agricultural study programmes.

(4) Associations, unions and co-operatives. (a) There are different associations, unions and co-operatives that unite the farmers and producers working within the same field of agriculture (dairy, animal breeding, beekeepers, LEADER, producer cooperatives, etc.). Organic food producers have their own co-operative network; (b) The Estonian Chamber of Agriculture and Commerce has united agricultural producers and their unions, processors of agricultural products and their unions and companies providing services to the agricultural sector since 1996. Its activities are aimed at ensuring balanced development within the agricultural production sector, the processing industry and the sector providing services to rural life. In order to achieve it, support is provided for cooperation between local producers and processors and to trade in agricultural products in internal and external markets, and members are represented within a range of structures both national and international; (c) Federations: Estonian Farmers Federation; (d) Local advisory services have founded a NGO named Estonian Rural Advisory Service; (e) There are about 100 agricultural co-operatives in Estonia – the umbrella co-operative in dairy sector, E-piim; (f) Associations: Estonian Horticultural Association, Estonian Dairy Association, Estonian Seed Association, Estonian Pigs Breeding Association, Estonian Beef Breeders Association, Viru Meat Association etc.; (g) Unions: Central Union of Estonian Farmers, Union of Estonian Young Farmers, Valga County Farmers Union, Viru Farmers Union, Türi Farmers Union, Farmers Union of Tartu County, Farmers Union of Rapla County, etc.; (h) Estonian Organic Farming Foundation; (i) Regarding forestry there are several important actors in Estonia: The Estonian Private Forest Union – an umbrella organisation for local forest owner associations. Forestry advisors' activities are coordinated and financed by the Foundation Private Forest Centre.

(5) Some other actors should be mentioned regarding Estonian AKIS: Estonian Village Movement Kodukant; The Estonian Environment Information Centre; The Estonian Council of Environmental NGOs; Estonian Association of SMEs.

## **Finland**

In Finland - AKIS consists of: (1) Ministry of Agriculture and Forestry (MMM). The main role is played by the Department of Agriculture, which controls the Finnish agricultural and rural policy, and the Department of Food and Health is responsible for safety and quality of foodstuff and agricultural inputs, animal health and welfare and plant health; (2) the Agency for Rural Affairs (MAVI) implements the EU and national support schemes and makes the payments (it

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<sup>3</sup> On July 1st, 2013 Jõgeva Plant Breeding Institute (Jõgeva Sordiareetuse Instituut), the Estonian Research Institute of Agriculture (Eesti Maaviljeluse Instituut) was merged into Estonian Crop Research Institute

also functions as the Finnish payment agency); (3) 15 regional centres for economic development, transport and environment, working locally; (4) Rural development actors, like: entrepreneurs, researchers, mostly at the Agrifood Research Finland (MTT), control and inspections under Finnish Food Safety Authority Evira, which also carries out research and risk assessments, rural inhabitants, village associations.

The national policies regarding agricultural advisory services are fixed yearly in an annual agreement between the Ministry of Agriculture and Forestry (MMM) and the all countrywide advisory suppliers (the main is ProAgria Group). By the annual agreement the MMM controls and monitors the performance of rural advising services which are supported by the government. The purpose of the agreement is to define the priorities and action where the state aid will be used. In 2013 the state subsidy was 14 percentages of the total budget of ProAgria Group and the amount is decreasing all the time. Other private agricultural advisory entrepreneurs operating not nationwide are out of the state subsidy (their advisory services are paid by farmers).

### **France**

In France – the AKIS is characterised by public investment at national scale in various research and education organisations, and by arrangements and delegation of services with farmers associations, non-profit organisations and private advisory services and applied research. The key actors of AKIS in France are: (1) Universities – there are not agricultural faculties within French universities. Beside universities there are 21 engineers' schools – public and private and one under Chambers of Agriculture (training in the fields of agronomy, food sciences, environment, landscape management, veterinary sciences and animal health); (2) Research Institute – two main public and 21 private non-profit applied research institutes; (3) Professional Advisory Services (e.g. chambers of agriculture, associations, private companies, etc.); (4) Farmers associations (farmers unions); (5) Support system – organisations provide input for farmers (cooperatives and private companies), which are the major actors of the provision of advisory services and R&D investments; (6) Education – 800 public and private schools in technical agricultural education; (7) Public administration.

The support of AKIS organisations comes from Ministry of Agriculture – mainly for research institutes and agricultural colleges (for salaries and servants work); and for non-profit organisations proving advisory services and implementing applied research projects for agriculture (target fund). There is also support for other institutions or project consortiums under the project calls. Besides this institutionalised support to AKIS, there are many other public initiatives, e.g. regional voucher system, contracts with local organisations for specific projects.

### **Germany**

In Germany the AKIS is determined by decentralised structure of federal nation. Hence the description of AKIS is done with a predominant national perspective.

The *public sector* of the German AKIS includes the national ministry of agriculture (BMELV), responsible for all superior matters in the agricultural sector and its subordinate agencies. In the federal republic of Germany, the Ministry for Nutrition, Agriculture and Consumer Protection (BMELV) is responsible for all superior matters in the agricultural sector. The German federal Agency for Agriculture and Food (BLE) acts as an executing body of BMELV. Hosted at BLE,



is the German Networking Agency for rural areas (DVS), which acts as a networking platform on a national and partly EU-level. The DVS was set up in order to support cooperation and exchange between administrative, scientific and practitioners in agriculture and rural areas, e.g. via thematic networking events, a topical newsletter as well as a regular journal. The DVS therefore functions as the most important public organisation that transports and transforms knowledge to a wide spectrum of AKIS-actors. Further to this, the agricultural state ministries at state level govern the provision and organisation of advisory services, agricultural education or professional training in the agricultural sector. In some states (Bavaria, Baden-Württemberg and to a decreasing extent, also Saxony) agricultural advisory services are (still) provided by agricultural authorities at district level which are directly integrated in the administrative structure from an institutional perspective.

Four public *agricultural research* facilities are directly subordinate to BMELV. In addition, six non-university research institutions of the Gottfried Wilhelm Leibniz-association are subordinate to BMELV and 10 institutions financially supported by BMELV. These institutions produce and provide knowledge for decision-makers, practitioners, research communities in general and for actors in agricultural education. The ministry thus has a large pool of public research institutions which it consults. The interviewees explained that within the ministry, research results are processed with the aim to specify the direction of Germany's agricultural research, set new trends and opportunities for excellent research or innovation transfer (e.g. the German innovation partnership, cf. policy framework) and in turn identify new knowledge and research needs. While in many research projects farmers and researchers jointly work together on generating knowledge, advisory service provision to farmers is clearly not a goal of publically funded research institutes.

The responsibilities for regulating advisory services, agricultural research and education are located on state level. Historically developed, the states are also responsible for conducting research and demonstration projects in research and experimental stations. The latter were identified by several interview partners as the most important facilities bridging research and practice. It was confirmed by interview partners and advisory organisations that these organisations produce topical and relevant knowledge which is frequently retrieved by farmers and agricultural advisors.

Among all (public) academic institutions, 10 universities and 14 universities of applied sciences offer agricultural study programmes. Universities of Applied Sciences have a special focus on applied research questions and frequently practice business partnerships. Apart from these public funded universities, private universities offer agricultural studies as well. Several interviewees expressed their concerns about the German public agricultural research sector being increasingly dismantled.

The states are responsible for *public agricultural education* in Germany. In total there are 216 vocational training schools which operate on district level in the year 2012. Agricultural vocational schools in all states are at least affiliated or integrated into the administrative structures and thus are in the end subordinate to the state ministries. Apart from this, some organisations offer a broad range of educational trainings for farmers mostly financed on private bases e.g. the German Agricultural Society DLG-Akademie and Andreas-Hermes Akademie to

name two known educational centres on national level. Also, there are numerous associations with a more specific educational function for agricultural and rural actors, such as the German Farmers Association, the German Rural Women's Association or associations with an (agro-) ecological working focus. In Germany, staff members of research and education facilities usually do not act as agricultural advisors for farmers, nevertheless despite this, informal linkages between researchers and farmers respectively advisors exist.

*Chambers of agriculture* exist in seven states and are described as self-governing bodies of the farmers as well as the state governments, thus acting as a kind of hybrid organisation between the public sector and FBO. They are responsible for educational and training tasks and provide advisory services to farmers. State duties include tasks which, in other states, are provided by provincial agricultural authorities (e.g. control issues). In states with an agricultural chamber, paying member fees is mandatory for all farmers who, in turn, receive agricultural advisory services for free. Nevertheless, due to reduction of public financing of the chambers, specific advisory services are increasingly being charged for by the chambers.

Analysing the *private sector* within the German AKIS remains a big challenge. In a market-driven agricultural economy, private advisory services can be accessed by any farmer at any time and in all states. Therefore, numerous private companies - ranging from individual freelancers to companies with clients from large areas of origin - provide advisory services to farmers. While agricultural advisory companies play an important role in those states with privatized agricultural advisory systems (which particularly applies to the eastern German states), also in states with public advisory services or chambers, the number of private advisors which are contracted by farmers by their own funds may be rather high. Some states have a completely privatised advisory system which means that there is no public support from state institutions in terms of funding or advisory service provision. In these states, possibilities to receive information on utilization, content or financing issues of advisory services are very limited. Moreover, it is known that upstream and downstream companies, e.g. companies providing agricultural inputs or processing agricultural products, engage in providing agricultural advice for farmers. But the degree of this engagement remains unknown due to the lack of data. In addition, private agro-environmental advisory companies exist, which e.g. offer advisory services on energy efficiency, renewable energies, issues of nature conservation and water protection (in line with the EU water framework directive). It is therefore impossible to provide any numbers of all private advisory companies operating in Germany.

As there is a large range of actors who belong to *farmer-based organisations* (FBO), similar to the private sector, presenting numbers on the amount of FBO is impossible for the German context. In the following, some relevant players on a national level which are partly also involved in providing advisory services are highlighted, such as the German farmer's association (DBV) or national associations representing small-holder and organic farmers interests, e.g. the Syndicate for traditional agriculture (ABL). In addition, advisory groups are mentioned briefly even though their sphere of influence is primarily based on regional or state level.

The DBV represents the most dominant lobby group of farmers in Germany. It has traditionally played an important role in the agricultural sector, is well connected with other lobby organisations as well as the public sector. The ministry representatives highlighted the decisive

role of the DBV for farmers in Germany and as an important group for cooperation and knowledge exchange (formal and informal). Nevertheless, it should be noted, that not all farmers, in particular small-holder and ecologically oriented farmers, feel their interests represented by DBV as explained in the interview with the Syndicate of Traditional Agriculture (ABL). The Syndicate for Traditional Agriculture (ABL) is one out of many interest-led organisations in the agricultural sector which represent small-holder and organic farming interests and engages in knowledge exchange on ecological, agro-policy and development related topics. Due to the diverging agricultural structure in Germany, the majority of ABL members are concentrated in the “old” states (Länder) since ABL has gained small-holder and organic farmers’ interests since 1970s. It was mentioned that farmer-to-farmer diffusion is regarded as an effective and successful knowledge exchange tool which is actively facilitated by ABL. Nevertheless it should be mentioned, that beside ABL, other FBO and NGO, e.g. the Deutscher Bauernbund which concentrates its work in the eastern German states, represent “small-holder”, part-time and organic farmers’ interests as well. In addition, a number of organic farmers associations are involved in the provision of agricultural advisory services according to their respective organic farming guidelines, such as Bioland, Demeter, Naturland or many more. Advisory circles form another relevant type of FBO which has emerged from farmer’s demands to unite and receive group advice. Advisory circles are of regional importance in some states, e.g. Lower Saxony or Baden-Württemberg, while they are absent in others (e.g. Brandenburg). It should be noted, that the boundaries between private organisations and FBO are often blurred, which makes it hard to separate one from another. For instance, an advisory circle may work as a non-profit association or as a partly or fully commercialized advisory company – which makes a classification of organisational types often difficult.

There are many organisations which represent professions of the agricultural sector and act as lobby groups and knowledge exchange platforms, e.g.: (1) The Federation of agricultural chambers (VLK), which primarily acts as a roof association representing the interest of the 7 agricultural chambers in Germany. It may be seen as an intermediary between agricultural ministry and the chambers, engaged in communication and exchange on agricultural policies. Additionally, a significant number of advisory organisations from public and private sector are members in working groups and committee meetings. Regular committee meetings function as a widely recognized platform of knowledge exchange as noted by several interviewees when asked about where they receive topical knowledge; (2): the Federation of Rural Advisors (IALB) has been noted to play an important role for German (and partly international) advisory services. It represents a majority of (particularly) public agricultural advisory organisations in Germany and a number of private advisory companies as well. Since membership in the IALB is voluntary, not all German private advisory companies become a member. IALB generally emphasises the support of rural and agricultural advisory services, particularly via professional training of advisors. With its well-established annual conferences on topical advisory issues IALB offers its members an important networking platform and acts as a knowledge source.

The number of *NGOs* representing agricultural interests at national and regional level in Germany is plentiful. Therefore, we only mention initiatives and associations at a national level who were interviewed and refrain from making generalised statements about the role of *NGOs* in the German AKIS.

The German Agricultural Society (DLG) has more than 24000 members. Out of those members, roughly two thirds are farmers while the remaining share is composed of upstream and downstream companies, agricultural advisors or scientists. The DLG regards itself as a professional organisation with an intensive cooperation to up- and downstream industries. It operates a whole portfolio of activities in the agricultural sector (mainly on a commercial base), of which the testing centre, the exhibition department and the DLG academy is particularly noteworthy in this context. Knowledge is produced and disseminated within the organisation and beyond, e.g. in form of online-published bulletins. Farmers, advisors and other agricultural actors pay membership fees and fees for participation in professional events which function as knowledge exchange and networking platforms for farmers, advisors, scientists and up- and downstream enterprises. Through the intensive activities in thematic committees with members and external experts topical knowledge exchange is guaranteed.

The DLV (German Rural Women's Association) represents female farmers and other kinds of female professionals in rural areas. Since female farmers comprise only about one third of DLV-members it can be regarded more broadly as a lobby group of rural and agricultural female actors instead of being merely farmer-based. DLV understands itself as the most important educational actor for rural women. Roughly half a million rural women are members in local DLV unions (DLV 2013). In the educational program topics like coaching, conflict management and personality development are emphasized. The target group is female.

According to the SOLINSA report, institutions such as the Agricultural Documentation and Information Service (ZADI), and German Agricultural Marketing Organisation (CMA) has been terminated. In addition, "social sciences in agriculture" especially rural sociology and related disciplines nearly "disappeared". New actors active in the research domain include: the German alliance for agricultural research (DAFA) and BioEconomyCouncil (Bioökonomerrat) and others.

In terms of policy, in the federalized republic of Germany, the national ministry *BMELV* is responsible for providing a frame and guiding principles for the agricultural sector, e.g. by setting policies and positive incentives through funding programs. The 16 states (*Länder*) each have their own ministries and subordinate authorities. Competences for agricultural and educational issues are therefore executed on state level, a trend which even more so has been consolidated by the latest federalism reform in 2006.

Several national policies set the frame and guide the overall direction of the German agricultural sector and the development of rural areas. The following policies are particularly noteworthy: Joint Task for the Improvement of Agricultural Structures and Coastal Protection; National strategy plan for rural development 2007-2013; Program to support innovation; German Agricultural Innovation Partnership; Research framework plan of 2008; Framework program for ecological agriculture.

The programme to support innovation in agriculture and consumer protection was launched in 2012. It fosters (1) research, development and demonstration projects, which aim to make innovative technical and non-technical products marketable, (2) projects which increase the capacity for innovation, including knowledge transfer and (3) studies on the social and legal framework for innovation and the identification of future areas of innovation.

The Agricultural Innovation Partnership (DIP) is a spin-off of the program to support innovation. It is funded with 38 m Euro annually by BMELV. The aim of the DIP is to develop already existing research in order to foster transfer into practice and onto the market. With the introduction of the DIP the federal ministry responded to the results of a cross-sectorial study on the German innovation system in which deficits of transferring promising research results into practice were highlighted.

However, following the SOLINSA report, Hoffmann et al (2013) state there is high competition between ministries about competencies, budgets and jobs positions, and not so much communication in Germany. They further reiterate that most of the rare coordination only happens between ministers or in the cabinet.

A central instrument in the federalized system can be seen in the thematic working panels, which coordinate exchange between the national and state ministries. Initiated by the national ministry, these thematic working panels are important exchange platforms between state and national level and they exist for numerous topics, e.g. the working panel of the agricultural extension speakers or the speakers for agricultural research. They usually meet several times per year.

Generally, the German federal agency for agriculture and food (BLE) can be regarded as an important coordination body which acts as the executive agency for the national agricultural ministry. BLE also coordinates the steering committee of the DIP – a consortium of ten national agricultural federations and associations in the agricultural sector. The DIP steering committee decides on the continuation of funding for individual innovative projects.

Furthermore, the German Networking Agency for Rural Areas (DVS – affiliated to BLE) is a coordination and networking body of central importance (AKIS actors). At DVS, a monitoring committee officially legitimises the annual work of the DVS and sharpens the themes of the annual program to which members of the monitoring committee agree upon. The committee includes all decisive lobby groups, ministerial actors and some environmental lobby organisations. It is also the DVS, which will host the national bureau for the European Innovation Partnership “Agricultural Production and Sustainability” in the future. Other important coordination structures that were mentioned in the interviews have been (partly) described as follows: Federation of Agricultural Chambers (VLK) working groups and committee meetings; German alliance of agrarian research (DAFA); IALB annual conferences.

According to the opinion of interviewees, farmers and advisors needs with respect to the reformed CAP the following issues of knowledge:

- Improvement of methodological skills and knowledge of advisory methods were perceived necessary and important for advisors particularly by interviewees from advisory associations and education institutions. Coaching of farmers and rural actors, personality development and conflict management were regarded as increasingly relevant. One interviewee stated that as farmers specialise in their specific areas, advisors increasingly assume the role of dialogue partners with whom farmers ascertain and consolidate decisions. The advisor, in turn, should be capable of asking the right questions which will guide farmers to the best decisions for their farm.

- Generally, the need for a more holistic advisory approach which takes into account the entire farm during advisory was mentioned in two interviews. One example that was named included finding a niche for farmers to sell their products e.g. by (re-) establishing local resp. regional market structures and intensifying contact with consumers on a regional basis. This stands in contrast to the mentality of optimising funding measures which should be taken into account by advisors and farmers likewise according to the interviewee.
- Subsequently, two interviewees noted their concerns on the need to increase growth on agricultural farms in particular with regard to environmental problems which arise from intensive mass animal farming. It was regarded as a skill of the advisor to critically discuss and assess topics of growth and its environmental consequences together with their clients.
- In addition, one interviewee stated the need for increased specification among advisors in the future.
- Utilisation of modern communication technologies and WEB 2.0, e.g. smart phone apps for farming purposes, or Facebook is regarded to be increasingly demanded by farmers and from advisors likewise as modern advisory and communication tools.
- Additional mentions of interviewees with regard to specific knowledge needs among farmers included business diversification in rural areas and social issues for farmers and rural population in general, e.g. social insurance, retirement, prevention of accidents, farm succession.

## Greece

In Greece – the main AKIS actors can be depicted according to the (administrative) level of operation: national, regional and local.

At national level the main actors are: (1) the Ministry of Rural Development and Food (MRDF); (2) ELGO DIMITRA (for research, agricultural vocational education, training and employment, product certification and implementation of national policy on quality in agriculture); (3) ELOGAK: Greek Organisation for Milk and Meat; (4) Higher Education Institutes (Agricultural University of Athens; School of Agriculture, Aristotle University of Thessaloniki; Dept. of Plant Production and Dept. of Animal Production, University of Thessaly; Dept. of Agricultural Development, Democritus University of Thrace; and, a number of Higher Technological Institutes); (5) private companies (branches of transnational companies) and PASEGES (Pan-Hellenic Confederation of Unions of Agricultural Co-operatives).

At the regional level the main actor is the regional Directory of Agricultural Economy and at the sub-regional (ex-Prefectural) level, the Directorate of Agricultural Economy & Veterinary and local Development Agencies; NAGREF and OGEEKA DIMITRA also operate institutes and research stations, and local farmers' training centres (KEGE), respectively, at this level. Unions of Cooperatives (PASEGES branches) are also found at regional or sub-regional level. Finally, private consultants-agronomists and private input shops (run by agronomists) are found usually at sub-regional/ex-prefectural level.

At local (municipality) level the main actors are: the Municipal Agricultural Production Offices (ex-Agricultural Extension/Rural Development Offices), local cooperatives (Coops Union branches) and, of course, individual farmers.

In Greece there is actually neither national policy framework nor coordination mechanism or agreements between the aforementioned AKIS actors. Indeed, it is a common understanding that, despite rhetoric and marginal, fragmented actions, MRDF has long ago ceased to put together an overall national strategy for agriculture and rural development; instead MRDF rather plays the role of an intermediary transferring and controlling the implementation of EU policies (CAP Regulations and relevant financial resources/subsidies) in the country.

During the last 25 years, in the name of the downsizing of the state, decentralization and lately the economic crisis, the previously existing structures under one authority (from the national to the sub-regional to the local level), i.e. the Ministry of Agriculture, have become (semi-) autonomous and/or transferred under new administrative structures/authorities. This is, more or less, the common understanding of the current situation, among actors at various levels, in Greece.

A first step was undertaken in (October) 2011 with the establishment of ELGO DIMITRA. Nevertheless, it is only nowadays (2013) that the organization actually started to consolidate its new administrative structure (comprising four General Directories, and the administrations of the four previously semi-autonomous organisations merging into one DG) with no indication of the ways that the activities of the GDs (i.e. research, training/information, quality issues and standards, etc.) will be coordinated or interact to add value in the new structure.

Nowadays, the restructuring of MRDF is also discussed. Various drafts of the new structure have been presented thus far and the result is not clear yet. It has to be noted, though, that the first (not official) draft did not include the current Directory of Extension. On second thoughts, a Directory of Agricultural Extension, Innovation and Research has been proposed (under a new GD of Rural Development) comprising the sections: Research, agricultural education and training; Rural population information; Production innovation; and, FADN/RICA. It is further proposed that the Ministry establishes its own structures at sub-regional level (ex-Prefectures) amalgamating the existing KEPPYEL (centre for quality control of propagation materials and fertilizers) and PEGEAL (Regional laboratory of agricultural extension and fertilizer analysis) to cater for extension/advisory needs in the countryside.

On the other hand, the Geotechnical Chambers (GEOTEE), taking into account the rapidly emerging predicaments among the various disconnected levels of administration and, fragmented and overlapping competences, propose the amalgamation, under the MRDF, of all relevant services at sub-regional (ex-Prefectural) level along with the establishment of teams of experts in the Ministry (as think-tanks which advisors may address for solving new and peculiar problems) as well as the (re-) establishment of experimental and demonstration plots and the recruitment of agronomists-extensionists.

## **Hungary**

In Hungary, AKIS consists of four groups of participants: research institutions, extension organisations, education, and support system. The major components of AKIS in terms of research are:

(1) Ministry of Rural Development (VM) supervising nine institutes covering: Agricultural economics; Animal breeding and nutrition; Small animal breeding and nutrition; Forests; Fisheries; Food; Biotechnology; Agricultural Engineering; Geodesy, Cartography and Remote

Sensing; (2) Hungarian Academy of Sciences with six institutes relevant to agricultural producers covering: Agriculture; Pest management; Soils and agrochemicals; Veterinary; Biological Research; Agricultural economics and nine institutes covering: Meat market; Peppers; Vegetables; Milk economy; Fruit and ornamental plants; Grain; (3) Other state owned institutions; (4) Ministry of National Resources with 21 institutes belonging to agricultural universities and colleges; (5) Private sector with various institutes.

The group of extension consists of: (1) Farm Advisory System (set up in 2007; maintained, regulated and controlled by the VM and the NAKVI and mainly funded by the EAFRD; 643 registered active advisors in 2011; seven Regional Advisory Centres and 51 active Territorial Advisory Centres selected by tender which deliver upon-payment advice to farmers); (2) Farm Information Service (set up in 2007; managed by the Hungarian Chamber of Agriculture; financed 71% by the EAFRD; provides free information to farmers about the CAP and direct payments; 205 consultants); (3) Network of village agronomists, the Central Agricultural Office, which is directed by the NÉBIH (Hungarian National Food-chain Safety Authority), has a long-established network of village agronomists (588 in 2009) who have public administration tasks and also provide free advice to farmers; (4) Commercial services, provided by professional advisers such as input suppliers, project proposal writers; in place since before 2007.

In group of education, there are following institutions: (1) Ministry of National Resources supervising (a) Universities: major agricultural, horticultural and veterinary teaching centres in Debrecen; Szeged; Gödöllő; Budapest (Corvinus University); Kaposvár; Keszthely (University of Veszprém); Mosonmagyaróvár (University of West-Hungary); (b) Higher education colleges: major agricultural and horticultural centres in Gyöngyös (Károly Róbert); Szarvas (Tessedik Sámuel); Kecskemét; Nyíregyháza and Mezőtúr (Szolnok); and (2) Ministry of Rural Development supervising 19 vocational schools (19 institutes which are run by the VM covering agriculture, horticulture, food and related topics).

Support system consists of: (1) Producers' associations like the Hungarian Chamber of Agriculture (11 000 members); MOSZ and MAGOSZ; (2) Product boards covering: Poultry; Fruit and vegetables; Meat; Grain and feed etc.; (3) Agricultural Administration Office associated with the VM; the Hungarian National Food chain Safety Authority (NÉBIH) delivers regulatory, monitoring and accreditation services through local offices; (4) Agricultural and Rural Development Agency supervised by the VM; the sole paying agency of EAGF and EAFRD funds and national funds.

Hungarian National Rural Network operates within the Rural Development, Training and Consultancy Institute (NAKVI) of the VM.

In Hungary the national institutional system of AKIS is well organised and the role of the government is strong in it. The harmonisation of the information processes is performed at national level by the ministries and by their background institutions, at regional level by the regional development agencies financed partly by the government and partly by own business services. The coordination of the AKIS is performed by the Ministry of Rural Development. The R+D institutional background is provided by research institutions financed by the government and operating as partnerships, by research teams of universities. For applying the results of the R+D in practice and for ensuring knowledge transfer the agricultural extension service, in



addition the training institutions, local system of farm advisory, and the Farmers' Information System mainly providing information on the application for tenders also participate.

## **Ireland**

Ireland is a unique country in having a substantial component of its AKIS within a single organisation (Teagasc). Teagasc (established in 1988) undertakes activities in research, extension services, and education, as well as offering support structures, thereby spanning the various elements of an AKIS. The AKIS also embraces both national and international dimensions, and includes private research entities, private agricultural consultants and veterinarians, food processing companies and cooperatives, input supply and service companies (e.g. accounting and software), universities and Institutes of Technology, the Department of Agriculture, Food and the Marine (DAFM) and other government departments, public agencies such as Bord Bia, the Irish Cattle Breeding Federation, Animal Health Ireland, the Environment Protection Agency, and the agricultural media which is particularly strong in Ireland. A number of agencies and other bodies are involved in specific aspects of the AKIS.

Teagasc (in the Irish Gaelic language means “instruction” or “doctrine”), or the Agriculture and Food Development Authority, operates a “three-legged stool” of Research, Extension (Advice) and Education for its “Stakeholders” (Boyle, 2012). It has: 6 research centres (with three research demonstration farms Curtins, Derrypatrick, Athenry), 51 advisory offices, about 90 “BETTER” (focused on Beef and Tillage) and Monitor Farms (with dairy programs).

Teagasc is the national body providing integrated research, advisory and training services to the agriculture and food industry and rural communities. The organisation is funded by State Grant-in-Aid; the National Development Plan 2007-2013; fees for research, advisory and training services; income from national and EU competitive research programmes; and revenue from farming activities and commodity levies. The Teagasc Board is appointed by the Minister for Agriculture, Food and the Marine, and has representatives from the farming organisations (4) and rural youth organisation, the food industry (1), universities (1), the Department of Agriculture, Food and the Marine, and Teagasc staff. The organisation has an annual operating budget in excess of €160 million. Around 75% of Teagasc's yearly budget comes from the Irish exchequer and EU funding, with the balance generated from earned income. Some 40% of the budget is devoted to research, with the remainder split half and half between advisory and education services. They operate in partnership with all sectors of the agriculture and food industry and with rural development agencies.

The Department for Agriculture, Food and the Marine (DAFM) is the primary funding agency for research into agriculture and food through core funding provided to Teagasc and also through public good, competitive research programmes. Agricultural research and education is also carried out in universities (7) and Institutes of Technology. These institutes are linked through a research network. Publicly funded agricultural research in the past was scattered over an important number of rather independent and uncoordinated performers, but it now requires co-ordination and co-operation between institutions. Coordination is achieved through the interdepartmental committee on Science, Technology and Innovation. The Food Institutional Research Measure and the Research Stimulus Fund operated by DAFM require and ensure cooperation and coordination in research among the research-performing organizations. There is

only “some” research undertaken in the private sector. The interaction of Teagasc with the industry through the Joint Industry Programmes is important for increasing the relevance and impact of advisory programmes. A higher relevance is achieved through common agreed programme objectives and a feedback system through industry staff and farmer representatives. In particular for dairy farmers, links into geographical regions are supported by the historical cooperative structures.

Irish cooperatives have a long tradition, mainly in the dairy and milk processing sector (the first co-operative creamery was opened in 1889). In 2006, there were approximately 1 040 co-operatives registered with the Registrar of Friendly Societies. They aim to “bring people together to collectively generate or provide services for the purpose of advisory services, industry working groups, training and education, as well as research and development”. The Irish Co-operative Organisation Society (ICOS) promotes this type of co-operative endeavour through the ICOS Skillnet education programmes. ICOS is also represented on the board of Teagasc”. Well-known cooperatives are Kerry and Glanbia. Connacht Gold, for example, is a co-op with a diversified business dealing in food and dairy ingredients, agribusiness, livestock marketing, property management and timber processing.

In addition to the actors outlined above, there are other broader-based rural development type extension services, including LEADER local action groups, local development groups, and community/ rural development companies, which are more or less linked to agriculture depending on the respective region and local issues. The boards of LEADER groups, for example, have farming interests represented on the boards as a statutory requirement, and many also have Teagasc representatives on their boards. County Enterprise Boards (CEB) – as part of the broader Enterprise Innovation System provide direct grant-support to new and existing enterprises and promote entrepreneurship, capacity building and women-in-business at local level, to micro enterprises (<10 employees) in the commercial sphere. Farming interests are represented on their boards. The press is not listed separately above, but its role in the AKIS should not be underestimated – it is one of important source of information.

An impressionistic network analysis of the Irish AKIS suggests that there are some strong and some weak connections between many of the key stakeholders. Examples for strong connections are Teagasc advisors-stakeholders and Teagasc research-external research) while weak connections exist between external research-stakeholders and Teagasc advisors-External advisors. There is also a scope for enhancing the linkages between the Teagasc extension service and the technical services provided by input suppliers. The knowledge network has improved through joint programmes, formal alliances and Memorandums of Understanding (MoU), but more work can be done to improve the network for agricultural knowledge exchange.

## **Italy**

Italy – according to OECD (2009) „is a hugely varied and thus very complex country, both in respect of its territorial characteristics and its modes and institutions governance”. Each region and autonomous province (Trento and Bolzano) has its own Department of Agriculture For this reason in Italy there are 21 different AKIS. Within each system there are three components: the public and the private sectors, which are almost always clearly separated, and the farmers associations that in several Regions are in charge of specific public founded extension services.

In addition, the national framework *is even more complex due to* the coexistence of several institutional level responsible for the different AKIS components. State and Regions have concurrent jurisdiction over the R&D policies. Secondary and high educations are under state jurisdiction, while vocational education is under Regional administration. Finally extension, as mentioned, is under Regional competence. Interestingly, in theoretical and political discourses, and also in many dedicated Regional laws, agricultural extension, research and education have been considered since years as integrant part of a system so called "services for agricultural and rural development" or more recently "agricultural knowledge system". This idea has never been achieved in practice.

*Education.* The Italian educational system is mainly public and is coordinated by the Ministry of Education, University and *Research (MIUR)*, that is in charge of all education, from elementary to university and *research* at all levels. Starting from 2008, the education system have been experienced an important reorganisation concerning both secondary and higher education (so call Gelmini Reform). In the University the Reform affected also governance, decentralisation, research career, status and functioning of professors and researchers (law 1/2011, law 240/2010 and following regulations). Secondary education in the agriculture field is provided through Technical and Professional Institutes specialized in agriculture (including 11 Technical Institutes specialized in oenology), with five-year courses. Professional Institutes offer a more specialized training and practice with respect to the Technical ones. Higher education is provided by Universities that organize different degree programs through the Faculties. Currently there are 24 Faculties of Agricultural Science and 14 Faculties of Veterinary Medicine, but many other Faculties (for example, biotechnology, environmental science, economics, etc.) contribute to agricultural education. For instance, 138 degrees, including 43 different Faculties, are agreed for the registration in the Agronomy professional association. However extension service has never been included in the *curriculum of Italian Universities*, while the recent reform introduced a specific course on "agricultural and rural development extension services" in the vocational schools.

In general, the farmer training is strongly connected with the field experience, more than with the formal education system: the 71.5% of the farm holders has an educational level equal or lower of the secondary school. Only 6.2% of farm holders have a degree and only 0.8% of them in studies related with agriculture. In addition, the use of ICT in the farms is still low (less than 4% of the total).

*Research and development.* The national agricultural research system is very fragmented with a multiplicity of actors operating in the absence of strategic coordination, resulting in a complex but too often not effective system. In 2010, the total R&D spending in the agri-food sector was more than 780 million euro. Private companies are increasing their role in funding agri-food research and development. The share of public investments in agricultural R&D has declined over time, especially in staffing capacities and equipment, while the EU funds gain increasing importance in the financing of the Italian R&D system. The government encourages the private R&D investment thought public funds for innovative projects and tax reduction.

The Italian *public research system* is managed by three main institutions: the Ministry of Education, University and Research (MIUR), the Ministry of Agriculture Forestry and Food

Policies (MIPAAF), the Regions and Autonomous Provinces. To a lesser extent, other institutional actors plan and fund research activities more or less related to agricultural field, and these are the Ministry of Health, the Ministry for Economic Development, the Ministry of Environment and Land Protection, etc. In addition some “Inter Regional Programmes” receive joint funding from Ministries and Regional governments, under the provision of different laws. The National Agency for the Evaluation of Universities and Research Institutes (ANVUR) is the institution in charge of the evaluation of public research, providing criteria for the institutional funds allocation.

The public research institutes involved in agriculture R&D are divided into: (1) Universities, operating under the MIUR responsibility in charge of coordinating and financing the system. To a lesser extent, University funders are also Regions, EU and exceptionally privates or NGO; (2) Public research institutes supervised by the MIPAAF, which is the largest but not the only funder, other lenders may be Regions, EU and different minor sources. Public Research institutes play a very significant role in the research sphere. In recent years, some of these institutions have been involved in a reorganization process and included in the CRA (Agricultural Research Council) that actually is the biggest Italian agricultural research institute, organized in 15 Research Centres and 32 Research Units. It employs 1400 units (2/3 researchers and technicians) and it has more than 5000 hectares of experimental farms. The other main public research institutes are: INEA (National Institute of Agricultural Economics), ISMEA (Institute of Services for the Agricultural and Food Market), Ente nazionale risi (National Rice Institution), INRAN (National Research Institute for Food and Nutrition); (3) The CNR (National Research Council) is supervised by the MIUR which is the largest but not the only funder; other lenders may be Regions, EU, private firms and different minor sources. The CNR has around 8 000 employees (more than half are researchers), 11 Departments and 108 Institutes, located throughout Italy. The agricultural research is especially but not exclusively concentrated in the Agrifood Department; (4) Other public institutions, depending on different Ministries, deal (but not in exclusive way) with issues related to agriculture such as the National Statistics Institute, Guglielmo Tagliacarne Institute, Higher Health Institute, etc.

The Regions and Autonomous Provinces can plan and fund agricultural research programs tailored to the local needs and contextual factors (Constitutional Law No. 3, 18/10/2001). They manage the research projects in a very different way: (1) directly carrying out the research through their institutions, centres or Regional agencies (i.e. Bolzano); (2) participating in research consortium, company or association (i.e. Val D’Aosta, Lombardia, Trento, Veneto, Friuli, Liguria, Marche, Abruzzo, Sardegna, Basilicata); (3) outsourcing research activities to public or private institutions (Toscana, Molise, Umbria, Lazio, Puglia and Calabria).

Several Regional research centres have an excellent reputation (such as the Agricultural Institute in San Michele all’Adige in Trento Province, the Research Centre for Fruit and Vegetable production in Emilia Romagna Region, etc.). In some cases, they also work as extension services, such as the Laimburg Research Centre for agriculture and forestry in Bolzano Province. Diverse Regional research centres, as well as some agricultural Universities, have experimental farms. Considering only organic agriculture, a recent survey identifies 39 experimental farms spread all over Italy. At regional level, in 2009 R&D was concentrated in some regions, mainly in

Lombardia, Piemonte, Sardegna and Abruzzo. Thus, regional disparities in agricultural R&D are still common rule for Italy.

*Extension and services.* Each Italian Region (including the autonomous Provinces of Trento and Bolzano) has a singular extension services framework, including a huge variety of actors. In several cases the division between the public and private spheres is really pronounced. The quality and quantity of services provided highly differ from one Region to another, depending to historical political choices and different structural configurations.

*Governance and coordination structures.* The Italian AKISs present a very high number of actors and degree of fragmentation operating at different levels. As is clear from interviews, typically the diverse components are separate entities, not well connected, lacking of structures or pathways to bridge the gap between them. It provokes a high risk of gaps and overlaps in research programs and projects, huge administrative costs and duplication of efforts. Different legislative and operative frameworks, and even different technical languages, divide agricultural researchers and extension services and both often are not well liked with the real farmer needs. Only in a few cases at a Regional level there are formal mechanisms to connect research and advisory services planning. In addition the tools, languages and methodologies of communication usually are not effective in reaching all farmers, including the small and marginal ones.

As evidenced by interviews, one of the strengths of the system is the presence of capillary structures and staff (often also well trained and motivated). However many public advisers are increasingly absorbed by bureaucratic tasks. They are also de-motivated by the lack of financial resources and career incentives, penalizing the advisors working in direct contact with farmers. The economic crisis radically impacts the AKIS, reducing the public resources available, limiting the possibility to hire new research personnel, and pushing toward a more efficient and effective performances.

The complexity of the Italian AKISs require particularly effective governance instruments, working at different levels. On the contrary, the AKIS governance suffers from a lack of global vision, shared strategic objectives and plans (existing only for specific components, such as the MIUR research programs or in some Regions). Also, the system is lacking in continuous monitoring and evaluation process. Despite the implementation of numerous evaluation experiences in recent years, the evaluation processes normally regard only the formal spending and activities implementation, neglecting their effectiveness.

In 1998 to improve the coordination of agricultural research system some Regions established the Regional Referents Network of agricultural research, an interregional organization officially recognised in 2001. The Network has also created a searchable database, with the INEA scientific support, to disseminate and integrated the Regional researches. In 2002 also the Regional Referents Network of extension services was created to deal with common challenges, promote discussion and experience exchange. The proposal to merge the two networks is currently under discussion to better coordinate the whole AKIS. An important role in Italian AKIS system is played by INEA. Since 1988, the National Institute of Agricultural Economy has had a study group specialized in agricultural knowledge system, combining research activities with scientific support to public administrations, also in the implementation of EU policies. Over

the years, the INEA has played an important networking role in AKIS, supporting the diffusion of common scientific and methodological frameworks, the exchange of good practices and innovation, also respect evaluation processes, moreover keeping high attention to the importance of agricultural knowledge system.

### **Latvia**

There is no specific singular policy for AKIS in Latvia, and it is divided between separate policies for science, education, innovation and agriculture (the latter includes also agricultural advisory services). The traditional core subsystems of AKIS – research, education and extension systems and respective AKIS agencies – are under supervision of different ministries, and they are not particularly well coordinated. Major national and agricultural policy documents acknowledge the importance of education, knowledge and skills in agricultural development. Capacity development of rural people, which includes also farmers' professional knowledge and provision of agricultural advice, is stated as one of the four main priorities in the central agricultural programming document for 2007-2013.

Accordingly to agricultural policy documents, the main mechanisms to improve farmers' knowledge and skills are attributed to advisory services. There are very few references to research institutes and education establishments and their potential role in agricultural development; also peer-to-peer learning and networking as knowledge creation and dissemination mechanisms are not explicitly integrated. New knowledge and innovation institutes, like knowledge transfer centres, are absent from agricultural policy documents. This shows that agricultural development and AKIS remain weakly connected at planning level and the potential of research and education establishments may not be sufficiently stimulated and used for agricultural development.

In turn, science and education policies do not address specifically agricultural development. However, since 2006 agriculture and food (in terms of agro-biotechnology) have been defined as one of state research priorities; which also means allocation of certain public funding. Finally, innovation policy is developed in the framework of the conventional linear approach with a focus on stimulating technological innovations, and it does not take up well rural and agricultural needs and possibilities. Besides the established measures of agricultural modernization, support to agricultural research and maintenance of rural advisory and information system, innovation policy documents do not propose new measures which would address specifically rural areas and agriculture.

Despite that AKIS remains fragmented, several coordinating mechanisms are set in place. At national governance level, representatives from all the relevant ministries are taking part in the formulation of cross-cutting policies. There is an agreement made in 2004 among the Ministry of Agriculture, LRATC and the Union of Local Municipalities which states the mutual exchange of information and coordination of and participation in establishment and maintenance of Rural Advisory and Information exchange system, facilitating transfer of knowledge, life-long learning and creating posts for local agricultural advisors at municipality level. National Rural Network launched in 2007, unites various rural development organisations and is aimed at exchange and dissemination of information and good practices in rural and farmer communities. Specifically in

agricultural education and research, reforms have been recently initiated in order to consolidate resources and improve coordination and quality.

Latvian AKIS involves the traditional components of research, extension and educational organisations, which on big extent are structured and governed through agricultural, science and education policy. But there are also various formal and informal learning and innovation networks present, which often connect knowledge actors of different organisational and sector background. The major AKIS actors are outlined and categorized under four main sections of public and private sector, farmer and societal organisations.

*Public sector.* At national government level there are three ministries who are directly involved in AKIS governance. Ministry of Agriculture (MoA) is responsible for rural and agricultural policy, agricultural education at university level, agricultural research and extension, as well as for support for producer organisations. The Ministry of Education is responsible for the policy of science and education (however, the only agricultural university is supervised by the Ministry of Agriculture). Responsibilities for innovation and R&D policies and science links with industry are delegated to the Ministry of Economics. At regional level, the five regional development agencies, responsible for territorial planning and coordination of regional development, also attract and allocate funding, initiate and take part in projects facilitating agricultural innovation and knowledge. Local governments provide with facilities and co-fund the work of finance local rural development advisors of Latvian Rural Advisory and Training Centre (LRATC).

LRATC is the largest agricultural and rural advisory organisation in Latvia. It operates an advisors' network consisting of 26 entrepreneurship consultants at regional offices and 125 rural development advisors at local municipalities. The advisors' network covers the whole country and ensures the accessibility of agricultural advice close to clients. The centre has also developed a range of internet-based services which allows also distant learning. Although considered as public, the centre operates on the edge of public and private domain. The MoA, one of the two founders of the centre, commissions and funds a part of LRATC services. The centre is seen as important agency in implementation of rural development policies and Programme as the MoA delegates important policy functions and programmes to it, for example – the coordination of National Rural Network. But LRATC has to generate also its own income; paid services constitute 42% in the centre's turnover.

National Rural Network (NRN) is a national platform for information and knowledge exchange among rural and agricultural actors. It was organisationally established in 2008 with the aim to support implementation of Rural Development Program 2007-2013 and facilitate rural actors' cooperation and their participation in rural development, including formulation and implementation of rural development policy. The network organises training and informative seminars, exchange of knowledge and experiences at local and international level, disseminates information and initiates research and study programs. In 2010, the NRN organised 623 seminars with 16 thousand participants and 213 training groups with five thousand participants. Farmers' interests are taken into account when defining training themes and the most popular topics are animal husbandry and non-traditional agriculture. During the last several years, new knowledge transfer and innovation support organisations, like technology and knowledge transfer centres, business incubators and innovation centres, have been established in order to facilitate

commercialization of research results and cooperation between science and industry. Universities or municipalities operate those centres and they receive support from the Ministry of Economics and Latvia Investment Agency. Although most of them do not target farmers, several of them, like The Centre of Technology and Knowledge Transfer of the Latvia University of Agriculture, business incubator Valdeka BITIS of the Latvia University of Agriculture, Jelgava Innovation Centre and its five business incubators in borderland rural villages serves also food companies and farmers.

*Research and education.* There are 40 research institutions within more than 20 agricultural and forestry research establishments registered at the Latvian Registrar of Scientific Institutions. A central structure in agricultural research is Latvia University of Agriculture with its eight faculties, four research institutes, three scientific laboratories, a study farm, a knowledge transfer centre and Life-long learning centre, all of which act as knowledge sources to producers in form of applied research projects, paid or free expert advice, organisation of training courses and collaboration with producers associations and individual farmers. However, agricultural research in general remains rather decentralized and fragmented, with weak communication and coordination between various disciplines and research organisations. Communication and coordination between researchers and farmers are also deficient and together with limited research infrastructure and human resources this leads to the problems of practical relevance and applicability of research results. Agricultural researchers consider that the main output of their scientific work is creation of new, innovative technologies (81% of respondents of a survey of agricultural researchers) and at lesser extent also modelling and prognosis (67%), whereas dissemination of results, like consultations, information and recommendations, is comparatively disregarded (35%).

In order to consolidate resources and improve knowledge infrastructure and coordination among research institutes and between research and practice, the State Research Centre of Agricultural Resources and Food has been created during the institutional reform of science. The centre unites research institutes working in agriculture and food. With the same coordination and consolidation purposes, a large scale collaborative research programme “Sustainable use of land, wood, food and transport resources” has been launched. However, these initiatives suffer from scarcity of funds and bureaucratic approach. The usual way of doing research in which researchers come with their ideas and propositions considerably dominates over coordinated and collaborative research projects with farmers’ involvement in formulation of research themes and problems.

Regarding agricultural education, there are 10 agricultural vocational schools (secondary schools and colleges) and one agricultural university – Latvia University of Agriculture with 9000 students (IZM). There are also five regional universities in Latvia which have a potential to provide advice for farmers and rural communities. Recently started reform of vocational education aims to overcome these quality and dispersion problems by consolidation of resources into a smaller number of schools. Some of them are to be transformed into industry-supported vocational competence centres with broader training functions intended also for regional residents (life-long training and retraining of unemployed persons). In addition to teaching, staff of educational establishments often provides agricultural advice also for producers, on voluntary base.



*Private sector.* Farmers, especially commercial farmers and cooperatives, substantially rely on advice and technology of input providers, international business conglomerates and their distributors in Latvia, like *Baltic Agro*, *Syngenta* (agro-chemistry companies), *Vaderstad*, *Amazone*, *New Holland* (agricultural machinery companies). These companies associate advice with marketing, are proactive, organise field days and demonstrations. Education in their initiatives comes as a by-product of marketing. The number of input providers which also serve as knowledge source for farmers is estimated around 10 in crop production, and 20 in cattle breeding.

Private consulting companies are vaguely developed in agro-food advice – there are few private firms, e.g. *Jelgavas kompetenču centrs*, which provide advice for producers. There are some small private research institutes, e.g. *Pure Horticultural Research Centre* offers consultations to fruit growers.

Processing companies are involved in agricultural knowledge system both as knowledge users and knowledge support organisations. Regarding the latter, they organise or provide support for training, advice and knowledge exchange visits for farmers; some companies (for instance, *Valmieras Piens*) collaborate with regional agricultural advisory offices. The Latvian Federation of Food Enterprises (LFFE) brings together entrepreneurs, professional associations and research institutes with an aim to promote the development of the food industry in Latvia, promote Latvian products in the local market and improve their competitiveness in export markets. Recently LFFE has also engaged in setting standards for professional education and is carrying out a training project for food industry workers.

Important source of knowledge for agricultural producers are also experts. There is a certain opportunism of experts in terms of seeking links with farmers, and many of them provide advice on freelance or short term individual contract base rather than through their institutional structures. Farmers often value this way of advice as more responsive to their needs and easier to access.

*Farmer-based organisations.* There are various farmer-based organisations which are actively involved in providing knowledge and advice to their members and also in lobbying agricultural education and research and relevant policies. Among the most visible farmer organisations there is Consultative Council of Agricultural Organisations (CCAO) with 55 farmers', food producers' and rural development member-organisations. CCAO facilitates information exchange and discussions between farmers' organisations and the Ministry of Agriculture. Farmers' Saeima unites professional and commercially viable producers, which in 2005 endeavoured to create its own advisory service because of dissatisfaction with the existing advisory system which was perceived as inadequate for advanced producers. However, the initiative ended because the farmer organisation failed to establish consistent links with the research organisations, and farmers were reluctant to pay for the new services.

Most of other farmers' NGOs are organised on sector base and they serve to channel, exchange and create knowledge within specific agricultural production sectors. Regional farmer organisations (22 in total) provide information and training seminars for farmers on territorial base. Since 2000 when state support for farmers' cooperatives were introduced, their number has increased up to 115 and cooperatives have become important knowledge sources and advice

providers for professional and economically organised farmers. Since cooperatives know farmers' specific knowledge needs well, they are often also more efficient than traditional agricultural knowledge institutions in delivering new knowledge fast and directly. The four largest agricultural cooperatives in Latvia – *Latraps*, *VAKS*, *Trikāta*, and *Piena ceļš* increasingly act also as input providers, and seek to operate as one-stop-shop. Some cooperatives, *Latraps* for instance, have a well-developed knowledge network extending abroad, where more updated knowledge is available. Cooperatives are involved in agricultural knowledge transfer in several ways. First, they organise training courses by themselves (either by spending their own funding or applying for project funding). Second, they serve as mediators for market actors who want to advertise their products. In this case co-ops are operating as gate keepers who hold access to organised groups of farmers. Third, co-ops communicate their interests and needs to institutions organising agricultural education. Finally, they hire consultants to advise on more complex issues. The umbrella organisation Latvian Association of Agricultural Cooperatives (LACA) facilitates information exchange among its member-organisations and provides them with training and advice with the help of its own experts.

Many individual farmers are engaged in AKIS also as knowledge generators and providers. They propose paid or free consultations on the base of their experience and knowledge, establish demonstrations with or without cooperation with research institutes, organise training events on farms (often in cooperation with LRATC).

*NGOs.* Diverse non-farmer NGOs are involved in AKIS. Some of them intervene in AKIS in ad hoc manner, other have more regular and structured involvement. There are NGOs who are established with the primary aim to facilitate agricultural education and research and collaboration among various AKIS actors. For instance, “Agro Centre’s” main activities are educative and informative seminars and conferences for rural residents, research and various business advices. Foundation for Latvian Agricultural Development organises annual thematic educational events in agriculture, which bring together suppliers, agricultural educational establishments, state institutions and producers.

Besides these agricultural NGOs, there is other who is operating in the fields close to agriculture and also contributes to AKIS. *Latvijas Dabas Fonds*, a leading environmental NGO in Latvia, is regularly implementing environmental projects related to agriculture, and which often involves information and training of farmers. *Rural women organisations* and their umbrella organisation *Rural women association* form a very dense and active network in the fields of education, entrepreneurship and civic participation. *Local partnerships* bring together various local actors, who design and implement local development projects, some of which are related to agriculture, for instance, establishment and equipment of local advisory office. *Consumer organisations* are still weakly involved in agricultural knowledge processes. However, growing consumer demand for healthy, organic and home-grown food encourages research in the respective fields.

## **Lithuania**

AKIS consists of public institutions on a national level, like Ministry of Finance, Ministry of Agriculture, supervising state enterprise „Agricultural information and rural business centre”, Centre for LEADER Programme and Agricultural Training Methodology, and Lithuanian Rural Network. At the national level, there are also private processors, technical suppliers and

agricultural producers (firms and farms). Consulting services consists of three pillars: (1) Public sector and farmer-based organisations – i.e. Lithuanian Agricultural Advisory Service (LAAS) and Chamber of Agriculture (CARL); (2) Research and education institutions – i.e. Aleksandras Stulgiskis University and Lithuanian University of Health Sciences; a few research institutes and centres; Science and Innovation „Valley Nemunas” and agricultural schools and colleges; (3) Private and associated consulting organisations, e.g. 14 Association of Rural Development and Business Consultations (ARDBA); NGO Associations (Rural Communities, Local Action Groups); Private processors, technical suppliers and agricultural producers (Co Ltd., public, individual enterprises, freelance consultants). LAAS is the first and the biggest advisory institution in Lithuania, employing 370 advisors, and its aim is to support farmers in understanding and complying with the EU requirements for environment, society and animal protection, animal welfare, good agrarian and environmental protection and to help them to prepare application forms for EU support.

### **Luxembourg**

In AKIS the central role in provision and financing of advisory services plays public sector, represented by Ministry of Agriculture (MoA). There are three public service institutions working on behalf of the Luxembourgian ministry of agriculture: Administration of Agricultural Technical Departments (ASTA), Department for rural economy (SER) and National institute for viticulture (IVV). All of these public authorities acquire and process information in their respective thematic field of competences. Similarities of these three public institutions can be seen in provision of advisory services for farmers free of charges as well as in processing and dissemination of agricultural information and knowledge.

ASTA focuses on advisory services on plant and animal production, plant protection, economic issues and sustainable agricultural practices in general. ASTA also produces data on agrometeorology and conducts studies in the laboratory. ASTA also cooperates with German public research institutions in the two neighbouring German states for the case of specialised crops, and with DLR – a public experimental research station in Rhineland-Palatine and the University of Bonn in the form of joint research projects. This cooperation is regarded as an important knowledge source for the agricultural sector in Luxembourg. Moreover, Luxembourgian fruit-growing farmers receive advisory services via the consortium for integrated fruit production (on their own cost), which is associated with DLR.

Activities of SER range from advisory services on general advisory topics through investment, accounting and economic issues to processing agricultural information in general, e.g. agrarian statistics or reports on topical developments in Luxembourgian agricultural sector. SER is also responsible for implementing Cross Compliance according to the regulation of the current funding period (2007-2013).

The role of the IVV is similar to those of SER and ASTA but focused in the sector of viticulture. In addition to providing advisory services to winegrowers free of charge, IVV conducts applied research on its own testing fields. The Institute regards itself as an “important interface between theory and practice, research, development, advisory services and training”. According to their website, knowledge transfer of relevant and new topics in viticulture occurs via education and

training of winegrowers. IVV manages an up-to-date website where it publishes information e.g. on training courses, specific recommendations on wine cultivation or (public) funding.

*Research and education.* Public research in Luxembourg is conducted by 4 public research centres (CRP), two of which conduct agricultural research: CRP Gabriel Lippmann and CRP Henri Tudor. CRP Gabriel Lippmann is specialised on research on agricultural production topics, e.g. precision farming or sustainable agriculture while CRP Henri Tudor is involved in projects concerning technological developments (e.g. machinery, biogas plants). It was mentioned that a fusion of the two institutes into one public research institution (Luxembourg Institute for Science and Technology – LIST) is planned for the near future (end of 2014). Research projects at the CRP are funded by ASTA and IVV. Releasing research results to farmers in the field e.g. by publishing new insights in the agricultural press is regarded as very relevant and is actively supported by the public institutions. It was mentioned in the expert interview that scientific output is mandatorily transmitted to the agricultural chamber in a simplified language which then passes research results on to farmers.

Furthermore, the technical college for agriculture (LTA) in cooperation with ASTA is involved in field trials on plant varieties. In the viticulture and organic farming sector, the national institute for viticulture and the institute for organic agriculture IBLA both conduct field trials in addition to providing specialised advisory service.

*The agricultural chamber of Luxembourg* can be regarded a farmer-based organisation (FBO) with a central role in the extension system of the Luxembourgian AKIS. It is legally mandated to coordinate agricultural advisory services of non-public origin on behalf of the ministry of agriculture. Therefore, the chamber possesses close linkages to other (partly private) farmer-based organisations. The chamber is in close exchange with farmers and represents their interests. Membership in the chamber is obligatory for all farmers in Luxembourg. It was confirmed in the expert interview that the chamber also acts increasingly as an intermediary between public interest and farmers in the field of water protection and nature conservation. Furthermore, the chamber is also the body with the closest linkages to agricultural advisors. They are invited for meetings up to 5 times per year on relevant and practical advisory issues. The meetings were described as an important platform for information exchange among advisors as well as between chamber, public authorities and advisors and hence indirectly with farmers. These meetings are initiated and conducted by the chamber, however, experts e.g. from public advisory services are invited as speakers. It was mentioned that this platform is also relevant for information flow back to the chamber, as advisors send concerns and information on practical farming matters back to the chamber. In addition to the public authorities with an advisory function plus the chamber, advisory services in Luxembourg are offered by several farmer-based organisations.

According to the interviews, private advisory companies play generally a minor role for farmers in Luxembourg. It was mentioned that in individual cases however, farmers or advisory circles may hire a (private) specialist advisor (e.g. from a private French or German advisory company), e.g. when a very specific problem is encountered by the farmer group. The company is privately reimbursed by the farmers in these cases.

Moreover, advisory organisations stemming from agricultural up- and downstream industries are known to offer agricultural advisory services. It was mentioned, that these services are strongly product-related. From the interviews however, the extent of utilisation of product-related advisory services by Luxembourgian farmers could not be assessed.

NGOs seem to play an inferior role in the AKIS in Luxembourg in general. In the interviews, only one initiative with ecological focus was mentioned.

*Coordination structures.* An important formal committee initiated by the agricultural chamber can be seen in the *Comité consultatif de la Coordination*. It includes representatives from the ministry of agriculture, chamber, public administration bodies, vocational school and important advisory organisations (FBO and private companies). The committee evaluates project proposals submitted by FBO and decides on funding by the ministry for a maximum of 5 years. Regular meetings of agricultural advisors form another significant platform which is coordinated by the agricultural chamber. Besides these formal coordination structures it was noted that communication and exchange often occur in an informal and straightforward manner between actors of the relatively small institutional landscape in the agricultural sector of Luxembourg.

## Malta

In Malta AKIS is characterised by certain number of entities with a very low level of coordination and interactions among them.

According to some local experts and public managers, the advisory and the research worlds are not so close, even if this study let emerge a certain degree of dynamism. In depth, in Malta, the Ministry for Sustainable Development, the Environment and Climate change (MSDEC) has always shaped the behaviours and performance of the researchers, entrepreneurs, advisors and trainers, through providing directly the extension services. Besides, although in the recent years, the MSDEC introduced a process of transition to a de-concentrated model, it is still maintaining a top-down approach, which is reflected in the setting of both the infrastructures and mechanisms, which should lead, in principle, to knowledge and innovation dynamics. Moreover, the pressure on the AKIS actors, after the accession, has been intensified due to the application of the European regulatory framework, particularly on the cross-compliance. To a certain extent, it can be said that the national RDP 2007-2013 is contributing to re-organize the roles and functions of the AKIS actors (also introducing new stakeholders) and to set the stage for building bridges between them. Indeed, the national perspective seems to be not systemic and drives the AKIS actors to at least two different directions, without facilitating their cooperation for knowledge transfer purpose: one regards the enhancement of human capital and is particularly targeted to help increasing the competitiveness of the value chains; the other regards the support to the farmers and livestock breeders to meet the requirements of EU and National regulation, mainly with regards to Cross Compliance requirements and Health and Safety standards. Accordingly, the latter is under the responsibility of the FAS, while the former belongs to other subjects, mostly associative bodies (cooperatives and producer organizations/groups).

Indeed, this situation reflects the lack of a common strategic framework on knowledge transfer and innovation. The main priorities of knowledge and innovation policies are largely determined at government level, although without specific programmes.

The main agricultural research in Malta is carried out by the MSDEC through its Departments, which are responsible for their respective research area and have their own research budgets for extension and advisory services, without any coordination with each other. Some research activities are carried out in collaboration with the University of Malta, whose leading institute in agricultural research is the Department of Rural Sciences and Food Systems within the Institute of Earth Systems (former Institute of Agriculture). The Department conducts research in agricultural sciences with particular reference to the needs of Maltese agriculture still providing professional advisory and extension services to the local farming community.

Public research is funded by National and International programmes (i.e. FP7). It is conducted mostly on a project basis without a specific research strategy. This means that access to grants for research is not on a competitive basis. In most cases, funds for research are obtained indirectly and are linked with mainstream activities, such as regulatory or advisory operations. Moreover, since research projects are not in line with an established strategy or framework programme, they are often carried out in response to short-term needs and lack of continuity and complementary nature, as well as of a real liaison with the needs of farmers and rural areas.

Among other public organisations, the Malta Environment and Planning Authority (MEPA), which is the national agency responsible for land use planning and environmental regulation, manages on-going policy-oriented research programmes that include the rural environment and the agricultural landscape.

Private companies and SMEs are active in the research field to a little extent, while non-governmental organisations (namely, Biological Conservation Research Foundation (BICREF) and Malta Organic Agricultural Movement (MOAM) show certain pro-activeness.

To improve knowledge transfer mechanisms enabling transformation of knowledge into innovative products and services, in the last years, interaction between businesses and academic institutions was increased, in view of the contribution that education can give to the business development and growth.

The University of Malta and the College for Arts, Science and Technology (MCAST) are the main bodies within the Ministry of Education, responsible for higher education and agricultural research. In particular, MCAST that is administered by the University of Malta, is the main provider of all post-compulsory, post-16 vocational education and training in Malta and Gozo. Among its ten institutes, the Agribusiness Institute provides training in horticulture, animal care and management as well as fish management. The majority of programmes offered by the Institute are either attended by students on full-time basis, or by apprentices. The Institute offers also a part-time evening programme and day courses for adults who are employed and/or who would like to update their skills. Unfortunately the formal training seems to be largely inadequate and does not provide a synergy between academic instruction and applications on a farm. From the stakeholder consultations it seems that the available formal training is not addressing the actual and emerging needs of the sector, such as the need for innovative farming and animal breeding and for running agri-business. Moreover, it is possible to observe a lack of professional skills and competences on specific matters such as veterinary medicine.

Since the CAP reform concerning the programming period 2007-2013, certain dynamism is characterising the AKIS, while new and old actors are providing services related to the transfer of knowledge both under the framework of public (RDP measures and other EU programmes) schemes and private funding. Among others, private companies, farmers' cooperatives, Producers Organization/Groups (POs/PGs) and NGOs. Besides, the implementation of a FAS scheme, under the measures 114 and 115 of RDP 2007-2013, fostered the set-up of new private advisors, although, in the end, only a semi-public entity, was formally recognized as farm advisory service provider.

Furthermore, still under the EU framework, the National Rural Development Network (NRDN), whose Coordination Committee includes the representatives of the key organizations involved in rural development coming from the Livestock sector, Fruit and vegetable sector, Producer's Organisations/groups and the cooperatives, has been active in facilitating the dialogue between the AKIS actors, through conducting the stakeholder consultation for supporting the MA in developing the RD strategy for the next programming period, as well as providing specialized information to farmers on the cross-compliance.

Eventually, due to the emerging needs for farm mechanization and new fertilization practises the suppliers are becoming more and more active in the AKIS, through shaping the innovation trends in agriculture.

### **The Netherlands**

The Dutch AKIS is a very dynamic system, presenting private extension services with direct payments from farmers, coupled with state funding for research and for improving different forms of *Public Private Partnership* and actors networking. The relevant AKIS literature and the interviews evidence the central role of agricultural entrepreneur with high educational level and willingness to pay for advisory services. The Dutch farmers are strongly involved in process of knowledge co-production and innovation through peer to peer information exchange. More and more farms are becoming real corporations and the growing power of agribusiness operating throughout the whole agri-food chain is evident also in the knowledge system, influencing the R&D demand, the innovation policy, the educational funding, etc.

The Dutch AKIS experiences a great crossbreeding of functions respect to the classical scheme: the actors who traditionally do research have begun to provide services, advisors may perform applied research, the University works as facilitator in innovation process, etc. This aspect makes it difficult to have a comprehensive and clear profile of the players involved. In addition also the geographical boundaries of the AKIS actors are not well defined, due to the increasing internalisation that concerns all the players without distinction. Together with denationalization process, it is undergoing desectorialization of agriculture and agricultural knowledge. The success of systemic approach in the literature, together with the increasing integration of agriculture in the agribusiness are the major driving forces of this trend that is clearly evident in the use of the word "green education", but also in the merger, in 2010, of the Ministries of Economic Affairs and Agriculture, Nature Management and Fisheries into the Ministry of Economic Affairs, Agriculture and Innovation. Since 2012 this Ministry has again been called the *Ministry of Economic Affairs* (in Dutch: *Ministerie van Economische Zaken*; EZ). The following description summarizes the major Dutch AKIS actors.

*Education.* In the Netherlands, agriculture education is embedded in the so-called green education (agriculture, nature and food) and it is organised in close cooperation with the agricultural sector, under the responsibility of Ministry of EZ. The green education is subject to the regulatory framework of the Dutch education system, thus the secondary education includes VMBO programs (four years), that combine general and vocational education and prepare pupils to go on to senior secondary vocational education and training (MBO – four years). The Netherlands have 110 green schools (76 VMBO/MBO establishments and 33 comprehensive schools that offer VMBO-green training), coordinated in 12 Agricultural Education Centres (AOCs) and one Regional training centre (ROC) with MBO-green.

Higher education is provided by two institutions: Research universities and Universities of applied sciences (Hoger Beroepsonderwijs – *HBO*). Research universities are primarily focused on research-oriented programs, while HBOs are more practice oriented, offering programs of higher professional education to prepare students for specific professions. There are 5 HBOs providing green curricula (4 green HBOs and one university of applied sciences with a green department) and only one green Research University (Wageningen University). In Utrecht University there is a Faculty of Veterinary Medicine. According to the Dutch Inspectorate of Education, in the year 2011/2012 the total students of green education were 78 300 (31 700 enrolled in VMBO, 30.500 in MBO, 9 100 in HBO and 7 000 in Wageningen University). In addition, the Practical Training Centre (PTC+) provides supplementary and specialist education for Horticulture, livestock and other specialized areas. This organisation offers courses and training programmes not only in the Netherlands but all over the world. The *green students* are relatively few (around 5%) in respect of the total student population, while according to the Council for Agricultural Vocational Education, the green sectors has a market potential of 15%. In addition the number of students declines from low- to high-level green education.

To improve its attractiveness and to better suit the labour market, in the last years the agricultural education is involved in a process of change proceeding along the following directions: de-sectoralisation (from agriculture to green education), externalisation (more extramural activities, more external funding, more demand-oriented), cooperation (closer relationship with research and private sector and between the education institutes), internationalisation (more involvement in international projects, promoting students mobility, enhancing the attractiveness to foreign students and funding).

*Wageningen University and Research Centre.* Wageningen University and Research Centre (WUR) is the consortium of the Wageningen University, the DLO Research Foundation and the *Van Hall Larenstein*, University of Applied Sciences (VHL). The DLO agricultural research institutes (Stichting DLO) used to be divisions of the old Ministry of Agriculture. In the second half of the 1990s, they became independent from the Ministry forming the DLO Foundation that merged with the Wageningen University into WUR. Up until November 2012, also VHL formed part of this consortium. The members are separate (legal) entities, but they are organizationally integrated into five Science Groups. Besides the main complex in Wageningen, WUR have other locations throughout the Netherlands (30 in total) and also outside. In addition to research and education (and well integrated with their), the third task of the WUR involves the dissemination of knowledge to make the research results useful for society at large. WUR follows a well-defined knowledge valorisation strategy which, among other things, should make WUR



employees and students more aware of intellectual property (IP) and valorisation opportunities. Valorisation of knowledge, in many cases, is achieved in collaboration with industrial partners and, in some cases, new enterprises (spin-offs) have been founded on the basis of WUR's IP.

In the last years, WUR has further developed a strong strategy for international cooperation. WUR's international activities in 2012 covered a range of projects in various fields, from smaller projects to multi-million euro projects, in more than 110 countries worldwide. In addition the WUR has also a centre of excellence in Chile and an office in China. WUR is considered a *Third Generation University*, adopting an integrated and systemic approach that combine social and natural science to develop knowledge, skills and competences needed to society. The WUR is able and flexible to work with very different partner also from private sector. WUR also plays a facilitating role in the new Dutch knowledge infrastructure, as in the case of Network greenhouse Innovation network Nieuwe Energie Systemen –INES (New Energy Systems) in North Limburg or in the dairy sector programme Netwerken in de Veehouderij.

*Research and development (R&D).* The Netherlands has a world-renowned knowledge infrastructure in agricultural R&D. The main actor in executing agricultural research is WUR, but other different organizations, including public, private and non-profit institutes, carry out research in agriculture and food production. For some, research is their main task, while for others it supports their main task. A characteristic of the Dutch R&D institutions is that they generally operate globally.

Aside from WUR, *other major R&D executors are:* (1) TNO (Netherlands Organization for Applied Scientific Research), an independent research organisation with 3 900 employees; (2) NIZO food research, an independent contract research company with 200 employees; (3) the Louis Bolk Institute, an independent international knowledge institute focused on sustainable agriculture, nutrition and health. Due to the merger with Agro Eco, on 2008, it can provide not only research, but also advisory services to transfer knowledge into practical knowledge and application; (4) the National Institute for Public Health and the Environment, a governmental research institute on the subject of public health and environment.

Historically there is an intensive cooperation between the private sector, scientific institutes and the Government. Successful examples of research-based collaboration between Public and Private Sector are the Top Technological Institutes (TTIs). Two TTIs are active in agri-food field (Food & Nutrition and Green Genetics), hosted by the WUR. They stimulate private companies to cooperate with research and education institutions by giving financial support for joint research projects. Private investment in Agri & Food R&D is 0.06% of GDP and 12 of world's top 40 Food & Beverage businesses have R&D facilities located in the Netherlands (such as Unilever, Heineken, VION, etc.). Many actors of upstream and downstream industry have their own research centre.

According to interviewed, the Royal Friesland Campina, the largest Dutch dairy cooperative, nowadays employs some 400 R&D professionals, most of them working closely together with dairy farmers /members. These companies and research centres are mainly localised in the Food Valley, a regional agri-food cluster (public-private partnership) in the region surrounding Wageningen concentrated around WUR. Within a 50 km radius the cluster includes more than 70 food enterprises and around 1 400 other companies associated with the food industry. 15 000

scientists and engineers engaged in R&D activities (the total people working in Food Valley are about 20000) give the valley the highest number of food scientists and researchers in the world. In 2004, Food Valley NL, a cluster organisation, was funded by the Dutch business community and Government to promote the innovativeness of Dutch companies by fostering cooperative links between business, knowledge institutions and Government.

There are also several organizations supporting and facilitating R&D, such as Academic libraries and Koninklijke Bibliotheek (the national library of the Netherlands), as well as the NL Agency (a division of the Ministry of EZ that carries out policy and subsidy R&D programs), the NARCIS (science portal of the Royal Netherlands Academy of Arts and Sciences that lists research organizations in the Netherlands) or the Statistics Netherlands (CBS) that collects, edits and publishes statistics for practice, policy and science.

*Extension services.* The Dutch extension service includes a multitude of actors with very different characteristics. They are mainly private firms or farmers based organizations (cooperative, farmers unions or studies groups), to a lesser extent the providers could be also R&D institutions, NGOs or Foundations. Some advisors have entered the market only recently, while the leading provider DLV has a long history in the field (although its organization and its functions have completely transformed over time). Some actors do not provide agriculture extension services as their core business product/activities, such as the more classical downstream/upstream industry or the consulting companies that have recently diversified their business portfolio by entering the agricultural advisory market or even ICT companies developing farm management software. The services market is very competitive arena, increasingly affected by an internationalization trend. Some advisors work also outside the Netherlands or even they foreign business units. Despite the large number of providers, after the privatisation some sub-sectors/fields are not longer covered by the provision of advisory because they are considered unprofitable, such as the goat and sheep sector.

*Regulatory framework.* Different institutions contribute to define the Dutch AKIS regulatory framework, including international governing authorities (EU, WTO, etc.), national ministries and independent advisory councils (likes the Council for the Environment and Infrastructure – Rli, the Advisory Council for Science and Technology Policy, etc). Among the major public institutions for inspections, control, certification there are: the *Netherlands Food and Consumer Product Safety Authority* (NVWA), the *Netherlands Controlling Authority for Milk and Milk Products* (COKZ), the *Animal Health Service* (GD), the *Netherlands Inspection Service for Horticulture* (Naktuinbouw) and the *Dutch General Inspection Service for Agricultural Seeds and Seed Potatoes* (NAK). The environmental and spatial regulations are also very important in defining the agricultural framework, they are shaped by different actors such as the *Netherlands Environmental Assessment Agency* (PBL).

*Policy framework.* The Dutch government supports the AKIS through investment in education and R&D, but also in public-private partnerships to promote innovation and knowledge exchange. The Government invests also in dedicated support organizations such as Food Valley NL and Innovation Programs. In 2011 the Dutch government (together with entrepreneurs and researchers) launched a new national R&D strategy: the so called *Top sectors approach*. The Ministry of EZ identified nine key sectors (life-science, energy, water, chemicals, horticulture,

food agriculture, high technology materials and system, logistics and creative industries), which are characterized by a strong market and export position and high knowledge intensity, to strengthen their international competitiveness by investing even more in knowledge and innovation. Horticulture and propagation of materials and Agri-Food are included in the top sector. The related policy measures are aimed at promoting closer cooperation between knowledge institutes, businesses and public authorities in the programming of fundamental and applied research. The Government invested 1.3 billion EUR in the 2012 to these sectors and it plans to increase the allocation to 2 billion EUR in 2015. The finances are allocated to fund venture capital, innovation loans and tax deductions for stimulate private firms spending on R&D. For each top sector has been created a top team, including researchers, to identify concrete proposals to be included in the Innovation contract. These documents set out arrangements and financial agreements between businesses, researchers and the Government to develop public-private partnerships. In addition the *Human capital agenda* includes proposals on how to strengthen the link between education, labour market and lifelong learning.

The innovation contract of the Agri-food Topsector (*Agro&Food: de Nederlandse groeidiament*) gives direction to market-driven top-quality research and innovation, identifying objectives of 11 innovation themes (such as food safety, health and international business development) to reach until 2016. Top sector Agro&Food has a budget of 195 million EUR, that is financed 61% by the Dutch government, 31% by the agri-food industry and 8% by the European Union. In the innovation contract of the sector horticulture and propagation materials, the industry has planned to contribute with 130 million EUR to public-private partnerships and, in its turn, the Government with 60 million EUR for the years 2012-2013.

The top sector policy foresees that entrepreneurs and researchers collaborate on innovative products in top consortia for knowledge and innovation (TKI). The Government supports these consortia by providing an annual contribution of 90 million EUR with the operational objective to increase application of knowledge in/by SMEs. This *new enterprise policy* is seen as the successor to *innovation policy* adopted in the previous period. The Court of Audit, in its published report about the effectiveness of innovation policy in the Netherlands for the period 2003-2010, concludes that “the efficiency and effectiveness of innovation policy cannot be determined” and recommends that the coordination of Ministry of EZ needs to be improved.

*Governance and coordination structures.* In the old OVO-triptych, Education, Extension and Research used to closely work under the auspices of the Ministry of Agriculture and their interconnections were precisely defined through clear institutional arrangement. After the Extension privatisation, several *market failures* and *system failures* occurred. This resulted in disintegration of the knowledge distribution system and a lack of throughput of knowledge towards farmers. To tackle these market and system failure several brokered network initiatives have emerged. After the privatization, the Dutch Government tried to establish a first central innovation broker, but this attempt failed because it was not considered impartial for its close connection to public sphere. Thus in a previous time the brokered network initiatives “do not appear to be the result of coherent policy. Rather, they have resulted from dispersed initiatives that, in turn, have been provided by general policy discourse. Recently, a more coherent policy with regard to public support for innovation brokers appears to have been developed”. In fact, the Government, in recent years, has supported these initiatives, funding several programs,

including innovation brokers, at national, regional and local levels, such as the case of Innovation Network. In some cases, the public sector participates as a stakeholder in the knowledge networks, that could involve a wide range of actors, both private (research and extension providers, farmers' organizations) and public. In other cases, only the Government participates during the launch of the initiative, such as in the case of the Green Knowledge Cooperative (GKC). Following the classification proposed by Klerkx and Leeuwis the several functions of innovation brokerage could be reduced to three generic functions: demand articulation, network composition and innovation process management. They also identify several tensions in the Dutch innovation brokers concerning: the neutrality, functional ambiguity, legitimacy, funding and willingness to pay. These tensions sometimes affect the smooth operation of innovation brokers and networks.

### **Poland**

In the AKIS in Poland, as well as in other many countries, we can enumerate main six links (stakeholders): agricultural advisory organizations, research and education institutions, agricultural policy administration, sales enterprises, supply services and farmers.

Agricultural advisory organizations are represented by advisors who deal mainly with market information, promotion of agricultural, economics and organizational innovations, constant education and solving the problems of agricultural practice, sometimes in cooperation with representatives of science. This link is represented by Agricultural Advisory Centre (CDR) in Brwinow (with divisions in Krakow, Poznan and Radom), 16 Provincial Advisory Centres (ODRs), 16 agricultural chambers (IR), 163 private advisory organizations and numerous NGOs which were created after 1989. They cover a wide spectrum of educational, environmental, ecological, developmental and cultural activities. Most of them work under donor funded projects on rural, agricultural and non-agricultural development, implementing the extension or advisory type activities.

Research and Education: scientists, lecturers and teachers deal with generating new knowledge to consistently strengthen the system in the scope of innovation, with analysis of efficiency of the applied production technologies, developing new management systems in particular links of AKIS, as well as comprehensive and specialist education of new staff for all AKIS links. There are 13 agricultural research institutes, 10 University of Life Sciences or Agriculture, 15 Colleges and 45 Secondary Agricultural Schools.

Agricultural Policy: politicians, state and self-governmental administration officials and inspectors are responsible for the shape of agricultural policy, the binding law and exercising it in terms of quality, health, safety, environmental protection etc.: Ministry of Agriculture and Rural Development, Ministry of Environment, Ministry of Finance, Ministry of Science and Higher Education, 2 parliamentary committees for agriculture, 3 state agencies (Agency for Restructuring and Modernisations of Agriculture – ARiMR), Agricultural Market Agency – ARR), the Agricultural Property Agency – ANR), 5 state inspections, 16 provincial governors, 16 provincial marshal offices, 314 country districts and 1571 rural municipalities.

Sales/marketing is represented by natural and legal persons, producer organizations, enterprises, which purchase agricultural products, store, sort, process, transport and sell them in wholesale and retail sale.

Supply is represented by organizations or institutions, natural or legal persons, providing farmers with means of production and services, thus supplying them with fertilizers, pesticides, seeds, farm animals, machines, and also grant loans and credits and pay subsidies and donations.

Production: the most important link is production, represented, above all, by farmers being owners or lessees of agricultural farms (1,506.6 thousand in 2010). The latter category of land users appeared along with implementation of market economy and restructuring state agricultural farms. Farmers are perceived in the Polish rural advisory system, along with their families and the entire local community, as clients of advisory services. Many farmers worked together in producers' groups (1,306) and branch organizations (49) in 2013.

Each of these elements is more or less strongly related to the others. Thus, every change in one link of the system causes particular effects in other links and vice versa. Therefore, advisory services cannot function all by itself, separately from other links of the AKIS system.

### **Portugal**

The Portuguese AKIS involves a set of actors performing a variety of functions, namely: policymaking; regulation, monitoring and evaluation; research; education; training; information, extension and consultancy work. 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 and monitoring, research, information, education and training. The non-profit actors are farmers' organizations of different types that, besides lobbying and policy-related and administrative roles, are involved in training, information transfer and extension. The private actors can be linked to industries providing farm equipment and inputs, or consultancy firms, usually small, delivering services in such areas as project development (and farm investment plans), farm accountancy, and training.

The policymaking and regulation sub-system is represented by the Agricultural Ministry Services, presently the Ministry of Agriculture, Ocean, Environment and Spatial Planning (MAMAOT), that includes the Secretaries of State for (1) Agriculture, (2) Forestry and Rural Development, (3) Ocean, (4) Environment and Spatial Planning, and (5) Food and Agribusiness Research, in a very complex structure with central and regional services. The policy brain of the Ministry is the Office of Planning and Policy, shortly called GPP, the mission is to support the definition of strategic guidelines, priorities and policy objectives of the MAMAOT and coordinate, monitor and evaluate their implementation and ensure its representation at the EU and international levels. Monitoring and evaluation functions are a responsibility of the regional services of MAMAOT, the so-called Regional Directorates for Agriculture and Fisheries, that serve as operational services to the Ministry with assigned missions in other areas, mostly with administrative characteristics, but also in the fields of information and extension.

The research sub-system comprises two major types of public institutions: the Universities and Polytechnic Institutes that are part of the higher education system, under the Ministry of Science and Higher Education; and the National Institute of Biological Resources (INRB), under the

Ministry of Agriculture (MAMOTE). In the higher education institutions, research is developed by 15 Research Centres, spread throughout the country. The INBR includes three Institutes dealing respectively with Agriculture (INIA), Veterinary Medicine (LNIV) and Ocean Resources (IPIMAR). INIA comprises 12 specialized units, mostly located in the southern region of Portugal, and LNIV 3 units, 2 in the south and 1 in the north. Besides research, these two Institutes provide a variety of laboratory services, as well as informational ones through different sorts of publications.

Agricultural research conducted by the above-mentioned State Institutes and research units has been dramatically reduced in the last 20 years, either by non-renewal of its staff, or by merging or closure of department services. For instance, the network of experimental farms has declined strongly in recent decades. In general, the policy of agricultural research has focused on the transfer of this function to universities. In this circumstance, the mentioned State Institutes are today very fragile, with models of organization and funding in constant change and lack of clear objectives.

The agricultural education sub-system is under the public sector. Higher education is run by the Universities and Polytechnic Institutes, representing a set of 14 institutions, and is implemented through graduate and post-graduate courses (MSc and PhD). In this area, we have mostly Agriculture Institutes and Schools (14) but also Veterinary Medicine Faculties (3), as well as others, which play a significant role, in the fields such as Life Sciences, Economics and Social Sciences. Also in the education sub-system, it is important to mention the public secondary and vocational education courses that are offered by a group of 20 schools. This sub-system has been assessed for the importance for farmer preparation and quality of training. These courses can be basic, professional or specialized and cover a vast set of topics: horticulture, agricultural production, animal production, forestry and natural resources, farm management and rural tourism. The specialized courses are usually operated in partnership and under the responsibility of a Polytechnic Agricultural School.

Training, information, extension and consultancy tasks are today mostly in the hands of farmers' organizations. The transfer of these functions from the State to these organisations started in the early 1990s. Today, a small group of major national organizations, comprising a network of local and regional entities have structures and human resources dedicated to these fields of the AKIS. However, as we will see, training is their key area of intervention, along with a range of others tasks in such areas as farm investment plans and management of CAP related farm subventions.

## **Romania**

In Romania AKIS has been created in order to promote mutual learning and to generate the utilisation of agricultural technologies, knowledge and information on a participatory basis. The system integrates farmers, agricultural research, agricultural education, agricultural consultancy and the private sector, in order to best use the knowledge and information from various sources for the purpose of agriculture development. Each AKIS subsystem is, in turn, a part of more general systems, such as the education system, science policy, agricultural and rural development policy etc. The government's policies regulate each subsystem and play an important role in the existing interactions between subsystems.

*Agricultural research* – it is the subsystem that plans, administers and implements the activities that develop, evaluate, adapt and test the agricultural technologies for farmers and other users in the first place. While certain research activities find solutions to specific scientific problems, other activities provide the decision makers with instruments and methods that they need for proper management of the agricultural sector. In Romania, the research activity is also involved in the evaluation of the effectiveness of agricultural practices and agricultural policies.

The first group of players in this subsystem is represented by the *public research institutes* under the supervision of the Academy for Agricultural and Forestry Sciences "Gheorghe Ionescu - Sisesti" (AAFS). This is a public academic recognition institution, which operates in line with its own statute. This is under the coordination of the Ministry of Agriculture and Rural Development (MARD) and it collaborates with the Ministry of Education and Research. AAFS has 17 Agricultural R&D Institutes and Centres and 51 Agricultural R&D Stations under its supervision, located in the territory, where more than 800 specialists are working, out of which 700 are certified specialists.

As regards the research topics, there are institutes and centres where the approached range of topics is quite comprehensive, covering several research fields, as well as institutes and centres focusing on a narrower scope of topics. The research-development objectives of each organization are in line with the National Research-Development Plan. Ninety percent of the research-development activity is carried out in the public agricultural research institutes. The research institutes are financed from several sources: extra-budgetary incomes obtained through research-development contracts, royalties received from biological creations, consultancy services, sale of agricultural products (seeds, planting stock, breeding animals) obtained in the development sectors and other. The research-development units have a logistics base consisting of analysis laboratories of phytotron, zootron, apitron type, greenhouses and vegetation chambers, experimental fields, banks of genetic resources and other facilities.

In Romania, besides the public research, there is also a small number of independent (private) research suppliers. These organizations generally focus on applied research and their funds come from their own financial resources or from different projects. The agricultural universities also have research departments in their structure, yet they are less involved in the research activity. At the same time, it can be mentioned that a series of large companies in the field of agro-chemistry, seeds, agricultural machinery, software, etc. carry out their own research-development activity.

*Public agricultural consultancy* - The experience provided by the countries with advanced agriculture where the agricultural production is assisted by strong advisory services as well as the particularities of agriculture from Romania determined the promotion of certain strategies and legislative acts beginning as of 1998, meant to support the organizational structures providing agricultural advisory services.

*The public advisory system* in Romania has a pyramid-like structure. This is coordinated from the technical-methodological point of view by MARD, through the Consultancy, Extension and Vocational Training Department (CEVTD). At county level (NUTS3) there are County Agricultural Chambers (CAC) under the supervision of county councils and the theoretical-methodological coordination of CEVTDs. At the level of communes (NUTS5) there are Local Agricultural Consultancy Centres (LACC) under the subordination of CACs.

The main objectives targeted by this service is to provide support to the rural population by extension and technical assistance actions, support for accessing the structural funds, promotion of association forms, managerial consultancy, information, vocational training and refresher courses, providing information flows in both directions and specialized technical, economic and legislative databases. The main beneficiaries of the public advisory services are the farmers and/or the rural population in the sector of agricultural/non-agricultural services.

There are also other institutions under MARD subordination, which, besides the specific activities for which they were designed, also provide agricultural advisory services. Among these, we mention the Agency for Payments and Intervention in Agriculture (APIA), Agency for Payments for Rural Development, the County Agricultural Directorates and other agencies under MARD supervision.

*Agricultural education* – Agriculture, more than any other business activity field, needs permanent training. The permanent vocational training need also appears in the context of competitiveness increase and diversification of products and activities in agriculture and forestry, of restructuring and modernization of agricultural, forestry, agro-processing and marketing sectors, of reaching the sustainable land management and environment protection objectives, application of environment friendly technologies and practices.

In Romania, agricultural education consists of agricultural higher education, high-school level and vocational training. These are under the coordination of the Ministry of Education (as part of the traditional education system). The agricultural schools and universities network covers the entire territory of Romania. Many of these education units have demonstration farms and plots for the practical activities, for pedagogical purposes, for experiments. Many land areas were ceased to be utilized for other purposes, in general, under the market pressure and political pressure. These farms had an important role in the area where they were located, initiating development and innovation projects under partnership with research centres, extension services, associative networks and private farms.

Theoretically, the agricultural universities have a recognized teaching, research and advisory role. However, most of them are unable to play all these three roles efficiently. They often remain separate from the agricultural research and consultancy. They have not a MARD's subordination and most of them develop theory-oriented programs.

From the conducted interviews, it results that the “*educational programs provided by the agricultural universities have a relatively low quality*” and that “*there is an obvious under financing of these universities*”. There is also an obvious tendency of “*extensive development, of enrolling the largest number of students in order to increase their revenues*”.

*Private consultancy structures* – Besides the public advisory services, there are also private agricultural consultancy structures in Romania, namely: (a) consultancy firms; (b) input traders and suppliers; (c) farmers' organizations.

The last years proved that the consultancy activity in the private sector experienced an increasing trend, mainly as a response to the financing possibilities provided through European programs. In almost all cases, this type of consultancy presupposes drawing up the financial applications



for different types of projects. In the case of large-scale projects, the private consultants can help rural entrepreneurs and/or farmers with their expertise throughout the project period.

The producers' organizations and the farmers' associations are among the most important players in this subsystem. For an adequate operation of AKIS these organizations are a guarantee that the groups of interest/stakeholders are correctly represented, that farmers' priorities are well-known. The farmers' organizations try to improve the access to the production, market and managerial resources for their members. Farmers have an important role to play, not only as producers, but also as contributors to the AKIS development process.

The input suppliers combine the sale of products (for instance animal feed, seeds, fertilizers and pesticides) with knowledge transfer. In general, the extension cost is included in the product price. These organizations most often provide advisory services specialized in narrow fields.

### **Slovakia**

From the very outset of transition period in agriculture among the main actors of agricultural extension are involved following institution: Ministry of Agriculture and Rural Development, Research Institute for Animal Production at Nitra, Slovak Commerce and Agricultural Chamber, Agroinstitut at Nitra, Research Institute for Crop Production at Piestany, Research Institute for Food and Agricultural economics in Bratislava, Research Institute for Soil Sciences in Bratislava, Slovak Agricultural University at Nitra, University of Veterinarian Sciences at Kosice, Technical University at Zvolen, Institute for Scientific and Agricultural Information at Nitra, National Forestry Centre at Zvolen, Institute for Forestry Extension and Education, The Agricultural Paying Agency, The Rural Development Agency.

Except of Ministry of Agriculture and Rural Development (MOARD) and Slovak Commerce and Agricultural Chamber (SCAC), the all above listed institutions are fulfilling the tasks of dissemination of knowledge and information, as well as the transfer of innovations and new technologies. Nevertheless, they all are dealing with education and training activities: to coordinate the agricultural extension, to operate the internet portal – Agroporadenstvo (Agro-Extension), to take responsibility for organisation and administration of agriculture extension, to deal with education activities directed towards of advisors, to be responsible for accreditation of advisors and certification of extension service's agencies, it is taking care of the Central Register of agricultural advisors and other advisors. The Institute for Forestry Extension and Education fulfils the similar activities as Agroinstitut except of Central Registry. Other cooperating institutes are specialized research organizations, or specialized public agencies, universities, secondary professional schools, apprentice schools, farmers associations, NGOs and private extension service's organizations. The receivers of the knowledge, information, education/trainings, innovations and new technologies are: individual holdings, agricultural enterprises (cooperatives, share-holding companies), food processing factories, farmers' associations and other organizations dealing with farmers' activities and their needs.

From legal and institutional point of view the main coordinator of agricultural extension is MOARD. De facto the all respective works are delegated to Agroinstitut Nitra or in the field of forestry to the Institute for Forestry Extension and Education (FEE). For initiation and approval

of legislative activities/documents are responsible: MOARD, Government of the Slovak Republic, National Council of the Slovak Republic.

It should be noted that in this regard, an important role is played by the initiatives/guidelines, of the European Union. The key methodological and managerial activities including planning, programming, implementation of FAS, monitoring and evaluation are within the responsibility of Agroinstitut and IFEE. However in their respective areas with the analogical activities are dealing cooperating research, academic institutions and self-governing bodies, as well as advisors and agricultural extension agencies. Obviously, the target groups are farmers and other stakeholders in agri-food sector.

The specific national agreements about knowledge exchange do not exist among the AKIS players. There are agreements on the targeted budgetary allocations of MOARD to individual AKIS institutions. Into these agreements are incorporated paragraphs which are referring to responsibility of respective institutions towards of support and facilitation of agricultural extension, knowledge and information exchange sharing and transfer of innovations and new technologies within the existing institutional frameworks.

### **Slovenia**

The structure of institutions that forms advisory service within agricultural knowledge and information system (AKIS) in Slovenia is diverse. In general, they can be classified into six groups according to their purpose and contribution to agriculture. The first three groups form the public sector with the Ministry for agriculture and affiliated bodies, i.e. national governmental institutions, research and education institutions, and a group of public institutions that provide public services. Private interest-driven institutions form a second set of three groups – farmer-based organisations, private professional advisors and non-governmental organisations (NGO). As presented further on in detail, the organisations of all six groups operate on national level, some of them also on regional or territorial and local levels. Regarding the geographic point of actors division, it is important to stress that regions in Slovenia still do not perform their political and economic functions in terms, common to EU regions. Consequently, institutions territorial units operate on territories that diverge from the official regional division of the country. For this reason the term “regional or territorial level” is used.

*Ministry of Agriculture and Environment* is a governmental institution that performs tasks on the field of agriculture. Its affiliated bodies in this field of agriculture are the Agency of the Republic of Slovenia for Agricultural Markets and rural Development, the Slovenian Environmental Agency, the Inspectorate of the RS for Agriculture, Forestry, Food and Environment and the Administration of the RS for Food Safety, Veterinary and Plant Protection. Given the small size of Republic of Slovenia, its ministries operate just on national level, though some affiliated bodies have territorial units. Public services in agriculture are implemented by different public and private organisations as Chamber of Agriculture and Forestry of Slovenia (CAFS) and Slovene Forest Service.

*Research and education institutions* – there are 15 education institutions on the field of agriculture in Slovenia; three faculties operates within two universities (Biotechnical faculty and Veterinarian faculty within University of Ljubljana, Faculty of Agriculture and Life Sciences,

University of Maribor) and other 12 institutions are secondary schools and/or colleges. Key national research institutions are the Agricultural Institute of Slovenia with two experimental centres, i.e. Slovenian Forestry Institute and Slovenian Institute of Hop Research and Brewing.

*Slovene Forest Service* was established by the state in order to perform public service for forest owners, irrespective of ownership. Its main tasks and activities are forest management planning, silviculture, forest protection, forestry technique, forest wildlife and hunting, hunting reserves with a special purpose and also public relations, and education of forest owners. The organisation's headquarters are situated in Ljubljana, while its numerous units are spread all over the country (regional and local units and forests districts).

There are also some other public institutions that contribute to agriculture knowledge and information exchange such as: public institutions officially responsible for public service on rural development, forestry, nature preservation (e.g. national parks) and regional and regional/local institutions involved in rural development, and other issues important for the development of their territory (e.g. local development agencies). The situation differs from region to region.

*Farm based organisations:* There are two agriculture chambers - CASF and Chamber of Agricultural and Food Enterprises. The first one represents farmers and forest owners and the second one represents companies and entrepreneurs in the business of production and processing of agricultural and food products. The latter has already transformed into a voluntary association though membership for farmers and forest owners in CASF is still obligatory. In addition to representation of members interests, CAFS co-established 8 Agricultural and Forestry Institutes. Through those institutes and local units, CAFS performs public farm advisory service (FAS) as well as other activities, such as research, implementation of services of national interests, trainings, seminars and promotion activities.

The second group of farmer-based organisations, based on voluntary membership, consists of: Cooperative Association of Slovenia, territorial or local cooperatives, and Farmers' union. Cooperative Association of Slovenia is a voluntary umbrella organisation of cooperatives with 73 members and works just on national level, the same as Farmers' union. Agriculture cooperative is the most common and traditional form of business cooperation in the agriculture sector. Its primary focus is on purchase and sale of agricultural products, and operates on national, territorial or local levels. As an intermediate link between producers and retail chain and consumers they also play a role in AKIS in terms of farmers' adaptation to market conditions and demands.

Beside those there are also some organisations/associations of farmers within the agriculture and food processing sector (e.g. producers of food products protected within EU or national food quality schemes, eco products, small cheese producers, goats and sheep breeders, etc.). Most of them are non-commercial organisations/associations and their scope of activities for members differs, though all of them provide some technical support, organise promotion activities and events etc. Quite often FAS advisors and persons employed at regional and local development institutions provide support in their annual program implementation.

*Private companies:* The small market for private advisory services in Slovenia is due to centralization of advisory service within two organisations mentioned above, but situation started to change some years ago. Today there are some private consultants that provide help to different producer groups with the main focus on marketing and organisation; Advisors employed by commercial producers of seeds, farm machinery and some veterinarians give support to farmers on basic agriculture issues.

Second group in this sector are upstream and downstream industries. The key food processing industry problems are low productivity and value added, low market power of brands; weak horizontal linkages and vertical co-operation with the primary sector as well as the lack of competitiveness of the Slovenian agriculture as an important source of raw materials. In the year 2011, a total of 1.340 food processing private entities (599 companies and 741 entrepreneurs) existed. The largest share in the structure is created by four branches: milling and baking, meat processing industry, processing of milk and beverages production (especially beer). Despite unfavourable economic conditions in the industry the number of micro companies is increasing.

In the forestry sector, 77 companies operated (in year 2011) - most of them micro companies. Problems are similar to previous mentioned industry as a share of processed wood is low and cooperation between partners in chain are weak.

*Non-governmental sector:* This is a diverse group of entities with different interests and political power that in some cases also facilitates development. There are two traditional groups: Slovenian Rural Youth Association with 52 local associations and Association of Country Women with 80 local associations. In addition to above mentioned, there are also professional associations, NGOs that focus on environmental issues, etc. NGOs organise different seminars, excursions, events, and round tables, but in general they are non-commercial organisations. Quite often FAS advisors and persons employed at regional and local development institutions provide support in their annual program implementation.

It is a fact that knowledge and innovation transfer from research institutions through FAS and interest organisations to end user – farmer is low and insufficient under the NGOs sector. All public institutions also agree that they do not have sufficient information on farmers and forest owners' actual needs – also reverse information flow is not operational. There are several reasons for lack of cooperation between institutions. One of key issues is the research system which promotes basic research. Researchers are not stimulated to do applied research as they do not contribute to indicators that they have to reach to preserve their status. Another obstacle is a system that doesn't allow persons without researcher status (as most of FAS advisors) to be involved in research projects financed by EU or national funds.

## **Spain**

The Spanish political and territorial organization, based on a decentralized system in which the regions have much responsibilities and decision making power, means that the AKIS system is configured differently to other countries of the European Union. On the one hand the Spanish Constitution establishes that the regions may assume competences in promotion of research, and it is reserved for the central government exclusive competences in the promotion and general coordination of scientific and technical research, as well as international – scientific – relations.

And on the other hand, all regions have established, in their Statutes of Autonomy (the main legal reference in each region) the assumption of competences in the field of agricultural research.

The decentralisation of competences and responsibilities to the regions marked an intense period of negotiations between the new regional governments and the central government during the end of 1970s and early 1980s. The new regulatory framework between central and regional governments reflected the functions of the central government which were transferred to each region, the management and administration of research units agreed in each case, the execution of research projects included in the national programmes of agricultural research, etc. Meanwhile central government reserved itself mainly the definition of basic national objectives and guidelines of the policy of agricultural research, the overall coordination of the projects collected in national programmes of agricultural research and international scientific relations in the field.

*The main agricultural research and innovation system.* The National Institute for Agricultural and Food Research and Technology (INIA) established by the Government Decree 17/1971, was the national public agency responsible for the above mentioned functions. In addition, in order to achieve coordination and cooperation between the central government and the regional governments it was created the Agricultural Research Coordinating Committee (1987), chaired by INIA and involving several ministries (Economy and Competitiveness; Agriculture, Food and Environment, and the Ministry of Finance and Public Administration) as well as representatives of the seventeen regional governments.

Currently INIA's activity relies mainly of the National Plan of Scientific and Technical Research and Innovation (2013-2016) developed by the Ministry of Economy and Competitiveness. The sub-programme that manages exclusively the Coordinating Commission of Agricultural Research is focused on Food Safety and Quality, Productive and Sustainable Farming, Natural Resources and Marine Research. It is funded by the Central Government and is developed exclusively by regional research centres belonging to the INIA–Regional Governments system.

Therefore the INIA leads such a Commission through internal departments, the General Sub-Directorate of Foresight and Coordination of Programmes (SGPCP), which coordinates and manages this sub-programme, while R+D activities are managed by the General Sub-Directorate of Research and Technology (SGIT), through its centres and departments in the whole country.

The INIA system (including regional centres) is the traditional and main framework for agricultural research in Spain. One important feature is that calls are restricted to those centres belonging to the system of INIA-regional government centres. But each region independently designs and develops its own agricultural research, with different models of management and different philosophy and in accordance with their own agenda and objectives, following their own stated needs.

*Other actors in the agricultural research system.* However, as a complement to the strong core based on the system INIA-regional government centres, there are other AKIS organisations who exert a fundamental research function, seeking for funding for their research projects on open calls at national, regional (although not all regions maintain a regular open calls) or even EU level (see AKIS diagram). Among them, in terms of size and human capital, the National

Research Council (CSIC), the largest public institution dedicated to research in Spain and the third in Europe, stands out. Among his eight main fields of research, an important area are Agricultural Sciences and, to a lesser extent, Science and Food Technology.

Agricultural Sciences are structured in 12 centres and research institutes distributed throughout the country. It is worth highlighting the importance of this field, not only as reference for agricultural research in Spain but also at European and worldwide scale, since the CSIC is among three world leaders along with the USDA (United States Department of Agriculture) in the USA and the INRA (National Institute for Agricultural Research) in France.

*Universities and Technological Centres* are the organizations that constitute the most important AKIS system in Spain. The universities use their infrastructure and human capital to undertake research, either basic or applied. In its part, Technological Centres (of a private nature in many cases, although in practice it has some type of public support, more or less directly as appropriate) are usually the result of the specific need for a group of companies in the same sector investing in R+D+I. In this framework there are common partnerships among different AKIS institutions, generated for specific projects, or even other new research centres or sections sponsored by such organizations in order to promote research in a specific sector.

*Many of the research centres*, including universities, have specific Offices for Transfer of the Results of Research (OTRIs). They were born in 1988 as structures to encourage and facilitate cooperation in R+D+I activities between researchers and companies, both at national and European levels. The OTRIs are intermediaries in the system of science-technology-companies, and its mission is to boost the relations between the system's agents. For this purpose the OTRIs seek to identify the technological needs of the socio-economic sectors and to promote the transfer of technology between the public and private sectors, thus contributing to the application and commercialization of the results of R+D+I generated in universities and public research centres.

*Declining and emerging actors*: from agricultural chambers to agricultural farmers organisations, agricultural chambers constituted a very solid structure present in all Spanish rural areas (even at level of many agricultural municipalities), inheritors of times when they was an instrument of control of the rural areas (hence membership to that agricultural chambers was mandatory). In 1977 a Government Decree (1336/1977) established the regulation and a certain modernization, in an attempt to extend and fix some advisory functions to farmers and stock-breeders. They remained focused on control of compliance with the various regulations from the government, management of services (e.g. irrigation) and resolution of potential conflicts (e.g. those derived of the use of common services). At a local scale, some agricultural chambers constituted a transfer information point on technical and practical agricultural aspects, more among farmers themselves than from specific service structures. Their definitive decline came in the mid-80s (Act of 23/1986). Although they were going to rely on regional governments, the reform leaved virtually no powers to agricultural chambers. Since the mid-90s, they have been eliminated in most regions (although in some cases a certain structure of representation at the provincial level, but with more limited powers, has been maintained).

In parallel with the decline of agricultural chambers came the emergence of Professional Agricultural Organisations (OPAs). Basically, currently there are three main OPAs in Spanish

AKIS. Firstly, the Coordinator of Organizations of Farmers and Stockbreeders (COAG), one of the most powerful agricultural farmer organizations, with a wide presence practically in the entire Spain. Secondly, the Agricultural Association of Young Farmers (ASAJA), result of a merge of several organizations in 1989, which represents rural business' interests and agrarian owners, but also wanted to be a professional and family-farm focused organization. Finally, the Union of Small Farmers (UPA), promoted by the trade union General Union of Workers (UGT) and the Socialist Party (PSOE), with originally two sections, a business branch (of self-employed farmers) and that of employees. Today, it is very active and represents an important part of farmers in some regions. Additionally some regional based organizations play a crucial role on a regional scale (e.g. L'UNIO in the region of Valencia). But these three major organizations are recognized as major partners by successive governments, national and regional ones, as it was recognized through the Act 10/2009, founding the agro-food advisory bodies of the central government. From the point of view of its activities, the last two decades have been defined by an important process of modernization and improvement of its service delivery capacity. The cooperatives also participate significantly in this delivery capacity. The most common services include Consultation and information services (journals, publications, websites, communication through new technologies, etc.), Processing of grants (CAP, plans of improvement, youth mainstreaming, agro-environmental aids, etc.), dissemination of good practices (e.g. through training programmes), management of agricultural, stockbreeders and forestry insurances, and a diversity of services (which include technical and legal advice, tax and labour services, services of management such as marketing and sales, resources, claims, and etc.). In terms of their budget, more than half of the funding of agricultural organizations comes mainly from the services provided to farmers. Moreover, government subsidies represent only between 5-10%. The rest is divided between quotas of affiliates (which covers a very small part, around 10%) and, where appropriate, commercial activities (e.g. common sale of products through the organizations themselves). In their structure of expenditures, the staff often assumed about two thirds.

*Other actors at the bottom of the AKIS map* – at the bottom of the Spanish AKIS map of actors, in direct contact with the farmers, there are Agro-food Cooperatives, Agricultural Training Centres, Agricultural County Offices (OCAs), and Associations for the Integrated Treatment in Agriculture (ATRIAs). Being part of the AKIS, some of them are also part of the official Farm Advisory Services, as it will be highlighted in next sections. Their main global function is the advice to end users. Other important function is the transfer of knowledge through training (sometimes agro-food cooperatives, but usually the Agricultural Training Centres, dependent on or including license and control of regional governments). The Associations for Integrated Treatment in Agriculture (ATRIAs) were initially created in order to comprehensively fight pest and diseases, currently they exercise advisory functions on this and other issues, such as environmental practices and sustainable agriculture. The Agricultural County Offices come from the former Agricultural Extension Service, dedicated to personalized advice to farmers and stockbreeders; however since they are being dismantled in many regions, there were they still are operational, they are basically oriented to the processing of applications for CAP grants.

*Knowledge exchange and coordination structures.* The collaboration between institutions and sectors, public and private, is based on formal agreements for the realisation of joint-research-

projects as well as through the creation of joint organizational structures. This type of formal collaboration or structures is present mainly between institutions doing research, but those at the bottom of the system tends to have more relations with research institutions (vertical links), but scarcely with other similar organisations (horizontal links). INIA and agro-food research regional centres work closely so that the number of signed agreements is significant, both among themselves and with other public and private institutions. Some agreements became in joint centres, such as AGROALIMED (Institute for Agricultural Research of the region of Valencia, Polytechnic University of Valencia, CSIC and INIA), Agri-biotechnology Institute (Public University of Navarra, CSIC and the Regional Government of Navarre); Institute for Research in Food Sciences – CIAL (CSIC and the Autonomous University of Madrid); Centre of Biotechnology and Plant Genomics – CBGP (Polytechnic University of Madrid and INIA); Science Institute of the Vine and Wine – ICVV- (University of La Rioja, Regional Government of La Rioja and CSIC). In Catalonia there is a dense network of joint centres, such as the Centre of Agro-Genomic Research (Institute of Research and Agro-Food Technology – IRTA, CSIC, Autonomous University of Barcelona and University of Barcelona), and Economics and Agro-Food Development – CREDA – (private NGO created by the Polytechnic University of Catalonia and IRTA).

In addition to this collaboration agreements between public and/or private AKIS organizations, at national level there are the Technology Platforms, whose goal is to become a formal union of numerous associations, research centres, universities agricultural and OPAs engaged in a specific sector. There have been created numerous working groups for specific fields of research as well as a strategic Innovation Agenda, involving both of the above-mentioned institutions (universities, research centres, etc.) as well partners at the international level (other European platforms, European research centres, etc.). There are currently 15 technological platforms (TP) which, according to their subject or scope, can be classified into 5 groups, to which those of regional level (initiated or sponsored by the regional governments) should be added. All of them are related with the agro-food and livestock industry, for processes of production, processing, distribution, marketing or management. Moreover the Ministry of Agriculture, Food and Environment together with the Polytechnic University of Madrid have recently developed a knowledge platform that is to be a network for professionals and stakeholders working in the sectors of agro-food, environment and rural areas in general, helping and contributing to establish relations and information exchange between all the involved actors (Chil Platform). It is open to researchers outside the country, mainly other Spanish-speaking countries. The Ministry of Agriculture is doing a big effort trying to convert it in a very powerful instrument for all those working in these issues, in the different stages, institutions and related sectors. Although the platform has been founded quite recently, the first results on its application and use seem to be very satisfactory.

Obviously, in addition to this structure there are other means of scientific communication and knowledge exchange, such as congresses, conferences, seminars, workshops and other similar activities. Moreover, it is important to highlight the importance of the specific training on specific subjects, performed by research centres for other research centres and AKIS institutions, focused on updating and incorporating new knowledge to Farms Advisory Services. There is a large number of this type of non-formal trainings, designed in response to needs of farmers.



However, the initiative is usually from regional centres, where appropriate in accordance with the Farm Advisory Services. However, increasingly, Farm Advisory Services are also designing and offering training courses, usually with some collaboration of regional centres.

### **Sweden**

To make the Swedish AKIS system easier to overview, it can be divided into three actors in the knowledge process: producer of knowledge, transmitter of knowledge and user of knowledge. Between these three levels there are facilitators that bind the different actors together, in order to facilitate the transmission of knowledge between the actors.

The main producer of knowledge is the Swedish University of Agricultural Sciences (SLU) that works under the supervision of the Ministry of Rural Affairs. Due to changes in the government directive to SLU, the main focus of the research has since the 90s changed from applied research to ground research. There are only two institutes that work within the area of agriculture, JTI – Swedish Institute of Agricultural and Environmental Engineering and SVA – the National Veterinary Institute. The Swedish Board of Agriculture is also conducting field trials and monitoring in regional offices, mainly concerning pest management, but they also finance research projects in other organisations. The public financing of Swedish agricultural research amounted to 127 million Euros in 2008, and there are several different sources of financing where the Swedish Research Council Formas that sorts under the Ministry of Environment is one of the primary. Applied research is also carried out by research and development divisions of selling companies like Lantmännen. Applied research is often also carried out in the research divisions in the advisory organisations: the Rural Economy and Agricultural Societies. Funds for the research in advisory services often come from SLF – The Swedish Farmers' Foundation for Agricultural Research where by the financing comes from the farmers themselves.

The transmitters of knowledge in Sweden are the actors within the Swedish advisory system. The Swedish advisory system can be divided into three groups; sales advisory services, commercial advisory services and free advisory services. Within commercial advisory services, which means selling advisory services as a product, there are three national main actors, LRF Konsult, the Rural Economy and Agricultural Societies and Växa. They employ between 700-1500 employees, and reach a lot of Swedish farmers. Besides these, there are 60-70 minor, local advisory organisations. Within sales advisory services, that is organisations that sell products and give advice as a part of selling the product, the largest actor is the farmers-owned cooperative Lantmännen, with a market share of approximately two thirds. Free advisory service is conducted as a part of the commercial advisory services, but in some regions the County Administrative Boards also conduct advisory service that is publicly financed. Historically, the producer organisations and cooperatives have offered free advisory services, but this is not very common today as the profitability of the cooperatives has dropped. The Federation of Swedish Farmers, LRF, sometimes offers free advisory service to their member, and for a few years, they have offered a regional coach that visits a farmer and supports a farmer as an entrepreneur in questions about development or change, to help the farmer to see and choose goals and strategies as an entrepreneur. The coaching is financed by money from LRF. The farmer is labelled as the user of knowledge, which means that he or she is both the receiver and the requester of knowledge.

As facilitators between the producers of knowledge and the transmitter of knowledge, there are two actors that arrange numerous meetings and seminars, being platforms for researchers and advisors to meet: Partnership Alnarp and The Royal Swedish Academy of Agriculture and Forestry. Partnership Alnarp is a partnership between SLU, the business and the society with a focus on agriculture and the green sector. It is financed by membership fees for participating firms and organisations and by SLU. The Royal Swedish Academy of Agriculture and Forestry is a network organisation or a think tank working with issues relating to green sector and is economically independent of the authorities, business and any interest groups.

The facilitators between the transmitter of knowledge and the farmer as user are usually producer organisations and the farmers' organisation LRF – the Federation of Swedish Farmers. They often arrange meetings and trainings for farmers, with advisors and experts. They are often also the link between the farmer and the producer of knowledge, as elected representatives and officials are often included in boards or steering groups of e.g. research institutions and SLU.

The policy framework is more closely described in chapter 4.2, but in short, the only policy framework concerning improving farmers' knowledge is within the Rural Development Programme. The free advisory services are financed by the Rural Development Program, and there are two programs that cover knowledge transfer to farmers, and two national projects where knowledge transfer is conducted. The main focus of publicly financed knowledge activities during the last program period is reduction of the impact of agriculture on environment and climate. The policy framework identifies the commercial advisory services as their prime provider of knowledge transition to farmers.

### **United Kingdom**

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. More recently, it has also been referred to as Agricultural Knowledge and *Innovation* System.

The UK AKIS has been characterised as a complex open system that follows the laissez-faire model. In England there are a minimum of 80 sources of advice and incentives to farmers and land managers from government, industry and other providers. Farmers and other agricultural producers are integral to the AKIS, as are the landowners of “estates” which often contain farm holdings (owned or rented) as well as forestry, recreational facilities, visitor accommodation, etc. English AKIS alone there are at least 14 different types of actors. Attempts to rationalise government services provided for agriculture (including some AKIS) and rural administrations have not succeeded in making it less complex.

The different types of actors do not fit in the ‘Public-Research-Private-Farmer organisation-NGO’ classification well. The possible overlap between categories and roles of actors makes the representation according to a clear-cut typology difficult. For example, there are research and education providers spanning the public, private and NGO (e.g. charities) spheres. In addition, there are parastatal actors and hybrids that are partially state-funded but which also operate a commercial arm. There are Technology Strategy Boards (TSB) that fund a range of Knowledge

Transfer Networks (e.g. Biosciences and Environment KTN are most active in AKIS area) which aim to link the research and industry sector, i.e. to make research more relevant and applicable. The Department for Business, Innovation and Skills (BIS) has responsibility for the Biotechnology and Biological Sciences Research Council (BBSRC). TSB, DEFRA, BBSRC and Scottish Government sponsor the Sustainable Agriculture and Food Innovation Platform. There are (university-based) Advanced Technology Partnerships funded by BBSRC and Knowledge Technology Partnerships (helping industry access research) funded by TSB.

*The Department of Energy & Climate Change (DECC)* plays a role in AKIS with regards to bio-energy. There are no Chambers of Agriculture in the UK.

The levy sector is crucially important in the AKIS. There is one statutory levy body (officially a Defra-sponsored non-departmental public body), The Agriculture and Development Board (AHDB). It includes 6 (sector) operating divisions. Although offering more of an information-provision service than on-farm advice, tailored to the specific situation, the AHDB with its six section bodies organises a large and varied range of knowledge transfer activities. The research and development levy sectors' support underpins their knowledge transfer activities. These sector bodies are the most significant provider of independent practical information for the farmer and used by commercial advisors (including trade distributors).

There are also (separate and voluntary funded) levy bodies such as the British Beet Research Organisation (BBRO) and Processors and Growers Research Organisation (PGRO). Agrisearch carries out farmer-funded production-orientated research in the beef, dairy and sheep sectors in Northern Ireland.

There are numerous trade associations, some of which might also be considered as consultants. Examples include AICC, AIC as a supply trade association, a Crop Protection Association for the agrochemical industry, and the British Crop Production Council (BCPC) who has some commercial activity but has charity status for main activities.

The UK has a large and diverse agricultural research base. The UK Agri-Food Science Directory lists 280 organisations: university departments, government agencies, and other public bodies, research institutes and commercial organisation. There are around 15 university faculties or university-linked colleges with varying degrees of involvement in production agriculture, veterinary courses, farm Business Management and other agriculture-related courses. Among the better-known are the University of Reading, University of Nottingham, Newcastle University, Cranfield University, Harper Adams University, Queen's University of Belfast, De Montford University, Royal Agricultural University, University of Exeter, Warwick University Crop Centre, University of Leeds, Aberystwyth University (IBERS), Bangor University, as well as colleges such as Myerscough College, Writtle College, Hadlow College, SRUC (Scotland's Rural College), Bishop Burton College, Loughborough College, Plumpton College, Easton College.

Only examples can be listed from among many research institutes. They are typically known for one or several areas of expertise, but often research other areas as well. Examples are Rothamsted (crops), Pirbright (animal health), John Innes Centre (plant science/genetics), James Hutton Institute (JHI) (land use, plant science), and Moredun (livestock disease).

Lantra is the Skills Sector Council body for the UK, which supports land-based and environmental industries and businesses. According to Lantra (2013), there are 500+ training providers who are approved by Lantra in UK throughout all the land-based and environmental industries. Lantra manages the RDPE-funded Landskills programme which includes vocational training at local colleges, as well as a variety of short courses for farmers, food processors and foresters. Courses are offered through organisations like ADAS, the Farming and Wildlife Advisory Group and the English Beef and Lamb Executive. For Scotland, agricultural advisors can be registered with Lantra under the Farm Business Advisor Accreditation Scheme for Scotland (FBAASS). Under the FBAASS scheme, advisors are allowed to deliver Whole Farm Reviews on behalf of the Scottish Government. At the moment, 89 advisors are qualified (FBAASS 2013).

Regarding the governance of the AKIS, a complex delivery network includes government departments (Defra, SGRAD), executive agencies, non-departmental public bodies (Environment Agency, Natural England and Levy Boards) and public corporations, as well as other bodies such as the Forestry Commission and the National Parks Authorities.

In general, it is possible to notice many similarities in AKIS consistency. In the majority of countries the public sector (on national, regional and local level) is represented in AKIS as a supplier of information, funding and also as an advisory provider. Sometimes it combines two or even three of these functions. Concerning research and education actors – their function in AKIS is not only that of a knowledge and innovation creator, or an educator, but also a provider of advisory services. The private sector is widely represented in AKIS. In some countries, like Italy, the number of independent consultants has exceeded 80 thousand. In some countries, there are only few private advisory companies, but with a large number of advisors (e.g. in Finland or Sweden). A similar situation is noticeable concerning farmers-based organisations, where the number of organisations as well as the number of advisors is significant (e.g. in France). NGOs do not play a very significant role in AKIS (excluding Poland, where the number of NGOs in rural areas is 87 thousand, out of which 10 thousand are directly involved in rural development).

Schemes for AKIS for all EU-27 surveyed countries are presented in Appendix.

## **Chapter 3. History of advisory system**

The advisory systems have different background in individual EU-27 countries and are deep embedded in history, economy and social relations. Below the short description of set-up and development of advisory systems is presented.

### **Austria**

The advisory system in Austria is well established and closely connected to the emergence of farmers' interest representation in general and the development of agricultural chambers in particular.

Attempts to represent the interests of the farming community go back to the first half of the 18th century. In almost all regions of Austria, existing arable production societies ("Ackerbaugesellschaften") were replaced by agricultural societies in that period. The agricultural societies devoted themselves to the preservation of rural culture and to interest representation. In the second half of that century the agricultural societies were transformed into regional cultural councils ("Landeskulturräten") with a view to model farmer representations following pursuant to the emerged chambers of industry and commerce.

After the First World War a system of autonomous professional interest representation was created and the first chamber of agriculture established in the federal region of Lower Austria in 1922. Within a decade, chambers were also founded in the other federal regions. According to the federal constitution, professional representation of the agricultural and forestry sector falls under the jurisdiction of the regional governments. Therefore the regional chambers established a common federal organization in 1923. In 1953 the Austrian Chamber of Agriculture became a legally-recognized body.

Ever since their establishment regional chambers of agriculture play an important role in offering extension and advisory services to members in legal, economic, technical and social-political matters. Since membership of an agricultural chamber is obligatory, pursuant to law all farmers are entitled to these services. According to an impact analysis carried out in 2012 the regional chambers of agriculture provide around 75% of all rendered advisory activities.

The idea of cooperatives reached Austria in the end of the 19th century and first agricultural cooperative societies were established. Warehouse and dairy cooperatives prevail ever since in Austria. Due to mergers in the past 20 years the number of cooperatives declined rapidly. Offering advice is an important part of their service portfolio. This is however limited to the specific sector and product groups on offer.

First machinery pools (rings) were founded in the 70s.

While in the first years after the Second World War advisory services were financed in the framework of the Marshal Plan, the state gradually took over in the subsequent years. Over the years the Austrian advisory structure and strategic orientation has continuously developed further and thereby responded to political and economic developments and the appearance of new thematic trends.

National research institutes, federal institutes and agencies and independent scientific organisations play a minor role in advice activities offering assistance and information on few selected topics only. However, some schools and training institutes have evolved to known information and knowledge providers and drivers for innovation. In particular the Federal Colleges and Research Centres, which combine education and research under one single roof, advise farmers in a number of specific issues since the 1950s. The approach of applied education and research combined with the proximity to practise proves very successful when passing on knowledge and recent discoveries to farm level and applying innovation in practise.

The Rural Training Institute (“Ländliches Fortbildungsinstitut”, LFI), which was founded in 1972, is the education and training institution of the Chamber of Agriculture. It is one of the largest adult education institutions in rural areas and provides trainings on a wide range of topics to people in rural areas. Through the close linkage of education, training and advice in Austria, the LFI is a major player in Austria’s advisory system.

Several changes in the political and economic system around 1990 had a great impact on agriculture and in turn on extension and advisory services. The accession to the EU brought about new political and legal guidelines which called for increased privatisation, commercialisation and cost reduction of services. Austria’s agricultural sector was substantially reformed under the EU’s common agricultural policy (CAP). Global cooperation increased both competition and price erosion. Advisory and extension services were therefore mainly focused at supporting farmers to cope with the new economic conditions and to adjust the system of agricultural subsidies to the EU’s stipulations. The importance of the chamber of agriculture further grew in this period, public support for extension services began to decline.

Breeders and producers of livestock, crop, fruits and vegetables are organized in several dozens of associations in Austria. Further associations, but smaller in number, exist in forestry, biomass, apiculture and fishery. Several groups with special needs, such as the rural youth and rural women’s associations, are organised in specific associations.

With the emergence of organic food, increasing awareness for environmental concerns and importance of regional production cycle in food production in the beginning of the 90s, new organisations, services and labels appeared. A large number of associations were founded promoting organic farming and regional economy offering a wide range of service, i.e. information, education and awareness raising, labelling and certification, counselling and advisory services. In 2005 16 organisations merged into one umbrella organisation “Bio-Austria” representing organic farmers in Austria. Other organisations, i.e. Fibl and Bio-Forschung, focus on research.

In the wake of the appearance of themes such as food safety, consumer and environment protection and the designation of origin the number non-profit organisations (consumer, animal health and environment protection) grew, which provide information and advice on selected topics to farmers to some extent.

The Farm Advisory System (FAS), which is mandatory following EC Regulation 1782/2003, was implemented as from January 2007 in Austria. The Federal Government designated the 9 regional chambers of agriculture with the management of the FAS and the day-to-day

implementation of the corresponding activities. The Ministry of Agriculture remains in charge for the coordination and monitoring of the FAS.

For the clients, the farmers, the introduction of the FAS meant only few improvements since environmental and safety related issues were already exhaustively covered in existing advisory activities provided by the chambers and the standards of the national agri-environmental programme ÖPUL often exceeded cross-compliance standards. On the other hand the administrative requirements of cross-compliance standards strained many farmers.

## **Belgium**

There is a very long history of advisory services in Belgium, together with a long history of collective organisations of farmers. The recent history of advisory services in Belgium is characterized by the regionalisation of services. This decentralisation of advisory services is not specific to agricultural advisory services, nor to agricultural policies: it is embedded in the complex history of federalism in Belgium.

A key date in the history of advisory services is 2003. Before 2003, advisory services were essentially under federal responsibility. There used to be some state agronomists within the Ministry of agriculture. There were in charge of both economic and technical advisory services. The state engineers coordinated subject matters such as horticulture, genie civil, crop protection, animal sciences, etc.

Until 1995, this public extension system mostly proposed individual services for farmers. Advisers were civil servants covering all sub-sectors of agriculture. This system was then criticized at a time of debates about the commercialization of services, and about the distortion of competition that public extension could induce on the knowledge market.

Between 1995 and 2003, there was a radical shift, and the focus had been put on group advice: civil servants were supposed to concentrate on collective operation, whereas individual advice should be taken over by private and third-sector organisations. In Wallonia, this was partly embodied in the creation of the “centre pilote” specialized according to sub-sectors: cereals, sugar-beet, potatoes, milk. In Flanders, public extension was also not individual anymore, and there was a drastic reduction of staff involved in advisory activities. Some advisors left and others were redirected towards new activities such as the organisation of lectures and seminars for farmers, or expertise for the regional administration. They remained key actors for interlinking the different component of AKIS, and especially for connecting research and extension. Another trend was the development of experimental stations. These stations are organized at a lower level than region: provinces. In both Flanders and Wallonia, the pilot centres and experimental stations have the status of associations.

In 2002, the fifth state reform (Lambermont Accord of 2011) was an important step in the transfer of competences to the regions, including agricultural and rural policies, public services, and the management of scientific institutions. The advisory systems have then evolved differently in the two regions, even though the experimental stations or Centres Pilotes still play a key role in the knowledge system.

In Flanders, as part of a global strategy of rationalisation of public expenditure (“better administrative policy”), there has been a reorganisation of the applied research institute and of

experimental stations. A matrix was designed between “provinces” so as to share investments with the regions and to cover R&D for every agricultural commodity. There is for instance a distribution of the topics of advice and R&D between provinces according to the dominant production in their area. This is embodied by the experimental stations. These experimental stations are co-funded by the region, by the provinces and by farmers.

In Wallonia, the situation is more complex, with a bigger number and diversity of associations subsidized by the Wallonia region, reflecting the history and the diversity of farming structures and rural territories in the region. These associations are mostly funded by the region and by farmers’ contributions. Besides the central role of the experimental centres and association in the direct provisions of services within the two regions, there is thus an increasing pluralism and fragmentation of the advisory systems. The description of these systems, as well as the current funding mechanisms and regional policies, are presented in the next session.

## **Bulgaria**

Before 1989, Bulgarian agricultural knowledge system had a clear top-down structure. Agricultural sector was a part of the state-planned economy. It was large scale, modernized and organized into huge agricultural collective organizations, called Agro-Industrial Complexes - AICs (established in the 1968). The goal of these Complexes was to produce a small number of very large, horizontally integrated agricultural production units and to link these units vertically with enterprises in food processing industries. AICs were quite important source of integration, knowledge creation, transfer and innovation. They were state funded and governed integrators into Bulgarian agricultural sectors (cereal production, animal husbandry, fruit and vegetable production, etc.) working with many enterprises and covering hundreds of thousands of hectares of farmland. These AICs were organising input purchase and production, helped the knowledge dissemination and development. In addition, they provided different inputs and services to peasants such as seeds and equipment as well as processing of the products which had been produced on their private plots. Therefore, the agricultural consultancy activity was mostly informal organized and oriented to the technical aspects of production. Agricultural education (higher – universities and lower – professional agricultural schools) was governed by the Ministry of Agriculture until 1989. After reforms, higher education was transferred to Ministry of Education, Youth and Science in Bulgaria while lower professional education in agriculture is still belonged to MAF. Agricultural research was mainly carried out by universities and research institutes. Most of research institutes dealing with agricultural issues were (and still are) belonged to the Agricultural Academy funded by MAF. Most of research and knowledge were passed through the network of agricultural engineers/agronomists employed by the collective enterprises and state farms before 1989, and by the commercial farms in nowadays.

After November 1989 until 2000, the socialistic regime came to an end and changes started. The objective of the agrarian policy was concentrated on land restitution under Bulgarian land law and privatization of the collective farm assets. The result of the reform was fragmented land in term of ownership and use and distraction of irrigation system. The new established producer cooperatives were created on the base of the formal AICs. The opportunities for established private farms were concerned by traditions, land fragmentation and a lack of resources. After the privatization, Bulgaria farms were structured by three groups: small scale farmers operated by



people close to retirement, cooperatives, most of them with bad financial situation and large commercial farms. At this time, there were number of cooperatives that were used as demonstration farms, with an objective of establishing private extension service. Since the experiment was not successful, the government decided to establish a National System of Agricultural Extension with external financial assistance. In 1995, the National System of Agricultural Extension was created by agreement between the National Center for Agricultural Sciences (former name of the Agricultural Academy) and the then Ministry of Agriculture and Food Industry. It was built with the technical and financial support of the PHARE Programme – Agriculture (in the framework of two projects) for the period 1995-1999.

After 2000, state advisory body (National Agricultural Advisory Services – NAAS) in Bulgaria was officially founded. Capacity building of the NAAS experts has begun since its creation and continues intensively during PHARE projects. During these projects, intensive training of NAAS experts were conducted in order to meet the needs of farmers and to help them to learn the new duties linked to the CAP. Since 2000, the NAAS participated in several international projects, where some of them are designed to strengthen the capacity of the staff mainly in various aspects of the CAP: sustainable land management, rural development, development of organic farming, developing strategies and management of agricultural organizations, etc. After the Rural Development Programme (2007-2013) began to operate, NAAS started to provide services in the context of Measure 143 "Provision of farms advisory and extension services in Bulgaria and Romania". NAAS assists farmers with their applications for four measures (the setting up of young farmers, semi-subsistence farming, setting up producer groups and agro-environmental payments). Until the end of 2012 under RDP, the SAF-PA paid over 308 million BGN to the approved projects prepared by NAAS experts. At the same time, many private advisory companies and professional farm associations were established. Private advisory companies mainly provided extension services to farmers regarding RDP measures and covered all other measures that have not been prioritized by NAAS. Professional farm associations mostly provided consultations to farmers regarding the legal framework in the sector, created links among their members and find market for products produced by them.

## **Cyprus**

It is worth mentioning that the Extension Section of the Dept. of Agriculture has changed little since its establishment in the 1960s.

As aforementioned, the Sections' headquarters are located in Nicosia. The Extension section coordinates all of the Extension activities with the close cooperation of the District offices and the other specialist sections of the Department of Agriculture and/or other Departments within the Ministry.

Furthermore, for practical purposes and for facilitation of extension activities, the District offices are subdivided further into 30 smaller target-areas called "agricultural beats". The number of villages within each beat differs depending on population density and production intensity. Each beat is served by an extension agricultural officer, who is a university graduate (agronomist). Agricultural officers are assisted by agricultural or animal husbandry technicians. Currently, the extension service employs 120 people of whom 63% university graduates.

In general, the objectives of the Agricultural Extension Service is to inform the Ministry of Agriculture, Natural Resources and Environment as well as the Agricultural Research Institute (ARI) on problems farmers encounter, to train farmers on innovations regarding agriculture and home economics, and to plan, promote and evaluate extension programs as well as a wide variety of agricultural projects. Extension employees use a variety of extension communication methods (individual, group and mass) to attain such objectives.

Currently, the Extension Section is responsible for the dissemination of cross-compliance rules/prerequisites to farmers and coordinates the National Rural Network, FAS (see below) and farmers' training through seminars in the four District training centres (KEGE) with emphasis on the Young Farmers programme (150 hours seminars in which trainers are mostly Departments' employees with no additional fee, apprenticeship schemes and short courses). The Section works on the basis of working teams/groups, such as various produce teams (responsible for programming and evaluation of relevant extension programmes), the publicity team, the in-service training team, the library, museum and electronic data processing (for the whole Ministry) team and the ARI (coordination) team.

The District Offices (esp. 'beats') comprise the first-line extension workers (officers). Officers operate on the basis of 'traditional agricultural extension' in the sense that they are in, more or less, close contact with farmers. Therefore,

- farmers make requests and the extension staff either responds to the query - provides a solution to the problem, or addresses the Dept's (or Ministry's) specialists and laboratories (if, for example, further analyses are required); following, the results are fed back to farmers along with certain recommendations (relating, for example, to the results of a soil and/or leaf analysis)
- extension officers make all kinds of public announcements (posters at office, SMS to farmers and telephone calls to producer groups, distribution of print materials produced by the Section, etc.) and organize meetings (individual or group, using various audiovisual aids) in the framework of their extension programmes (if necessary in the evenings as well, i.e. beyond official working times) which relate to local needs and the National Rural Development Plan (re: CAP 2007-2013). They also monitor the implementation of various measures/projects relating to the NRDP/CAP and make relevant controls, run the KEGE as well as experimental/demonstration plots, assist in the establishment of farmer groups, are responsible for the certification of seed production and so on.

The most important knowledge sources for the Section are the university, public research, public authorities and the internet. The service cooperates with all kinds of actors (except NG research).

Records of advisory work are kept in District Office; no rewards are foreseen beyond the officers' salaries (even their engagement in the training courses held in KEGE does not result in any kind of extra remuneration).

The Section prepares a strategic plan, known as "Annual Extension Programme", including objectives to be pursued and targets to be accomplished based on the identification of local needs and the solutions identified. The programme/plan is designed by representatives of the Sections of the Dept. of Agriculture, District Offices and ARI. The progress achieved is checked and

evaluated at local and district levels, as well as at the Section's headquarters through personnel follow-up, regular district meetings and detailed reports. Revision/adaptation of the programme is undertaken whenever needed.

The service employs all known 'traditional extension' methods, i.e. individual (personal and telephone contacts, including SMS), group (demonstrations, public talks, educational excursions, short training courses) and mass (TV and radio programmes, press articles/releases, leaflets and bulletins, posters, circular letters, etc.; a quarterly agricultural magazine of the Ministry known as Countryman is also published and circulated). Additionally, training courses for farmers are offered at the local training centres (KEGE).

The service's needs focus on the enhancement of cooperation and networking with knowledge and innovation sources (such as Universities and research centres) with the establishment of frequent exchanges of information between such organisations. In this respect, the safeguarding of funding in order for advisors to continuously update their knowledge and skills is a further major concern.

It is further suggested that the establishment of an organization/academy providing a pan-European certification for advisors and taking care of the ongoing (short courses/ lifelong learning) training of the staff of agricultural extension services would be beneficial; a network of agricultural extension advisors is in line with such a consideration. Closer cooperation and knowledge transfer of (at least, EU funded projects) research results as well as of innovatory practices in other Member-States is also deemed necessary. In this respect the establishment of a pan-European data basis including research results would be important (also in the sense of non-duplication of research efforts).

### **Czech Republic**

Before 1990, farm advisory services practically did not exist in the Czech Republic. Professional activities were carried out by state farm and agricultural co-operative specialists. Information transfer and space for the exchange of experience were provided through district and regional consultation meetings of agronomists, zootechnics, etc.

Advisory services, as we understand it in present state, started in the years 1990-1992. In view of large changes in ownership of soils and farm buildings legislative advisory and solving of transformation problems prevailed in advisory services. At the same time, the subsidies granted by the Ministry of Agriculture since 1992 to the advisory services sector fulfilled several purposes. In the first time they supported establishment and next development of advisory sector not existing in that time and starting activities of first specialised advisors. They contributed to use advisors offers by farmers and helped in whole spectrum of professional topics, from old technical and technological equipment on farms, problems in plant production and animal husbandry to marketing and basic conversance of new agriculture businessmen in the frame of European agribusiness. First advisors arose from managers of former agriculture holdings, from officers of government administration and from privatised research institutions in agriculture.

Next phase of advisory services means specialized Advisory Programmes DIGIT I and DIGIT II (1997-1998) directly used towards the assessment of business plans of economically weak enterprises for their next development or for termination of activities. This step was very

important mainly from methodological point of view and mostly for increase of advisors experience too.

In 1999 Ministry of Agriculture prepared from existing experience Conception of farm advisory services. It was created as an instrument for system-based consultative activities and for regulating provisions of means from public sources on the base of sector advisory programmes. At the same time necessity of information dissemination and spread of non-commercial advisory services formulated so-called advisory services in public interest provided by employers from agriculture sector research institutions. Later these persons worked as methodologists in advisory system.

Important stage in advisory system development was provision of advisory assistance through advisory groups (1998-2002), widely accepted between agriculture public and later highly appreciated in next EU evaluations. The system led to farmers association with the objective to solve similar production problems. Each advisory group had to present a common project and self-evaluation of advisory aim reaching was in conditions for payment (subsidy).

After the Czech Republic joining to the European Union advisory system was harmonized with EU law. Council Regulation (EC) No 1782/2003 established new priorities for granting aid in the framework of CAP and led to the creation of a new Conception of Farm Advisory Services for the period of 2004-2010. The aim of that conception was to prepare Ministry of Agriculture and whole agriculture sector on obligatory establishment a complex agriculture advisory system from 1st January 2007, minimally for the scope of legal requirements relating to farm management respecting proper agro-environmental conditions. In harmony with the provision of the respective Council Regulation that a Member State itself or through an authority designated by the Member State shall be responsible for the approval of, and the inspection over, the advisory bodies authorised, a part of the implementing powers was delegated to the Institute of Agricultural and Food Information (IAFI, after 2008 as IAEI), which was also charged, in addition to the function of an inspection authority (in cooperation with the Forest Management Institute – FMI) with the function of the operator of the Register of Consultants kept within the Ministry of Agriculture Registry of Advisers, and with performing administrative acts connected with the certification or accreditation. The requirements relating to the preparation of the advisers and the professional competence thereof were established by the Accreditation Directive of the Ministry of Agriculture in 2002.

Ministry of Agriculture also established broad National Council of Advisory Services for Agriculture and Rural Development as consultative institution and used its keynotes, recommendations and remarks arising from regions and agri-business participants for optimization of their decisions. On regional level MoA supported Regional Information Centres, mostly originated in frame of NGO/NPO institutions for directed information flow to final users.

Conception put emphasis on creation of advisory programmes and its realisation. From 2004, advisory programme was directed to the support of legal requirements in the sectors of water protection, animal welfare, transitional farming and organic farming methods, optimization of farming. The interest in the advisory services oriented in the described way was constantly growing. For example in 2004 the number of applicants was 529 and in 2006 the number rose to

1304 applicants. In 2006 national subsidies for advisory was finished and since 2007 advisory services are included in the CR 2007-2013 Rural Development Program (RDP). The support complies fully with the objectives of the CAP, and respects all Council or Commission Regulations in agriculture sector.

## **Denmark**

The Danish advisory system today is the result of a long term and gradual development – however, with a crucial shift in agricultural production when Danish agriculture changed from plant production to animal production as the basis of Danish agricultural production and exports. It has been shaped and transformed by changes in economic, social and political periods and events in Danish history and by the changes in the possibilities for export products.

The Danish advisory system has its roots in events in the late 18th century and changes in the Danish agriculture up to the 1870s. With the political events and decisions in 1788 the farmers changed from being tenants farmers to independent farmers including smallholders. Changes in agriculture, culture in methods, the invention, introduction and use of new technology and methods accompanied this development and increased with setting the Danish tenant farmers free from adscription. Part of the landowners took part in and was even front-runners in this project. The culture in the countryside followed and developed into a certain Danish version of cultural cohesion among Danish farmers. Later on the same happened among the smallholders. One dominant feature of this culture, which has lasted until today, is a strong sense of unity and the readiness to help and assist your follow farmer with advice and guidance. It is a constitutive element of the culture among Danish farmers to share knowledge and cooperate about innovation.

The Danish farmers and later on smallholders formed local farmers' and smallholders' associations all across the country as part of this development. In the beginning these new farmer associations were led by the large landowners as they were those locally, who had the re-sources and the highest level of knowledge.

In the 1860s and 1870s most of Denmark was covered by local farmer associations and most farmers had joined these associations and began to take control of them vis-à-vis the local landowners. The farmer associations began to form a structure towards a national organisation in the 1800s. The smallholders first succeeded with this around 1900.

Around 1915-20 the political institutional setting representing Danish farmers and small holders was established and the institutional organisation of farmer and smallholder owned co-operatives was in place. Danish agriculture was thus thoroughly organised in the period up to the First World War. This institutional setting regarding the associations and the various farmer political nongovernmental organisations would last without many changes until the turn of the millennium.

From the 1870s to the 1890s Danish agriculture changed from plant production with production of grain to the European market to animal production with butter and pork as the primary products. The traditional grain production was ousted by cheap grain import from Russia and overseas (U.S.A. Canada, Australia, South America) and Danish agriculture was hit by a severe crisis. This crisis was overcome by the great rearrangement of Danish agriculture to animal

production which since then has formed the basic characteristic of Danish agriculture with a huge export of dairy and pork related products, even though other products such as seeds and mink skins today contribute to the successful Danish agricultural export.

The forming of farmer and smallholder associations was followed by the creation of the co-operative associations within agricultural production which was an integrated part of the solution of the Danish agricultural crisis. This happened extremely fast. Within 10 years from 1880 to 1890 Denmark was covered with dairy cooperatives and later on with cooperative pig factories. The formation of farmer associations and the shift from grain production to animal production were leading factors in accelerating the introduction and need of agricultural advisory services. Even though the knowledge level among farmers steadily increased due to the establishment and existence of agricultural schools and the special Danish enlightenment of folk high schools all across the country from the 1850s and onwards the local farmers associations began to invite and to hire agricultural advisory consultants which rapidly increased from the year 1900. The consultants were employed by the local farmer associations. The number of advisers grew steadily into the first half of the 20th century. The attempt of the Danish Ministry of Agriculture to take control of all advisers at the beginning of the 20th century was rejected by the farmers because they anticipated that state control would prevail over desired agricultural consultation. As most other aspects of living and production in the countryside came in the hands of the farmers so did the ownership and control with agricultural advisory services.

Most advisory services are still today provided by and through farmer owned agricultural advisory companies. 30 of these farmer-owned advisory companies make up the national co-operation called Danish Agricultural Advisory Services. The 30 DAAS-centres, which are independent of one another, still cooperate today and are dominating the market for advisory services in Denmark.

Independent private advisers exist, but they are all small in size, typically 1-3 owners/employees, sometimes 5-7. Even the two identified private advisory company found outside the DAAS system are organised and run by the same model as the DAAS-system where the individual farmer is both customer and owner of the company.

For the last thirty years the DAAS-system has maintained its dominance in the Danish advisory system. However, the significance of private independent advisers has increased somewhat, but not much. The number of DAAS-centres has decreased from around 65 at the turn of the millennium to 30 large ones in the year of 2013. But the number of advisers has remained rather constant over the last thirty years. The constituent tendency in the demand of agricultural advisers in Denmark has followed the economic fluctuation in the agricultural sector rather than a diminishing demand due to the structural development within the sector towards still larger farm holdings. When the level of investments has grown or fallen so has the demand for advisers.

With the decreasing number of farmers, the number of agricultural schools has decreased significantly within the last twenty years. Only 10 traditional agricultural schools are left today. Due to a fall in pupils in the 2000s many agricultural schools have closed down or have found a solution of survival by becoming a subdivision of a vocational school. But mergers and closing down of small educational institutions have been a general trend across the country for the last

20-30 years so this development has not only affected the agricultural schools. The process with still fewer agricultural schools, and the trend that these primary and secondary agricultural educations through new legislation and administrative procedures have increasingly become similar to other ordinary secondary education, has meant that the traditional farmer control of secondary agricultural education and training is slipping out of their hands. Within the last few years the numbers of pupils attending the agricultural schools have been rather stable.

## **Estonia**

During the Soviet period, extension activities were based on the activities of agricultural and veterinary research institutes and experimental stations. The extension units called Agricultural Administration, located at regional administrative bodies, served as the main extension agencies, and the people working there used to be more of administrators than specialists. Estonia experienced an economic transition and reform of the agricultural sector at the end of the 1980s and in the early 1990s. Restructuring the economy and agricultural sector required new types of services which included advisory services.

The history of extension services in Estonia dates from 1989 and has evolved since. It is possible to distinguish several phases in the development of Estonian Advisory system. Kreen and Loolaid in 2004 proposed classification of four subsequent stages: (1) Initiating a New Institutional Set-up for Advisory Services (1989-1992); (2) Building User-oriented Advisory Systems (1992-1995 and later); (3) Initiating a Free Market for Advisory Services (1995-2002); (4) Fluctuating Between Privatization and Public Sector Reform (1999-2003). The mentioned stages underpin the classification described below. From the perspective of 2013 one more phase should be incorporated in the classification – current phase: Building of the Farm Advisory System and making extension services more effective (2005-2013). Each of the phases represents key milestones in the development of Estonian Advisory system.

*First phase: Initiating a New Institutional Set -up for advisory services (1989-1992).* After the establishment of new family farms, the most innovative farmers realized the need for associations of their own. The very first Farmers' Federation was established in 1989 and by 1991 the Farmers' Federation organized the first advisory services system in independent Estonia. This system included regional advisory stations of farmers' unions, training centers located at two farmers' unions, and the Jäneda Advisory and Training Center.

*Second phase: Building of User-oriented Advisory Systems and Initiating a Free Market for Advisory Services (1992-2002).* The action taken during the period from 1992 to 1995 reflected a trend to apply different advisory models in Estonia borrowed from different countries. A number of projects financed by different donors were initiated to support the development of extension services. These included the Advisory System of Farmers' Federation (Denmark), Advisory Cooperatives (Germany), the Knowledge and Information Center of the Estonian Agricultural University (Sweden), the dairy farming improvement project (Netherlands), and others. Projects proved not very sustainable, because most failed to 'implant' the advisory model from the country of origin. The government of Estonia recognized the need for proper agricultural services and allocated some additional budget to the Agricultural Training and Advisory Center at Jäneda for advising farmers. The government also supported the farmers' unions, but the advisors of farmers' unions were not able to give adequate advice to large-scale agricultural

enterprises, and farmers complained about the quality of advice they received. In line with its free market policy, the government of Estonia wished to see the development of a competitive free market for advisory services, where producers would be free to buy the kind of advice they need at a mutually agreed price. However, considering the situation in agricultural sector, the government realized that, because capacity of farmers to buy advice was very low, there was a need to subsidize the advice. The objective was to encourage farmers to use advisory services in a way that would increase production efficiency. As a result, the government initiated an advisory subsidy scheme and a program for certification of advisers. The implementation of an advisory programme and subsidy scheme provided better access to advisory services and information for farmers, initiated a proactive approach of advisers in order to provide information and training for farmers, developed local training and advisory skills, certified 175 advisers.

*Third phase: Fluctuating Between Privatization and Public Sector Reform (1999-2005).* This period is characterized mainly by Estonia's joining to EU and the need for harmonization of Estonian legislation with that of the EU and for establishing new governmental institutions. Easy access to trustworthy information on regulations concerning agricultural production or the environment significantly increases farmers' marketing ability and competitiveness. Therefore, it was in the interest of the government to disseminate information that would facilitate introduction of new legislation and support schemes for farmers. At the same time, many agricultural producers lacked awareness of existing information sources and, as a result, did not get the information they need. There was a strong need for development of new infrastructure for information dissemination. There were two major forces behind the advisory services market development: (a) the need for structures and institutions to improve advisory services market performance and (b) the need for structures and institutions to support new agricultural policy. Changes in priorities and increased interest in information delivery have resulted in competition between various extension and advisory activities and have caused unplanned disturbances in the advisory services market. To improve the flow of information, Estonia needed an integrated information program that could make needed information available as close as possible to the ultimate consumer in all rural areas. Information must be relevant and up-to-date and this required that in addition to the dissemination of information, there needs to be good monitoring to follow-up on information use and get rapid feedback for program adjustments. The following activities were undertaken to develop the national AKIS and improve cooperation and infrastructure support: (a) advisory concept group (2000-2001); (b) agricultural and rural information flow coordinating centre (2001-2002); (c) network of information centres at the county level (2002); and (d) network of rural information centres in communities (2001-2002).

*Current phase: Building of the Farm Advisory System and making extension services more effective (2005-2013).* Several changes have been made in extension services (mainly regarding co-ordination and financing aspects), and a number of studies have been undertaken to evaluate those changes. In 2005 the role of the Coordinating Centre of the Farm Advisory System was transferred to the Estonian Chamber of Agriculture and Commerce.

EU Member States had to establish the Farm Advisory System (FAS) before 1st January 2007, but in Estonia the role of the co-ordinating centre of FAS had already been given to the Estonian Chamber of Agriculture and Commerce. However, in 2010 co-ordination of the Estonian FAS



was transferred to the Rural Development Foundation with a goal to make the extension services more effective. At the end of 2010, a marketing agency developed a market strategy to make these services more effective than the actions undertaken thus far: distributing informational booklets, updating and spreading the lists of the advisory centres and advisors etc. The aim of this market strategy is to inform certain target groups in particular and the public in general of the advisory service, its activities and potential to assist in various domains.

According to the information obtained via interviews with representatives of Ministry of Agriculture the advice agricultural producers use most is the kind that helps them quickly solve problems of finances and plant production; however, there is also a need for more strategic and specific advice, such as developments in the agricultural product market, product quality requirements, environmental requirements, the development of information technology, etc. One of the reasons for lack of usage of advisory services is the lack of specialists in the specific fields and the lack of previous experience in using the service. To improve the situation, more attention should be paid to the distribution of information, the availability of the advisory services in specific fields and the training of the advisors.

Over the years, the activity of advisory centres has demonstrated a chaotic cooperation between the coordinating centre and R&D centres. During the years there was a search for a joint Estonia-wide agricultural and rural economy organisation that unites advisers and which could take the central role in developing the advisory system, providing exchange of information, collaborate with stakeholders, provide support services to advisers, would be in charge of organising even workloads. Experts from Ministry of Agriculture indicate that given the size of Estonia and the private interest advisory centres, the advisory system needs to be optimized by the state. The main task of a joint advisory system is the development of advisory services with additional support services and establishment of effective adviser training system. The discussions concerning the future of the Estonian AKIS are still going on. The Estonian advisory system will be modified in the foreseeable future.

## **Finland**

Agricultural advisory system in Finland has always been based on people's self-motivation to develop themselves and other. The history of the advisory system begins from 1797 when the first "Economic Association of Finland" was established. In February 1798 the association got King Gustaf Adolf's protection and that time the customers were priests, professors and higher officials. The first agricultural advising themes were inter alia potato farming, hay and flax cultivation and farming tools. The Economic Association operated in the whole country, but at the same time special regional advising organisations were needed.

During the years 1828-1905 many regional agricultural and economical associations were established. However the representative meetings of 22 Rural Regional Centres didn't met the expectations of being a national leading and organizing system. In 1907 therefore the representative meetings of the regional centres was replaced by the Central Association of Farming Advising Centres (MSKL) which was set up to control and lead the regional centres.

At the beginning of 1900's the Rural Women's Advisory Organisation was founded. The Advisory organization is now a nationwide organisation for advice directed at households and

customers, promotion of landscape management and small enterprises in rural areas. With a membership of 60,000 it is one of the largest women's organisation in Finland nowadays, employing 70 professionals in various fields of expertise. The Rural Women's Advisory Organisation belongs to the ProAgria Group and is a powerful development agent as well as women's network in the rural areas.

In the year 1993 there was a clear segmentation between the Association of Rural Advising Centres and nationwide Rural Advising centres. Positive changes in the agricultural advising strategies were noticed after Finland joined the European Union in 1995.

ProAgria, the new name of agricultural advising organization was established in 2001. At the same time ProAgria started to link experts together by building a new kind of service concept. The aim of the new concept was to create a new know-how for developing agricultural and rural development. The new Group for consulting in agriculture and rural development started to operate in the beginning of 2002. The founder organisations Association of Rural Advisory Centres and The Finnish Animal Breeding Association started to use an equal logo. The actual advisory work at that point occurred at 16 national Regional Centres, which operated in connection with the Association of Rural Advisory Centres.

The last big change in the history of the advisory system was done in the beginning of 2013, when 16 national regional centres were shrunken into the existing structure of 11 regional centres. The aim of shrinking the amount of regional centres was to reduce the administrative burden and to improve the specialization inside a bigger regional centre.

These days ProAgria Group is a non-profit and member-owned organisation. The members of the Group are from different communities (In Finnish: “maamiessseura”) consisting of individual persons (e.g. farmers and rural entrepreneurs), small scale businesses, supporting members and direct members (the common trait for these communities (“maamiessseura” are that they are made up of members/participants from the same geographical rural area). The ProAgria organization offers rural business consultation, new business advisory services, animal breeding, artificial insemination and IT services nationwide. Over 80% of Finnish farms and 3500 small-scale businesses in the countryside have used services from the ProAgria Group. In 2006 The ProAgria Group achieved the “Det Norske Veritas Management System Certificate ISO 9001:2008”, which is the most valid Certificate in the World for the Advisory Services in Agriculture.

## **France**

The evolution of the financing and management of advisory services in France is embedded in the history of the relation between the state and farmers' unions. This is embodied in key role played since the early 1960s by the chambers of agriculture, which boards of elected farmers chair advisory services financially supported by public funds and targeted to public mission. Thus, this system was described as a system of co-management of services, following Rivera's typology (2000). Nevertheless, there is a progressive shift towards a strategy of delegation of services. This can be illustrated in the history of CASDAR, the national fund for agricultural advisory services and applied research.

This fund used to be called the National Fund for Agricultural Development (FNDA). This fund was fed by a tax on agricultural products (so-called “para-fiscal” tax, consisting in a percentage taken on the first trades of milk, wheat). The allocation of this fund, mainly to applied research institutes (ITA), chambers of agriculture and farmers' unions, was negotiated between the State and farmers' unions, within a dedicated institution: the National Association for Agricultural Development (ANDA). There was an equal representation of the farmers' union elected at the chambers (FNSEA) and of the Ministry of Agriculture within this institution. Nevertheless, this institution faced a huge crisis in the early 2000s. There were three main reasons for this situation, embodied in a very critical report written in 1999 by the institution monitoring public expenditure in France (Cour des Comptes) that called for the dissolution of ANDA: (a) the lack of transparency in the distribution of FNDA money and the lack of evaluation of its effectiveness; (b) the low diversity of the stakeholders involved (farmers' unions); (c) the inability of ANDA to redirect the actions implemented towards public interest issues, mainly towards the integration of environmental issues. As a result, there were three major changes:

- 1) The funding system was reformed: it is no longer a tax on agricultural commodities trade, but a tax on farmers' gross income, and the global amount of the tax has decreased;
- 2) ANDA was shut down in 2005. The FNDA was replaced by the CASDAR, a special account of the Ministry of Agriculture. There is no longer a co-management of the monitoring of the fund. It has been replaced by a procedure of contractualisation between the state and the beneficiaries of the contracts (pluri-annual contracts).
- 3) There were some efforts for diversifying the beneficiaries of the policy. First, a part of the funding (about 10%) was converted into competitive funding schemes. Second, a funding of new actors, such as alternative non-profit organizations, was institutionalised by their acknowledgment as "Organisme Nationaux à Vocation Agricole et Rurale" (ONVAR).

This reform has affected the diverse actors of AKIS and advisory services. For the chambers of agriculture, a major change stems in the fact that their public mission were gradually reoriented towards new themes such as environment, local development, and territorial issues. As a result, they are less active in providing technical advice. The second consequence was the emergence of networks between the alternative federations of non-profit organisations (ONVAR), which have more visibility in the system but have to comply with the procedure of proposing pluri-annual plans to the Ministry of agriculture in a context of reduction of public expenditure. Another major trend lies in the growing importance of organisations supplying inputs to farmers (mainly farmers' cooperatives). There have been major restructuring of these organisation, with many mergers, and the creation of R&D units. An illustration is INVIVO, created in 2001, which regroups 241 cooperatives, has a turn-over of 5.7 billions € invests massively in R&D and has specific national agreements with INRA about the exchange of data.

## **Germany**

The German advisory services have a long tradition and have their origins long before the 1980s. Organized extension has always been decentralized and therefore true pluralism in German agricultural extension is reality. The three main organisational forms for agricultural advisory services in the western part of Germany before the reunification were: Chambers of Agriculture

(esp. in the Northwest); Official extension by the public agricultural office (esp. in the Southwest); Advice circles and farmers' working groups as an additional offer in several states (Länder). All forms were strongly supported by public financing or fully a public service. Until reunification in 1990 extension in the eastern part of Germany (the former German Democratic Republic) described by Nagel & v. d. Heiden "was an integral part of an overall system promoting socialist agricultural development under the direction of party and state officials. However, within this framework activities adapted to the individual needs of cooperatives and state farms were frequently possible, including direct contacts between farms and universities, research contracting, and hiring of specialists. The quality of extension advice received from various organisations until 1989 is still regarded as excellent by today's farm managers. Extension was, of course, free of charge."

The reunification of the two German states in 1990 and the following recreation of federal states in eastern Germany made the existing extension organisations in the East obsolete, regardless of their effectiveness and acceptance by farmers. There was a strong impulse for a fourth organisational form for agricultural advice – private consulting companies. Three of the five states (Brandenburg, Saxony-Anhalt and Mecklenburg-Pomerania) established a privatized system subsidized by the state (partly supported by EU funds). Mecklenburg-Pomerania established a private consulting company owned by the state. Thuringia and Saxony adopted the South-western system and provided advisory services through public authorities on district level.

Nevertheless, systems changed as they were affected by the trend of diminishing state budgets for agricultural advisory services as well as privatization worldwide in the 1990s. Thus, Thuringia switched to a privatized system in 1998 and Saxony in 2008.

In the western part of Germany the main organisational forms went through a similar privatization and commercialization process in the past two decades due to rising problems and complaints by the farmers related to quality in the official extension provision (role conflicts: control and advice). But the main systems in each state still prevail, now complemented by private advisory companies.

Due to new challenges in agriculture as well as diminishing state budgets, services were to be separated into services of private and public interest. Advisory services of private interest were increasingly charged by public advice providers such as the chambers or the state agricultural office. Ideally services of public interest are still offered free of charge or are reimbursed by public extension programs. Nevertheless there are exceptions such as Brandenburg, where there is no public support for advisory services demanded by the farmers. The commercialization and privatization trend slowed down a little bit with the EU regulation 1783/2003 introducing the „Farm Advisory System“ obligatory in 2007.

## **Greece**

In the past, each of the prefectural Directorates of Agriculture was a branch (and integral part) of the Ministry of Agriculture (MoA); each Prefectural Dir. was further branched with Extension Offices in major towns and villages in each Prefecture, supervised by the Dir's Extension Section. The Dir. was also responsible for the local Training Centres (KEGE). In some cases other branches of the MoA were also present at Prefectural level (irrigation/land improvement

Dir., veterinary Dir., specialised labs, etc.). This way there was a two-way communication between MoA headquarters in Athens and the decentralized services in the countryside. Furthermore extension programming (involving tangible, quantified targets) and evaluation were carried out.

After the country's accession in the EEC (1981), the role of MoA and the extension service gradually changed in becoming a bureaucratic mechanism responsible for the distribution (and control) of subsidies. Therefore, information provision and training faded out and experimental and demonstration fields were abandoned on behalf of the maximisation and distribution of subsidies to farmers.

In 1989 NAGREF was established in an effort to promote agricultural research in Greece. The new organization mainly recruited MoA staff. The ambition of the first Boards to initiate NAGREF's own extension service was never realized.

With the first wave of decentralization, the Prefectural Directorates of Agriculture were cut away from MoA and transferred under the jurisdiction of the (for the first time elected) Prefectural authorities. The agronomists were thus transferred from MoA to the Ministry of Interior and controlled by the Prefect (prefectural governor) although the great majority of their tasks still proceeded from MoA. Furthermore, the Prefectural service became vulnerable to local pressures and politics.

The establishment of the OGEEKA DIMITRA as a semi-autonomous organization in 1997 implied the further downgrading of farmers' training due to the lack of staff and funds of the new organisation. Farmers' training focused on those entering EU programmes, mainly Young Farmers (300 hours) and participants in modernisation schemes (150 hours). On a later stage (1994) training was restricted to Young Farmers (150 hours). In the last decade OGEEKA expanded its activities to rural women (150 hours) and short seminars (60 hours) among which those for beekeepers are quite popular. Overall though, and despite improvements, the level of training (duration, topics, content, trainees, methodology, organization and evaluation) are but satisfactory.

The establishment of OPEKEPE, the Greek Payment Authority of Common Agricultural Policy (C.A.P.) Aid Schemes in 1997 (operational since 2001) implied the creation of a central service in Athens and its own branches at regional/sub-regional level which nevertheless were cut off from the Prefectural Dirs, responsible thus far for the control and payments of subsidies, grants, etc.

In 2005, in an effort to counterbalance the lack of extension services in the countryside the MRDF (MoA was retitled to MRDF in 2004) established (by Law) the TOKAA (Local Centres for Rural Development). These centres were actually in operation in 2008, staffed with highly qualified agronomists. However, they never got off the ground and in 2010 they were closed down and their staff was transferred mainly to OPEKEPE and the headquarters of MRDF and KEPPYEL.

The Kallikratis plan in 2010 (aiming at saving public money through the reorganization and decentralization of the public services) implied the breakup of the regional services in two levels: regional and sub-regional (ex-Prefectural), and municipal. In parallel, various Dirs

(agriculture/agricultural economy, veterinary, fisheries and land policy) were amalgamated into a single Dir. of Agricultural Economy & Veterinary at sub-regional (ex-Prefectural) level.

Overall the two waves of decentralization resulted in a dual structure: the headquarters of the MRDF and the regional and sub-regional services with no actual coordination among them. The changes introduced by the Kallikratis plan as implemented nowadays (local level) create still another, rather disconnected level, the Municipal Offices of Agricultural Production.

According to a Presidential decree for MoA (1990), at this point MRDF comprises seven General Directorates one of which is the GD of Agricultural Extension & Research. This, in turn, comprises five Directorates, one of which is the Dir. of Agr. Extension with six Sections: a) programmes' coordination, implementation and evaluation; b) restructuring and modernization of production units; c) innovatory/specialised technology and activities (knowledge transfer to branches, identification of problems to be transferred to research); d) in-service training; e) rural exhibitions, archives, museums and libraries; f) information of rural population (publicity). Of these, (a) supervises OGEEKA (given that extension programmes are not carried out any more); (b) deals with FADN/RICA (since modernisation schemes, early retirement and the Young Farmers programme were transferred to the Dir. of Programming and Agricultural Structures, MRDF); (c) is no more operational; (d) has been transferred to the Dir. of Education/GD of Administrative Support, MRDF which cooperates with EKDD (National Centre for Public Administration & Local Government) providing training on administrative matters; (e) deals with the promotion of agricultural products (in-country and abroad, based on the examination and financing of producers' or processors' groups and coops); and, (f) produces print materials upon request from other Dirs of MRDF (mainly as information/promotional material for exhibitions/fairs).

A further problem is that services at all levels are understaffed a phenomenon which is expected to intensify due to the retirement of a large number of agronomists who entered the service in the period 1981–1987 and the prohibition of hiring new staff (rule of 10:1 imposed by the Troika). On top of this, the restriction of travelling by 2/3 further confines agronomists in office and thus curtails the contacts between agronomists and farmers.

Overall, in the last 30 years the need for extension has been seriously downplayed as a result of the dominant attitude according to which the absorption of available EU funds (subsidies and grants) overwhelmed 'the need to produce'; in this sense, the scientific support of farmers (being thought of as 'entrepreneurs') was not deemed 'necessary'.

## **Hungary**

*Before the year 1990.* As a feature of the large-scale farming, in the years before the change of the regime the agricultural advisory service had been performed by experts with adequate qualifications in large-scale farms (co-operatives, state-farms). Various production systems (IKR, KITE) also played a significant role.

*Until access into EU.* After the regime-change, as a part of the privatization process, sole and joint undertakings emerged, which besides agricultural production pursued consulting jobs as well. Prior to 1999 these enterprises were listed in an agricultural advisory register maintained by the ministry responsible for agricultural affairs. These years advisory service was linked to firms.

These firms provided advisory services that farmers ordered and paid for on a contractual basis. The implementation of the service was labelled – accepted or rejected – by the farmer by paying or not paying off the invoices of the firm. After the payment of advisory services, the farmer was entitled to apply for state subsidy in proportion with his annual income. The number of advisory firms was about 200.

The 95/1999. (XI. 5.) ministerial regulation about the Registry of Agricultural Advisors was issued in 1999, which lays down the requirements (professional, ethical etc.) related to agricultural advisors whose services can be subsidized by the state. From this time on the registration of advisors has been carried out individually.

*After access into EU.* The regulational and subsidising principles so far – with regard to the subsidies from the EU too – have not been disapproved of by the competent bodies of the EU, thus it grounds for accomplishing the goals of CAP reform and the 100-step program of the Hungarian Government and its further development is justified.

The new EU regulation launched in the autumn of 2003 certainly had an effect on the agricultural advisory system, and with the „cross-compliance” a new agrarian political means has been introduced.

In the EU regulations 1782/2003/EK and 1783/2003/EK the agricultural advisory service can be subsidised. Moreover, the 13th article of 1782/2003/EK obligates a „Farm advisory system”, which every member state must operate from 1st January 2007, however, farmers’ participation remained on a volunteer basis.

The CAP reform defined the operation of the advisory system as it should cover at least the fields of „cross-compliance”.

The rearrangement of the advisory system has also started in the framework of the 100-step program of the Government. Compared to the present system, the new, designated territorial (sub-regional) advisory centres (TAC) with defined legal status mean a significant change. These can be vocational schools and firms, other organisations employing advisors. The territorial centres were established inviting applications, considering the number of the farmers working in the given territory (county). The advisors – integrated in the territorial advisory centres – can provide advisory service for the farmers in the framework of some labour relation. The financing were ensured mainly from state direct payments granted to the organisations and normative subsidies granted to farmers using advisory services till the end of 2006. The financial support of the advisory service to be implemented to orders of farmers from 2007 is being based chiefly on EU supports through the farmer as the beneficiary. The amount can reach up to 80 percent of the sum (max. 1500 € service) of the contract made between the farmer and the advisory organisation having the proper authority registration and functioning in the advisory system. The financing of the multi-level organisational structure is decreasingly conceivable in the form of national subsidies. The expenditure of the services offered by the organisational background should be covered more and more from the revenues of the advisor parallel to the gradual increase of the farmers’ solvency.

## **Ireland**

Until about 1980, the Irish AKIS was mainly operated by agricultural colleges and local training centres throughout the country, mostly financed by county committees of agriculture funded via an agricultural land tax. The Department of Agriculture funded some colleges, and also counties to provide local advisors, and encouraged basic agricultural training in the schools. With this structure, it was difficult to ensure consistent and high-quality advice throughout Ireland. The idea of a state-supported agency to ensure the adoption of new methods by farmers was widely accepted. In 1980, a new semi-state organisation, the national advisory and training body (ACOT), was set up to provide training and advisory services for farmers. It took over the functions and personnel of the five state colleges, and also the state funding of the private colleges. Following a 1981 review, ACOT initiated the Certificate in Farming, a comprehensive training programme for young entrants to farming. This has recently been replaced by the Vocational Certificate in Agriculture, Level 3, which places emphasis on the development of business and management skills and in developing proficiency in dairy, dry stock or crop production.

In 1988, Teagasc was established as the national agency with overall responsibility for the provision of research, training and advisory services to the agriculture industry. It subsumed the training functions of ACOT, so that benefit could be derived from the co-ordination and integration of the training service with the research and advisory services.

Despite the continuing decline in farm numbers and increased off-farm employment opportunities, the demand for places on formal agricultural education courses in Teagasc colleges has outstripped supply in recent years. Enrolments increased by 80% from 2006 to 2009/10 and 230 students who wished to do so could not obtain a place on one of the college courses in 2009/10. The national certification of all courses and the upgrading of some courses to third-level status are aimed at ensuring that an adequate number of well-trained young people will take up careers in farming over the coming decades.

In 1987, it was decided to operate a basic charge for a standard annual advisory contract (all advice was previously free), and to offer a variety of advisory packages in addition to the basic service. A strategic decision was taken to set charges at a level which would ensure contact with the maximum number of farmers. Current income for fee-paying clients accounts for 30% of the overall cost of the advisory service. It is believed that charging has led to a more business-like relationship between farmer client and adviser, and to the development of services that are focused on the needs of the client. Successful advisers are more confident about the value of their service to farmers, and willingness to pay places value on the service received. However, Phelan (1995) noted that the introduction of charges resulted in a concentration on farmers who could pay, namely the more commercially oriented farmers.

Due to funding cutbacks in the late 1980s, the number of advisors fell from over 600 in 1980 to 350 in 1993, and resulted in the discontinuation of some services and the non-replacement of staff who retired. Additional funding throughout the 1990s led to a recovery in advisory staff numbers to around 450, plus 100 advisers contracted to support delivery of the Rural Environment Protection Scheme (REPS). To date, advisor numbers are now reduced from this.



Food research and development is now an equal partner in a consumer-driven agri-food programme, as opposed to its earlier days on the periphery of a production-driven agricultural programme. Staff engaged in food research increased from 6% of total research staff in 1961 to 43% in 1998. About half of this increase occurred since 1994, driven by large EU funding. The growing interest in food research reflects the buoyancy of the food industry, with Irish food companies emerging as global players. In 1987, the establishment of the National Food Centre (NFC) at Dunsinea created a one-stop shop for food research, consultancy and training, making food safety and wholesomeness a core activity in research. The NFC has established food quality systems that have enabled hundreds of companies to meet market specifications. It has been responsible for developing technologies to control the pathogen *E. coli* 0157 and for establishing a national purity database for use by Irish companies. Smaller food sectors have also benefited, with technology to increase the shelf life of mushrooms and to improve the performance of flours in pizza bases.

With agriculture under environmental scrutiny, Teagasc has prepared codes of good practice for farming, in order to ensure that agriculture does not cause pollution of soil, water and air. Highlights here include the evaluation and development of improved slurry-spreading technologies, the development of a blueprint for environmentally compatible dairy farming and for hardwood farm forestry, and the establishment of technical/economic basis for organic sheep/cattle systems.

## **Italy**

The decentralization of agricultural matters (and consequently of agricultural advisory services) in Italy is the result of a long historical process. It was envisaged by the Italian Constitution in 1948, but only in 1977 it was launched (D.P.R. no. 616/77 and 617/77).

The current structure of the Italian advisory system is still strongly influenced by the Council Regulation (EEC) N° 270/79, within the so-called Mediterranean package, that sustained the Development of agricultural advisory services in Italy through 66 Million ECUs over 12 years. The funds allocated by this and subsequent ECC Regulations (1760/87 and 2052/88), along with the state funds, were intended to train and employ 3,500 extension agents (60% in the South and in the Islands). To access these funding, the Regions had to bring their own Regional law on advisory services, defining their organizations, actors and subjects. However a common framework was defined by the implementation plan of the national committee CIDA (Interregional Committee for Agricultural Advisory). The Regulation also included the creation of 5 centres for agricultural training: the CIFDA (Interregional Training Centre for Agricultural Advisory). Despite its very slow and problematic implementation, the Regulation (EEC) N° 270/79 has been a cornerstone of the Italian advisory services, giving an impulse never repeated in the future. Subsequently the agriculture advisory services have especially been supported by the Multiregional Operating Programmes (ECC Reg. 2052/88 e sequenti 1989-1993, 1994-1999).

Over the years, each Region has followed its own path in the structure of the service system resulting in a strong Regional heterogeneity.

According to the INEA, in the 2000s the Northern and Central Regions involved around 50% of private bodies and public institutions, while the Southern Regions involve more public

institutions (64%). Compared to the '90s, the involvement of the public organization both in Northern and Southern Regions increased. In addition the private players started to change. Thanks to the adoption of public procedures aimed at encouraging competition, the relevance of classical farm trade unions decreased and the importance of other farm based organization and private advisers increased.

Pluralism and privatization have continued to grow also in more recent years, as well as the participation of farmers in founding and planning the public advisory services.

From 2000 to 2006 the Italian public system experienced a drastic reduction of investment in extension services due to the cut of dedicated European funds. In the first five years of the millennium, Regions invested € 350 million globally in extension system, about half of the amount invested in the previous five years (Vagnozzi, 2008). Despite the difficulties, in 2004-2007 the Regions promoted an important project, coordinated by INEA: the Interregional Programme for agricultural and rural development advisory services. The Project objectives were to promote networking and shared debates about advisory service (especially about contents and methods), to test new tools and approaches, and to disseminate the best practices.

The Rural Development Regulation (EC) No1698-2005, supporting the Farm Advisory System, has given new impetus to Italian advisory system. Actually the Regions are still involved in the implementation of RDPs FAS measures.

As it emerges from this brief historical excursus, the Italian service system suffers from a heavy dependence on European funds, resulting in a lack of continuity without a coherent medium and long-term strategy.

Moreover in recent years the economic crisis has led further cuts in public spending with a downsizing of human resources and facilities dedicated to services, creating further disparities between the Regions.

## **Latvia**

The re-establishment of independent Latvia in 1990 and accompanying political, social and economic transformations set the major implications on the composition and functioning of the current Latvian AKIS. Many AKIS institutions (universities, agricultural schools, research institutes) have long history dating back to even 19th century and traversing soviet period, and there are well established research traditions, institutional relations and accumulated knowledge stock. However, the specific post-socialist conditions of privatization, introduction of market economy and restructuring of agricultural production demanded reorganisation also in agricultural knowledge and information system. In order to respond to knowledge needs of new farmers, many of whom were even without specific agricultural background, in 1991 the Ministry of Agriculture and Latvian Farmers' Federation established Latvian Rural Advisory and Training Centre with an extensive advisors' network all across the country. Also new research issues were identified both in social and natural sciences in relation to land and agrarian reform, new food production technologies, new crop varieties etc.

The EU accession process launched in the second half of 1990s is another major milestone which has driven considerable transformations both in agriculture and the AKIS. In the result of harmonization of national and EU legislation (which often meant though one-sided approach

“accordingly to the provisions of EU laws”) agricultural legislation, priorities, regulation and support measures have significantly changed. In order to transmit effectively this new framework to agricultural producers, an active involvement of AKIS institutions was necessary. LRATC was reorganised in 2004 into a limited liability company and its self-financing part has increased. But it is retaining strong influence of MoA, which contracts LRATC for implementation of specific rural development programs. In parallel to LRATC services, there has been increasing number and role of various private actors in AKIS, in particular agricultural input industry, professional organisations and farmers cooperatives. Their knowledge supply is often more specific and better focused, but it involves the risks of biased knowledge as well as fragmentation and uneven access to knowledge at system level.

Quite a recent trend in Latvian AKIS is establishment of trans-sector and trans-disciplinary platforms (for instance, knowledge transfer centres, industry innovation clusters, Platform of Food technologies) where collective knowledge creation, exchange and learning are taking place. They are part of the newly forming national innovation policy aimed at facilitating knowledge exchange between scientists and practitioners. Also various less formal learning and innovation networks take up their participants’ knowledge needs.

Despite increasing interaction and cooperation among various AKIS institutions and actors, AKIS remains fragmented in the way that there is a weak coordination among them. Also very few AKIS members perceive it as a united system. Instead, there are sporadic short- or long-term networks or coalitions forming around specific interests who are pushing forward certain agricultural development patterns and respective knowledge.

Finally, it has to be mentioned that the specific structural context of agriculture with the big share of small and medium farms also influences AKIS. Especially small farmers have low financial capacity to pay for advice and even less for targeted research. Recently introduced public policy measures target these farms with the aim to facilitate their restructuring and stimulate production. In turn, large scale professional farmers can afford buying education and advice elsewhere, including knowledge organisations abroad. Agricultural experts estimate that there is general insufficient awareness among farmers of the relevance of advice as well as they are uncritical about advice they accept from various sources. Farmers have to be skilled to orient themselves in diversity of knowledge offer.

## **Lithuania**

Before the Second World War, Lithuanian farmers were advised by the Chamber of Agriculture and Central Alliance of Lithuanian Milk Processing Companies ‘Pienocentras’. Mostly they advised how to develop dairy industry.

In the Soviet Union, there was no advisory system because there were no farmers and nobody need to be advised. Planning system solved problems of advising of big farms.

At present, the advisory system consists of the private, public (state) and farmers’ based organisation: the Lithuanian Agricultural Advisory Service (hereinafter as ‘LAAS’) and the Chamber of Agriculture of the Republic of Lithuania (hereinafter as ‘CARL’). The farmer has a possibility to choose the most acceptable and attractive advisory institution because the Ministry

of Agriculture in 2013 has accredited about 44 state and private advisory organisations that can provide with advisory service.

Some of private advisory institutions merged into the Association of Rural Development and Business Advisors (ARDBA), the members of which can be only professional and experienced organisations in the consulting of agricultural holdings. Farmers are advised by commercial companies that sell manure, chemical plant protection, and agricultural machinery.

When Lithuania had regained its independence and the kolkhozy fell apart, many citizens recovered their proprietorship and started farming without any experience and agrarian knowledge. Many poor rural peasants were not good at modern profitable agricultural production. The Alliance of Lithuanian Farmers, the Association of Agricultural Companies, in association with the Ministry of Agriculture became the founders of LAAS, analysed different variants how the first Lithuanian institution for farmers' training should look like.

On June 1, 1993, in cooperation with Danish Agriculture Advisory Centre, according to EU Economic and Social Support Programme for Eastern and Central Europe PHARE, a public institution, Lithuanian Agricultural Advisory Service (LAAS), was established. LAAS was governed by the consumers: farmers and agricultural holdings, having subdivisions in all Lithuania.

At first, the budget of LAAS was LTL 2.5 mln, while in 2012 it was 10 times more – LTL 26 mln. Currently, 87% of revenue are the assets for provided service. In the future, there is a plan to finance their activity by themselves. Today LAAS personnel consists about 370 employees: 52% of them work at regional offices, who finished Aleksandras Stulginskis University, 23% of them studied at Kaunas University of Technology, 13% of them were Vilnius University students, others studied at colleges and received higher non-university education.

LAAS aims to support farmers, to understand and comply with the EU requirements for environment, society and animal protection, animal welfare, good agrarian and environmental protection condition and to help them avoid the costs of financial agricultural payments due to noncompliance of complex support requirements in farms. Such system allows every farmer appeal and receive necessary piece of advice.

The Association of Village Development and Business Consultations (AVDBC) was established on the 17th of October, 2006. The main aim of activity is to coordinate the activity of association members, to represent and defend their interests.

### **Luxembourg**

Due to the absence of grey literature on the historic developments of advisory services in Luxembourg, only brief information is provided here which was mainly derived from the internet pages of the respective organisations. The data is complemented by recent developments of advisory services which were discussed in semi-structured interviews and information from the quantitative survey of advisory organisations.

Most of the public advisory bodies and the agricultural chamber have a long history record of providing advisory services to farmers. The establishment of the institute for viticulture and the agricultural chamber e.g. range back to the 1920ies. SER in contrast was founded later in 1964

e.g. in order to provide relevant data on the situation of agriculture and viticulture in Luxembourg in a more efficient manner.

The specific responsibilities and areas of activities of the agricultural chamber and public advisory services are legally established by rules. E.g. responsibilities, organisational issues and the mission of the institute for viticulture were defined by the law of 1976. New tasks were incorporated stepwise according to new national and EU-requirements.

It appears that a few more advisory players emerged in the Luxembourgian AKIS during the last 10-20 years. This is confirmed by the founding dates of the advisory organisations which participated in the online-survey. 4 of the 9 advisory organisations were founded between 1987 and 2005, among them being two nature parks and two FBO's (Association for young farmers and winegrowers and the Research Institute for Organic Agriculture IBLA). 3 nature parks currently exist in Luxembourg, amongst which 2 parks have installed agricultural advisory services for farmers by allocating one agricultural advisor per nature park. Here, advisory services are particularly aligned towards goals of environmental protection and nature conservation. It was mentioned in one expert interview that in the third nature park Müllerthal which is currently being founded, agricultural advisory services will be installed and play a major role as well. With its sandstone formations, the future nature park depicts an important area for drinking water abstraction, and thus keeping nutrient inputs from agricultural sources low is going to be a central topic of agricultural advisory services in the future.

## **Malta**

Until recently, the MSDEC offered a free of charge extension service, that was carried out by the agriculture graduates within the Ministry itself, many of which were assigned to research and extension work. This was mainly because of a lack of qualified personnel in the private agricultural sector. In fact, it was only in 1993, with the setting up of the Institute of Agriculture (IoA) run by the University of Malta, and more recently with the establishment of an the Agri-business Institute run by the Malta College of Science and Technology (MCAST), that agricultural education ventured into the tertiary education level. In the meantime, the Maltese agricultural sector has been operating on the basis of cooperative philosophy. Most of farmers were, and still are, cooperatives' members (around 41%), mainly because in the pre-accession protectionist agricultural policy, co-operatives and their federations have been seen as political pressure groups claiming to government for protection and subsidies. Since the EU accession, given the increasing administrative burden to implement the agriculture acquits and manage the EU funds and programmes, most of agriculture graduates within the Ministry have been reassigned to administrative duties. Consequently, during 2006, the five extension service offices of MSDEC, which represented the only formal advisory services for farmers, were reduced to only two, one in Malta and one in Gozo, which basically handle the farmers' applications for public funds (direct aid, RDP measures and other public aid schemes).

These changes in the governmental settings let emerged the need for shifting the approach to the extension services to a semi-public model, by involving the private sector. Indeed, because this just happen nearby the starting of the programming period 2007-2013, it helped the Ministry responsible for agriculture (de-concentration model) to take the initiative for restructuring the advisory facilities in compliance with the renewed CAP and the specific regulation of the FAS,

in view of taking advantage of the co-funding of the measures 114 and 115 of the RDP of Malta 2007-2013 for the set-up and the use of the FAS (Ministry for Rural Affairs and the Environment, 2007). However, in view of avoiding the risk that the farmers could resort to unofficial sources of information (mainly commercial agents of input providers), the MSDEC conducted this transition process through retaining a certain governmental management (regulation, monitoring and public support) and control on the advisors and on the services to be provided. Later on, in 2011, this occurrence brought to the set-up of the FAS Consortium (see box on page 11), which is essentially an institutionalized advisory and extension services provider.

Besides, the implementation of the RDP 2007-2013 served also the entry of new entities which, unless being formally in charge of FASs, are acting as extension services providers and/or are contributing to spread knowledge across the farmers. Among them, the cooperatives and the producer organizations, which have an important background in Malta (see box) and are demonstrating to be crucial in the provision of both training and advisory services. Particularly, this study let emerge that, through participating to the RDP (namely measures 111, 115, 124 and 142) they are enlarging the domains on which they historically provided services to farmers (basically organizing auctions for products sales and providing information on marketing issues) to matters more related to rural development, such as quality of products, consumer policies, organic agriculture, cross compliance and global management of the farmers. Here, the major funding gathered under the measures 124 and 142 of the RDP 2007-2013 let the old ones consolidating their positions and favouring the set-up of new ones, by ensuring the provision of such services and developing new cooperation modes for innovation and support, which appear being better targeted to farmers.

Among the other new actors of the AKIS, as already mentioned in § 2.1, the National Rural Development Network (NRDN), since the beginning of the programming period, has been active in providing technical information on the cross-compliance directly to farmers and helping them arising the needs (and claims) on training and advisory services.

#### *Cooperatives - Historical Background*

The cooperative model was introduced by the Cooperative Societies Ordinance IN 1946 and, since that, a certain number of cooperatives have been set up and operated in different economic sectors of Malta. The major aim of the agricultural cooperatives is to organize the farmers for selling the products on the markets, through overtaking the structural limitation of small-farms. Practically, they act like middlemen – sale by auction, though without promoting any vertical integration across the value chains and having not yet embarked on a proper programme of adding value to produce. They basically rely on government financial assistance, which includes tax considerations, cash injections, staff endorsement and import controls via seasonal quotas and tariffs. In 2001, the Cooperative Societies Act set up the Koperattivi Malta, which is national organization of Maltese Cooperatives with the mission of representing and promoting the cooperative movement in the Maltese Islands, through providing vital services to its members in the fields of education, training, and management consultancy. Nowadays, the agricultural cooperatives in Malta are 19, out of the total 68s, and represent 5.117 farmers (around 41% of all Maltese farmers). Across the years, the cooperatives played successfully their role on the

produce wholesale market and retailing operations, while failed in the representativeness of the sector and demonstrated to be organizationally weak, lacking in members' loyalty and support, and often without strong effective leadership. Under the RDP they are beneficiaries of the measure 111, 124 and, through the partnership forming the FAS Consortium (KIM and KPH), also the measure 115.

#### *Producers Organizations – Historical Background*

The Producer Organizations started being set up following the accession to the EU and, under the national and European framework which was settled in the years 2002-2007 (Act No IX of 2002; Legal Notice 63 of 2004; Legal Notice 237 of 2007) they operate within the Common Market Organization (CMO) in the relevant sectors (including fruit, vegetables, products for processing, citrus fruits, nuts and mushrooms) by gathering financial assistance from the European Agriculture and Guarantee Fund (EAGF).

The rationales for setting up a Producer Organization regard basically protecting the market share if the producers, by increasing their capacity to access market information and undertake new marketing activities as well as to improve the producers' ability to meet legislative and other constraints.

In this view, the POs/PGs members are required to market the totality of their products, unless authorized to sell up to 25% directly to consumers. Nowadays, the PO/PGs are 19. Under the RDP 2007-2013, 3 PO/PGs are beneficiaries of measure 142, by representing the poultry, rabbit and wine grapes producers.

#### **The Netherlands**

In 1906, the Dutch government officially founded the rural extension service, as a response to the agricultural crisis that strongly affected the Netherlands in the late 19th century. At the time, the Dutch Government starts to delineate the so-called OVO-triptych, investing in public Education ("Onderwijs"), Extension ("Voorlichting") and Research ("Onderzoek") and creating close interrelations between them.

The OVO-triangle was strongly supported after World War II, when food security became a task of high priority in the national policy. The public organization Dienst Landbouwoorlichting (DLV) was fully financed by the government and the number of its advisors significantly increased. The extension specialists operated at local level to transfer new technology on farms, but also to provide economic advice on long-term business developments. The advisors used to visit farms, organize group meetings, guide farmer study clubs, give courses and provide information through farmers' magazines, brochures, etc. DLV was supported by an extensive network of committees at national and international level, in which the most important stakeholders were represented.

During 1980s the Government decided to privatize extension services through a gradual transition. These changes came about for various reasons, otherwise emphasized by different authors. First of all, in the 1980s and 1990s the general Dutch policy was influenced by the global trends of neo-liberalism and privatization, following the general principles of "less government and more market" and "user-pay".

Between 1975 and 1984, the problems of overproduction and the negative environmental impacts of intensive agriculture became more and more manifested. In 1982 the Ministry of agriculture became responsible also for natural conservation and open air recreation, focusing more on sustainable development of the agricultural sector. The first legal restrictions on farm management showed a discrepancy of interests between farmer's goals and Government objectives. The growing tensions among these actors revealed the ambiguous and problematic position of public advisory service. DLV had a double, and sometimes conflicting, role: to give advice to farmers and to implement the government objectives.

In the meantime the concept of knowledge was changing with a growing recognition of its interactive nature. The increasing power of multinational corporations also has led a transformation of knowledge agricultural system that became much more dependent on the needs (and inputs) of the industry, stimulating the transition from knowledge-driven toward demand-driven research.

Finally to remain competitive in the increasing global market, it was necessary to improve even more the efficiency and the efficacy of the Dutch agricultural knowledge system. All these factors converged in the extension privatization and strong redefinition of the OVO-triptych.

The privatization process was much more radical than expected. In 1990 DLV became independent service of the Ministry of Agriculture, after in 1993 it was converted in Foundation with 750 employed and farmers started to pay for services.

From 1993 to 1998, the 60% of the DLV budget was financed by farmers and the rest by the Ministry on a contract. The DLV's own capital was around 10 million EUR.

From 1998 to 2004 DLV became a limited company, with 82% of shares held by Ministry of agriculture, later on by Finance Department, and 18% of shares held by personnel.

The governmental contribution to DLV budget decreased rapidly, arriving at 15% in 1999, but since 1995 was cut all the lump-sum subsidies. Until the 2000 the Dutch Government still preserved direct bilateral financial contract with DLV for specific project/programs, subsequently government contracts for extension provision began to be tendered in the open competitive market. In 2005 the DLV became a holding with limited companies, in order to spread of the risks and to improve the organisation entrepreneurship.

During the privatization process it occurred a major restructuring of the DLV staff that declined from 750 employed in 1993 to 400 in 2005. Part of the field extension personnel was transferred to the farmer associations; another part was absorbed by the Ministry of Agriculture. Finally some of the employees were also dismissed or placed in early retirement.

The extension privatization changed also the focus, the users and the way of providing services, as well as it changed the knowledge management and the relation between the AKIS actors.

In the recent years, many new extension companies were created to provide extension services in agriculture and related fields, such as construction, real state, meteo-, food quality system, countryside.



## **Poland**

The agricultural advisory system has been existing in Poland for more than 100 years. The agricultural advisory organisations were developed in parallel to agricultural education. It is estimated that agricultural advisory institutions in Poland developed simultaneously with agricultural education. The origins of the advisory organisations date back to the second half of the nineteenth century, and were forced by development of capitalist relations in agriculture and enfranchisement process. The first agricultural instructor was hired by the Great Poland Agricultural Society in 1883. At the same period, the first farmer groups were organised, which became the bases for agricultural extension and its development. Till the First World War, the main goal of advisory service was agricultural education and development of rural population (especially farmers). Between the First and the Second World War it was possible to observe a rapid development of forms, methods and topics of advisory services. In 1918 Poland – after 123 years under domination of three countries (Austria, Prussia and Russia) – gained independence. In this is period the main goal of extension was bridging these three districts in term of agrarian structure and agrarian culture as well as education of farmers and levels of their organisation. The advisors were mainly employed in Agricultural Associations, Agricultural Chambers, Farmer Groups and Industrial Processing Units, and the so called teams for adoption to agriculture (developed in 1926). The development of agricultural advisory service in this period is strongly connected with the system of social agronomy, whose philosophy was education of farmers and work on social and economic fields in rural areas, based on initiative of framers organisations, supported by experts in advisory work. The characteristics of social agronomy were co-operation different organisations operating in rural areas, e.g.: milk producers coop, agri-processing, credits banks etc.; in social-cultural field the activity focused on libraries, cultural clubs, and health institutions located in rural areas; in education the activity focused farmers and farmers wife’s groups, and youth groups. During this activity one of the most important role of the advisors was implementation of good practice in farm and in rural areas.

After the Second World War, in parallel to changes in agricultural policy, changes occurred in the organisational forms of advisory service. However, the base ideas and the goal of agricultural extension activity remain. At the beginning two groups of advisors were employed: advisors for farm organisation and instructors for home economics. The advisors were employed by farmers organisations. In 1957, after re-activation of the farmers groups, farmers processing industry and rural cooperatives, the first agricultural advisors (agronomist) were employed by farmers groups. The mile stone in process of creation the advisory system was a decree (order), describing professional and social status of agricultural advisors, done in 1958 by Minister of Agriculture. 1959 brought new decision – in each district (the smallest administrative unit in Poland) one advisor-agronomist was employed by Farmers Groups. His main tasks were: implementation of new technologies in plant production (among other also seed production and plant protection). Improving advisory system, in 1963 – the next order was issued by the Minister of Agriculture, according which in each county one advisor for animal production was employed and paid by state administration. His main tasks were: implementation the innovation in animal production, among others, modernisation of stables, rationalisation of animal feeding, improvement in animal breeding and education of animal producers.

Around 1957, in parallel to development in advisory system, the Agricultural Experimental Stations (one in each province) were established, which were gradually included in advisory system in Poland. At the beginning the main goal of the Agricultural Experimental Stations were complex work in scientific and research fields in agronomy, animal production, economics and farm organisation. Additionally, in co-operation with research institutes and universities, the new technologies were implemented in Experimental Stations and adopted to local conditions. The next period 1968-1975, in activity of Experimental Stations, proved very important in development of advisory system in Poland. In these years the advisors – specialists in narrow agricultural knowledge – were employed and sent to all districts to co-operate with district agronomists and advisors for animal production and other advisors employed in districts according to specific of local production.

The next step in developing the advisory system took place in 1973, when teams of advisors were established in each district, and their goal was to deliver professional advisory services directly in farms. In that time the main role played individual and group advisory, and organised experimental farms, which became examples to be followed by other farms. Greater emphasis was put on technical and technological advisory services. In 1975, with the change of administrative division, Regional Advisory Centres were created. The basis for them were Agricultural Experimental Stations, agricultural professional schools and state farms. At the beginning three groups of advisors were employed in Regional Advisory Centres, and in 1982 after including the advisors employed in districts, the Regional Advisory Centres employed advisors in all agricultural professions.

With the development of agriculture and agricultural policy changes, and changes in farmers needs, the tasks of advisory and functions of Advisory Centres were improved. The functions were as follows: (a) adaptation and implementation (adaptation of research results to local conditions), (b) instruction and advising (direct advisory services in farms), (c) education and training (in-service qualifications of advisers and farmers), (d) information (information and publishing), (e) coordination (coordination of institutions and organisations in dissemination of knowledge and development in agriculture). In this period, the development of individual and group methods was significant. Advisory service was dedicated mainly to young farmers and neglected, but it offered possibilities for further development of farms. The main method used in that period were: demonstrations, exhibitions, competitions, study visits; the main topics of advisory services were: new complex technologies, economics and organisation. At that time the farmers were involved for yearly planning of advisory work – advisors together with farmers identified their problems and needs, defined the scope of assistance and necessary measures for its implementation.

With the introduction of market economy in Poland, the situation of advisory services changed. The Province Advisory Centres were subordinated to province governors. The basis of re-organisation was the need to socialize advisory services and to adapt its functions, tasks and organization of the system to farmers' needs. With progressive economic transformation processes came the increase in the range of farmer needs and varied tasks or advice. Especially, there was an increase in the need for advisory in the field of economics, marketing, product promotion, preparation the product for sale, organisation and promotion of producer groups, there were growing needs of advisory in the field of environment protection, law and insurance.

Advisors increasingly became involved in the development of business enterprises, design and preparation of loan applicants. In addition to individual advisory services, the range of group advisory methods expanded, study visits became more frequent, the number of target groups and producer groups increased.

The mile stone in development of advisory system was an Act on Agricultural Advisory, establish by Polish Parliament in October 1994. According this law advisory services received the official legal status. Since 1995, the majority of advisory services became public (what means that all rural inhabitants can ask for free advisory services) and was financed by the government, but at the same time part of advisory services (specified in the Act) were and still are paid for by clients. At the beginning the supervisor of the Provincial Advisory Centre was the Province Governor, but since August of 2009 (Journal of Laws No. 92 of On June 16, 2009, item 753) the supervisor of Provincial Advisory Centre has been the Provincial Parliament.

Each provincial ODR is associated with its own Social Council for Agricultural Extension, which is a consultative-advisory body to the director of the ODR and includes 11 people. It usually includes the representatives of the provincial parliament, the agricultural chamber, and members of farmers' trade unions, representatives of scientific centres (universities) and research and development units, as well as representative from agricultural schools.

To sum up, the main advisory organisations in Poland are Provincial Advisory Centres (ODR). It is decentralised organisation – 16 independent self-governed provincial organisations subordinate to the Provincial Boards and approved by the Local Self-Governments. The special act specifies the goals and tasks of the centres, their structure, as well as their method of administrative and financial management. In each of the 16 provinces in Poland there is one provincial ODR. Its name contains the name of the province e.g., Lesser Poland (Malopolska) ODR or Silesia ODR. Since 2009, the proper technical term for the Polish agricultural extension system is “self-government”.

## **Portugal**

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. The services reached few farmers and the field workers were simultaneously engaged in a variety of regulatory functions. Madureira, as well as Teixeira, 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 organization, planning, training, and evaluation tasks.

The first organized 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. 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. Universities such as 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.

In January 1986 Portugal became a member of the EEC and in 1990 a major programmes - PROAGRI - was launched, with the objective of strengthening the capabilities of farmers' organizations in the areas of management and technical support to members and non-members. PROAGRI reflected the prevailing privatization views. It is important to stress that cooperatives and farmers' associations were frequently weak, in both organizational and financial terms. On the other hand, the transfer of functions to such organizations 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, to each 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 CAP 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.

## **Romania**

The changing nature of the information from the agricultural sector and the important transformations that took place in Romania after 1989 significantly shaped the evolution of agricultural advisory services. The public advisory service will be presented in this subchapter, which influenced the post-1989 history, namely:

### *Before 1989 – prevalence of the technical agricultural consultancy*

In the communist period, the agricultural consultancy activity had mainly a formal nature and was oriented towards the technical aspects of production. The economic and commercial problems were neglected at farm level, and these were most frequently addressed by specialized bodies at county and central level. The agrarian management training was very weak and was

provided through the courses organized by the County Agricultural Directorates or by the Agronomist's House. These practices very much diminished after 1990.

*1989-1998 – “invisible” agricultural consultancy*

After 1990, Romania's agriculture was subject to dramatic changes. Agricultural land was restituted to former owners, which resulted in the emergence of more than 4 million very small-sized farms. A fast deterioration of production means took place (destruction of irrigation systems, of agricultural equipment, of agricultural buildings, etc.) and the specialists in agriculture were “removed” from the system. These evolutions determined the return to traditional farming on small land areas, with obsolete technology and no modern production means and specialized advice. In this period, most small farmers were “own-account workers”, being obliged to adopt individual strategies of adaptation to the new conditions: these were mainly based on informal aid networks – friends and neighbours. This situation contributed, together with other factors of economic and juridical nature, to the strong decline of Romania's agriculture.

*1998 – “birth” of the public agricultural consultancy service*

The existing situation imposed the creation of organizational structures specialized in agricultural consultancy, to serve both the small individual farms and the farms of associative type. Thus, in the year 1998, the National Agency of Agricultural Consultancy (NAAC) was created under a PHARE Project, with the purpose to initiate the supply of agricultural advisory services to the Romanian farmers. Besides NAAC, County Agricultural Consultancy Offices (CACO) and the Local Agricultural Consultancy Centres (LACC) at local level were also established. The agricultural consultancy service was conceived as a centralized system, under the authority of the MADR, as legal entity, being funded from the state budget and from own incomes. It was established with the main objective “to provide support to the reform in agriculture through specific advisory, extension and vocational training activities, so as to organize modern, efficient and competitive agricultural holdings”.

*2001 – “decentralization” of the agricultural consultancy service*

In the year 2001, the public agricultural consultancy system was decentralized. CACOs and LACCs came under the local administration control. They were coordinated technically and methodologically by NAAC, which remained under MARD subordination. Under these circumstances, the quality of advisory services for farmers was debatable due to the large-scale utilization of CACO and LACC staff for other different activities to the detriment of agricultural advisory activities.

*2005 – “recentralization” of the agricultural consultancy service*

In 2005, the agricultural consultancy service became centralized again, and CACOs and LACCs were retransferred under NAAC and MARD authority. After this date, NAAC objectives became more comprehensive, and the agricultural consultants attended different training courses and participated to different programs with international technical assistance and finance. Thus, in its new mandate, NAAC had three main objectives: (a) training farmers and support to producers' associations, (b) making available to farmers the information on the EU requirements and on the funding sources that can be accessed in order to comply with these requirements, (c) helping

farmers to design the multi-annual agricultural business plans. Most interviewed specialists recognize the significant role of NAAC in providing support to MARD in the process of accession to the EU. Once Romania joined the EU, NAAC also addressed the problems related to environment protection and animal welfare, the focus being on agricultural production.

#### *2009 – establishment of agricultural chambers at county level*

The consultancy service was subject to another transformation this year. NAAC was reorganized again and CACOs were transformed/got the name of County Agricultural Chambers (CAC) and under the subordination of county councils. This law again separated NAAC from its structures in the territory. Thus, NAAC role consisted of only technical consultancy compared to the operational role it used to have in the previous period.

#### *2010 – liquidation of NAAC*

In the year 2010, under the financial crisis background, the government decided on the public advisory service reform by the liquidation of NAAC. Its activity was taken over by MARD that established a Consultancy, Extension and Vocational Training Department.

#### *2013 – return to the “invisible” agricultural consultancy*

After almost 20 years, Romania returned to the “invisible” agricultural consultancy. On one hand, the public agricultural consultancy, represented by the CAC are in a difficult situation: the staff has not received any wages for almost four months and part of the consultants left the organization. In many counties, the agricultural chambers have no longer access to telephone and internet. The entire staff is in a provisional situation, without knowing what will happen in the future. On the other hand, there is a process of establishment of the new Chambers for Agriculture, Food Industry, Pisciculture, Forestry and Rural Development at county level and of the National Agricultural Chamber as private, non-profit institutions of public interest. This process was subject to massive modifications and delays, and it has not been implemented yet.

## **Slovakia**

#### *Development of extension services up to 1990*

Up to 1990, extension services in former Czechoslovakia were developed under the supervision of the national Ministries of Agriculture. In Slovakia, the main role in this regard was played by the so-called Institute for Systems Management in Agriculture. In addition, a significant function was undertaken by sector’s research institutions and universities, which collaborated first of all with departments for science and development, usually located next to large-scale production and economic units, e.g. Agrokomplex (agricultural production and presentation), Slovosivo (seed production company), or Velko-vykrmne Palarikovo (meat and crop production). Other institutes closely involved with extension were the Slovak University of Agriculture, Nitra; the University of Veterinary Sciences, Kosice; the Slovak Technical University, Zvolen; the Economic University, Bratislava, and others. The term extension was understood at that time as: “the transfer of knowledge into practice”. The positive feature of this period was the comprehensive cooperation between science and education on the one hand, and large scale agricultural enterprises on the other.

#### *Development of agricultural extension in the course of the transition of agriculture*

In 1990, the one year after the socio-economic changes, next the Livestock Production Research Institute at Nitra was established the first agency dealing with agricultural extension entitled as AGROSERVIS. This was actually the central leading agency for extension coordinating the all research institutions acting in the field of agriculture. During the same period a new teaching subject, “Enterprises Consultancy”, was introduced at the Slovak University of Agriculture, Nitra, and agricultural extension was also included within the framework of this new discipline. In 1991, British ADAS, in cooperation with the British Know-How Fund, organized a two year intensive course on agricultural extension in former Czechoslovakia. As an outcome of this initiative, in 1993 twelve Slovak experts obtained graduation certificates from the intensive course focused on agricultural extension. Actually ADAS and the graduates from the course laid down the first basis for agricultural extension in the Slovak Republic.

From an institutional viewpoint, in order to achieve the next development stage regarding agricultural extension, the EU PHARE Development of Extension Services to Improve Primary Agricultural Production (DESIPAP) project was important. This project initiated institutional capacity building of the agricultural extension services in collaboration with the Government. The philosophy and architecture of the Slovak advisory system stemmed from the experiences of EU countries, particularly of Great Britain, the Netherlands and Austria. In 1998, the public extension system was established. Within this system, 22 extension service centres have been created. Out of these, ten centres were placed next to research institutions, 10 next to regional seats of the Slovak Food and Agricultural Chamber and two were placed in private companies. From the very beginning, the Agroinstitut (a state institution responsible for lifelong education in the food and agricultural sector) was responsible for the education and certification of advisors. Despite this positive initiative developed by the Government and the EU, the activities of the above-mentioned centres have never been fully developed. Due to financial problems and overall supply constraints, these centres were continuously compelled to interrupt their activities. It is important to note here that the extension activities undertaken during this period are now positively evaluated. This refers to the preparation of Slovak farmers on EU accession, to the successful utilization of SAPARD funds, to the transition from a centrally planned to a market-oriented economy, and to the development of the rural economy and organic farming. However, up to the time of accession to the EU, this system was never developed in real terms.

In the pre-accession period, extension played an important role in the transition of agricultural cooperatives and state farms, in the quality enhancement of agricultural products and utilization of pre accession funds (e.g. SAPARD programme). Furthermore, comprehensive support was provided to the preparation of human resources for the new EU challenging environment. Nevertheless, it should be underlined that the expectations of farmers and other stakeholders with regard to extension were great, however due to the non-completed architecture, lack of financial resources and absence of a single coordinating unit, the agricultural extension sector was not in a position to deal with all the challenging tasks, despite the fact that these undertakings were important for the establishment of a modern, competitive market economy in the agricultural sector.

*Development of the extension service following EU accession*

Extension has become more important following the accession of the Slovak Republic to the European Union. This is connected to the requirement to meet the conditions for Cross-Compliance. According to Council (EU) regulation number 1782/2003, the agricultural extension system must be focused on the minimum requirements defined in the legal norms of production (Statutory Management Requirements – SMRs) regarding the maintenance of land in good agricultural and ecological conditions. Since this is linked to the direct payments system, this fact led to the new, however still not completed, architecture of the advisory system in 2007. It is characteristic that so far no single institute exists to deal with the structure and organizational management of agricultural extension. Such an institute would be in a position to ensure the revival of the agricultural extension system, its modernization and its comprehensive institutional reconstruction in an effective way, with the aim that such a system would then fulfil all the functions which are expected from modern extension in the field of transmission of new knowledge and technologies into agricultural practices and to rural areas.

With the intention of establishing the unified agricultural advisory system which would be in line with EU standards, a new system was introduced in 2007. The following institutions and organs are involved in the system:

- The EU administration with respective organs
- The National Council of the Slovak Republic
- The Government of the Slovak Republic
- Ministry of Agriculture and Rural Development with the Council for Agricultural Extension
- The Department of Science and Research of the Ministry of Agriculture and Rural Development
- The Agricultural Paying Agency (APA)
- The Agroinstitut Nitra – Lifelong Learning and accreditation of the advisors
- Regional Info-terminals
- The National Forestry Centre (The Institute of Forestry Extension and Lifelong Learning, Zvolen)
- Other sector institutions (research institutions)
- Accredited extension experts, acting individually or in extension agencies.

### **Slovenia**

In the seventies, extension service in Slovenia was organised on three levels 1) field advisors within agricultural cooperatives on municipality level, 2) advisors - specialists on regional level within seven regional agriculture institutes (today in structure of CAFS) and, 3) on the level of Republic of Slovenia (at that time part of former Yugoslavia) – by the Republic Centre for farm advisory service operated under Agricultural Institute of Slovenia. There were approximately 100 experts from institute, faculties and cooperatives working together as expert groups. At that time (data reference to year 1972), advisory service within agricultural cooperatives was co-



financed by municipality (in average 20 %), and other two segments of FAS were co-financed by funds from the Republic of Slovenia.

In 1972, the Co-operative Union of Slovenia (for agriculture) was established and three years later the services of Republic Centre for Farm Advisory Service come under its authority. In the following year the first Regional agriculture and animal breeding centre (i.e. an institute with specialized advisory service) was established.

In 1992, after adoption of new legislation on cooperatives, FAS was organised as a public administration within ministry for the field of agriculture, though slow process of transition of advisors from cooperative to regional agriculture institutes began few years earlier. The key issue was that advisory service should be available to all farmers, not just to members of cooperatives. This point was probably also the beginning of slow separation process of advisory service with research and education institutions.

At the turn of the century, CAFS was established to represent and protect the interests of agriculture, forestry and fishery. It was constituted in May 2000 after adaptation of The Chamber of agriculture and Forestry Act in June 1999. Regional institutes, formally independent legal entity, became part of its organisation's structure and so all different types of advisors were united in one institution and this lead to the acquisition of a legal status.

Today CAFS is the umbrella interest organisation of natural and legal persons in the Republic of Slovenia engaged in agriculture, forestry and fishery. Its central task is to protect and represent their interests, to consult them and accelerate economical and environment friendly activities. Its preferential tasks are acceleration of development and improvement of economic conditions, assurance of specialist services operation, co-formation of legislation, improvement of social conditions of life, keeping settlement of Slovenian rural areas and promotion of Slovenian agriculture at home and abroad. Its specialist services are agricultural advisory service, selection and monitoring production in stockbreeding, forestry advisory service and centres for fruit-growing and nursery.

## **Spain**

*From the Agricultural Extension Service to advisory services. A historical change to-wards the new approach*

The advisory services to farmers emerged in Spain in the mid-1950s, known as Agricultural Extension Service, led by the central government. At the end of the 70's (1978), the AES began to be transferred to the recently created administrative structure of regional governments. As it was completing the transfer of powers to the regions, central services were also losing functions of control and supervision over the regional centres. In order to maintain coordination between Directorate-General (central government) and those in charge of Agricultural Extension Service in regional governments it was created the Coordinating Board's for Agricultural Extension (Government Decree 1843 / 24 July 1980). In addition, two new aspects had to be taken into account, affecting –National- Agricultural Extension Service. Firstly, the extension and research are put under the same Directorate-General of the Ministry of Agriculture. Secondly, the Ministry draws up the National Technology Dissemination Plan (PNTD, 1981), which is intended to promote the modernization of the agricultural sector and encourage adaptation to

new circumstances such as the energy crisis, the revaluation of underutilized resources, integration into the EEC and the re-organization of the agro-food system.

Both events marked a turning point in the consideration of the functions of Agricultural Extension Service. The Ministry gave greater weight in its strategy and objectives to technology transfer, so it began to articulate to the Agricultural Extension Service with INIA. The Ministry also decided that the Agricultural Extension Service should stop work at the request of the farmers to make it to the agricultural policies, and at this time (with the close perspective to entry into the EEC) its functions were focused more towards the modernization of agricultural structures. Therefore, after the PNTD the goals were focused much more on the technical and economic and much less from social aspects, producing a change in the conception of the agricultural world (they no longer thought in rural communities but in agriculture professionals).

The Agricultural Extension Service and INIA depended hierarchically of the Directorate-General of Agricultural Research and Training, which from 1988 (Government Decree 1532/1988) became dependent on the Secretariat of Agrarian Structures in which it was also included the National Institute of Reform and Agricultural Development (IRYDA). Due to the progressive decentralization of competencies in the field of agriculture, at the central level, the bodies of the AES were reduced to the former Central Training School, being their functions reduced to staff training, coordination and information and the provision of specialized services.

In 1991, the Agricultural Extension Service disappeared definitively as autonomous body after the reorganization of the Ministry of Agriculture (Government Decree 654/1991), whereas the human resources were assigned to different units in the IRYDA. Also, the General Secretariat of Agricultural Structures assumed functions from IRYDA (such as the stimulus to achieve greater competitiveness in the agricultural sector) and others related to the EU policies. The global loss of functions of the IRYDA, as well as the transfer of competencies to the regional governments reduced its importance and through a new modification of the structure of the Ministry (Government Decree 1055/1995), the IRYDA disappeared joining together with the Institute for the Conservation of the Nature (ICONA, dealing until that moment with the national forest policies) in the Autonomous Organism of National Parks (dependent of the central government).

Therefore, due to the administrative structure in Spain, the regions have taken large number of responsibilities and competences since early 80s, including those referring to agricultural extension services. However the traditional public extension service is not being offered any more after the transfer of competences to the regions. The change was not only related to which government, central or regional, was responsible of this service. The change was much more deeply since it was related to the conception of the service itself, coming from a conception focused on the development and demonstration of agronomic innovations to the farmers to another one focused on a set of services more oriented to the fulfilment of official requirements from the CAP.

The regions did not reach to provide similar services than the previous national extension service (with the exception of some training). Early the traditional experimental and demonstration farms (coming from the former extension approach) were oriented into the applied research, losing most of them the traditional direct contact with farmers. Therefore the traditional extension functions were disappearing since new OPAs and federations of cooperatives started to

emerge and consolidate themselves as advisory services. Thus administrative decentralization implied the change from the former national extension service to a range of regional based providers including mainly OPAs and cooperatives or their federations. This change was not just about the providers but a change in the approach (conception and type of services to be delivered) which applies to the whole system. It was a continuous process of change in the system since the 80s until very recently, reinforced with the EU regulations on Farm Advisory Services.

*New actors in the advisory system: towards the Farm Advisory System (FAS)*

In summary, as a consequence of the process of change since early 80s, during the last years it has been set up the current structure of actors in the advisory system, characterized by five main types of actors, regional research centres, agricultural county offices, professional farmer organizations, cooperatives and private companies specialized in advisory services. The last three types of actors are the base of what few years ago was the official Farm Advisory Service in Spain.

- 1) Regional research centres and joint-centres, with the main functions focused on R+D+I and technology transfer. Most of them also offer training programmes (with different level of specialization according to the needs) managed directly or in coordination with some sections of the regional governments. Some of them also develop functions of –more or less occasional- advice services (for example through their experimental farms), as it is the case of IVIA in Valencia or IFAPA in Andalusia. In this last region the Agency Management Agricultural and Fisheries (2011) centralizes management and processing functions of grants and records on agricultural policies, assuming also functions of promotion and agricultural extension, management studies and training.
- 2) Agricultural County Offices (OCAs). This is the structure linked to former Agricultural Extension Service. However they have lost the traditional role of personalized advice to farmers, and currently they have functions focused primarily in the management of grants to farmers from CAP or some other type of administrative issues linked to the management of EU regulations.
- 3) Professional Farmer's Organizations. With the disappearance of national Agricultural Extension Service and the loss of functions of OCAs, OPAs have gathered most of them, exercising functions of technical and specialized advice for its affiliates. They also advise farmers in the field of public grants, even though the official management for them is the responsibility of the OCAs or other institutions.
- 4) Cooperatives, organized formerly in regional federations, which became in confederation in 1989 after joining two main national organizations. In 2009 they became Agro-Food Cooperatives Confederation, an umbrella organization for the whole cooperative sector in the agriculture, livestock and agro-food activities. Although well tuned with OPAs, it increasingly competes in the advisory system.
- 5) Private consultancy companies. Finally, as a result of that process of dismantling of the functions of former public Agricultural Extension Service, the emergence of new needs such as the management of public funds from EU policies, private organizations emerged. This

has allowed them to incorporate new features into its advisory services. Like all of the above, this type of private organizations is present in most of the regions, although (depending on the regional requirements) just some of them became official Farm Advisory Service.

Therefore, before the creation of official advisory services, regulated first by the central government in 2006, OPAs, cooperatives and some private companies had begun to develop non-formal functions of advisory services during the 90s. Regional Centres, the only official actor having the initial responsibilities for extension and advisory services, early focused on applied research and, in a less extent, training, being this last function the main one coming from the traditional conception of extension services. However, training programmes delivered by these regional centres are a very consistent piece in the current advisory system.

With national regulation in 2006 those providers came to the FAS, including all requirements of the EU and national regulations, but many of them also some additional requirements established by the regional governments. Due to the different requirements in each region, to become FAService was more or less difficult depending on the region. For example, in the eight provinces of Andalucia there are just four official organizations in its FAS (obviously with offices in all provinces), meanwhile in Extremadura, with two provinces, close to Andalucia and with similar territorial characteristics, there are more than twenty FAS organizations. In La Rioja, just one province, there were in 2010 nine official organizations.

The national regulation in 2006 stipulated three important aspects. First, the creation of the National Registry of FAS. Second, that regional governments were responsible to check the fulfilment of requirements for organizations acting in their region. Third, that central government was responsible to check those organizations acting in more than one region. This regulation was derogated in 2010, and currently each region is responsible to check the fulfilment and control those organizations acting in its region. Therefore there is no national but just regional registry, being the organizations forced to be registered in each region in which they are present (instead a national registry).

Precise information on FAS is not easily to access in all regions, but in spite of the difficulties we may have a whole picture of the main suppliers in the system. As it was already noted the main current suppliers are non-profit OPAs as well as cooperatives. The organizations present in practically everywhere are the three main OPAs<sup>3</sup> which take advantage of their high presence in most rural areas. Beside them there are some other OPAs with regional presence playing a significant role in their area, such as L'UNIO (Union of Farmers and Stockbreeders) in the region of Valencia, or Unió de Pagesos in Catalonia. The other important actor is the Agro-Food Cooperatives, the umbrella organization of much of the cooperatives in the country, being present in all the regions through their regional federations.

OPAs as well as Agro-Food Cooperatives are the most important part of the current advisory system in Spain and the ones who are present in all regions and provinces, and probably they cope with more than 95 % of the services. However it is worth to mention private –usually small- organizations, which are just present in some regions, although it is hard to compete for them with the OPAs, farm unions and cooperatives, which have large and experienced structures coping with the requirements of advisory services.

## Sweden

Advisory service and training to farmers have a long history in Sweden. The Rural Agricultural and Economical Societies is the oldest advisory organization, the first regional society was formed in 1791 and during the first half of the 19th century more regions started their own Rural Agricultural and Economical Society. Today there are 18 societies all over Sweden.

In the beginning the societies was mainly financed by membership fees from the farmers, but in 1855 the parliament introduced a tax on alcohol production, and one fifth of this tax was given to the societies. In the beginning of the 20th century the advisory service in the societies became more specialized, and they hired advisors on e.g. animal husbandry, dairy and buildings. During this time the societies also evolved field trials, which also today add a value to the advisory services of the Rural Agricultural and Economical Societies. The field trials were financed by own assets, funds and donations and not depended on public financing.

It wasn't until the 1940s that production organisations, the farmers' organisation and cooperatives started to evolve their own advisory service within their specific area.

In 1967 the Swedish Parliament decided that the publicly financed advisory services should be taken over by the Country Administrative Boards, and the objective of the advisory work was to make Swedish agriculture more efficient and rational. Before 1967 about 65 percentages of the advisory services of the Rural Agricultural and Economical Societies was financed by the state, and with the withdrawal of public support the Rural Agricultural and Economical Societies struggled to survive and to find out how to relate to the publicly financed advisory service. This led to a reorganization of the advisory services of the Rural Agricultural and Economic Societies. With the weakening of the Rural Agricultural and Economical Societies' advisory services in the beginning of the 1970s, it also opened up for other actors such as cooperatives, producers' organisations and farmers organisations to strengthen their advisory service.

For a long time, the advisory service was very much focused on intense production, with higher yields, higher level of fat in the milk, etc. During the 1970's one can see the beginning of a change of focus towards economy. The farms grew bigger and more complex and the costs of input goods increased with higher speed than the price of produced goods which led to a demand of better connection between production and business. This was the start of the intense advisory service that is now common in many advisory organisations. Intense advisory doesn't mean that the advisory service was focused on an intense production, but means that the advisor had a close contact with the farmer in order to do the measures needed at the right time instead of doing them according to a set plan, which had been a common method of producing before the 1970/1980s.

During the 1990s the focus of the Swedish government started to shift from wanting to promote rationalization and change of structure in agriculture, to promoting a more environmentally friendly production. Therefore the public financing during the last decades has been very much focused on agriculture and environment. Especially since entering the European Union in 1995, the publicly financed production advisory services have ended and the County Administrative Boards are no longer great actors in advisory services.

When the public production advisory service ended in 1990s, it opened up for more commercial advisory organisations to enter the market of production advisory work, and today there are 60-70 actors on the market. Today one can see yet another shift in focus on advisory services, and more and more actors within the Swedish AKIS talks about management, leadership, LEAN and other areas of corporate government, and to evolve the farmers from being producers to becoming entrepreneurs.

### **United Kingdom**

Until the late 1980s, a state-funded extension service had the primary purpose of increasing UK food production. Research stations and university faculties/departments fed new knowledge to universities and colleges (delivering education and training) as well as to the state advisory organisation (ADAS in England). According to Curry et al. (2012) the privatisation of ADAS in 1997 “was probably the most prominent event for many in the dismantling of this system as the AKIS became *laissez-faire*.” They find that near-market (rather than nonmarket) research became dominant, funded by the private sector (often agricultural suppliers) and the levy boards.

Looking in more detail, the state-funded extension service passed through a stage of commercialisation on to privatisation. As a first change, cuts to near-market research were observed in the late 1980s when more strategic, public good work became dominant for Government, leaving near-market applied work for industry. At the same time, levy bodies expanded their activities to take up some of this work but they were not ‘dominant’ overall at this stage. At a second stage, ADAS (since 1992 an executive agency of MAFF) became increasingly commercial and ultimately privatised (in 1997) and withdrew from activities and research centre sites (which included Experimental Husbandry Farms and Experimental Horticultural Stations) that were not commercially viable. A third change came about when, in 2001, MAFF became part of a new DEFRA, a step which was coupled with the concentration on environmental sustainability objectives rather than food production. As a fourth change, for similar reasons, BBSRC reduced the number of their Research Institutes – more recently some remaining ones have been merged with Universities. The Agricultural Training Board was disbanded. Trust between farmers and government diminished as a result, and social networks between farmers and (usually state) advisors were lost. A reduction of the number of ‘players’ has also occurred in the agricultural media (magazines, BBC programmes).

The retreat of government from agricultural research and extension has resulted in a diversification in providers from the private and NGO sectors. Research institutes began to receive much more funding from private as well as public sources. “The research priorities also changed with a substantial shift in publicly funded R&D away from production-oriented science and technology towards science designed to deal with environmental concerns, animal welfare and food safety. Vertically the AKS became fragmented as the change in the status of ADAS meant that the government has struggled to find the mechanisms to connect research on environmental protection and sustainable agriculture to farmers, as the traditional research-extension links and advisory practices become less relevant to end users”.

Partnerships and coalitions have become more important, and privately owned demonstration and monitor farms have replaced state-owned experimental husbandry farms. Agricultural shows, organised through voluntary and charitable societies, are still AKIS-relevant, although

many have lost their central importance (not all, cereals is still premier arable event, and shows with a fruit focus similarly). Other actors such as supermarkets are in a strong position to drive innovation and changes, probably more so than in other Member States. For example, the supermarket chain Morrison's run their own demonstration farm, by which the company accepts the risk for innovations that can then be taken up by their supplier farmers.

The current advisory system in the UK is characterised by diverse (and increasingly separated) arrangements in the four UK countries, e.g. for setting SMRs and GAEC, education and training, rural development, and much research. Overall, and especially in England, there has been an organisational evolution towards the privatisation and commercialisation of knowledge production and transfer. NGOs, public and private actors compete for the provision of agricultural advice.

## **Chapter 4. The agricultural advisory services**

As it has been already noted, there is a considerable diversity within the EU countries regarding the way advisory services are delivered the extent to which the state is involved. That is the reason why the description and analysis of agricultural advisory services is done separately for individual countries, and at the end of the chapter there are some remarks extracted from analysis. The structure of the chapter consists of six sub-chapters. The first two present the general overview of advisory service suppliers and the description of public policy, funding schemes and financing mechanisms; the next two shows human resources of surveyed organisations, their clients, topics of advisory and advisory methods used; the following one shows linkages with other AKIS actors and knowledge flow; the last one briefly describes the way of planning and programming the advisory activities.

### **4.1. Overview of all service suppliers**

#### **Austria**

The Ministry of Agriculture, Forestry, Environment and Water Management provides strategic orientation, finances and monitors advisory services. It has neither a representation on regional or local level nor advisors working directly with farmers. It operates a number of federal institutes and offices which are in charge of numerous tasks. Only in very few cases they provide direct advice to farmers. The results and outputs research institutions produce are in most cases disseminated throughout chambers and other advisory organisations which facilitate information transfer.

The Chambers of Agriculture are the first address for the most farmers seeking support. According to impact analysis carried out by the Austrian Institute for Adult Education in 2012, the chamber accounted for 78% of all contacts farmers had with advisory organisations, 9% of advice was provided by professionals, such as veterinarians, accountants or lawyers, and 6% – by agricultural input providers. Farmer organisations, breeder and producer associations, organic farming organisations and research institutes accounted for the remaining 7% of all contacts. The chambers of agriculture represent the interests of Austrian farmers and are established according to federal law. They are semi-publically financed as they receive financial support from Federal and Provincial Governments and compulsory membership fees of the farmers. The chamber of agriculture is structured around one federal chamber, 9 regional chambers and 78 local chambers, mobilising a total of ± 2000 persons and approximately 300 advisors. The chambers have two major functions: (a) lobbying to represent and defend their members' interests and (b) provision of specialised services to the farmers, which include advisory services and facilitating the preparation of farmers' request for subsidies and their subsequent handling. These functions are subcontracted to the chambers by various federal governments and are organised through a specific devolution contract from the federal government ("Beratervertrag"). Farmers receive general advice free of charge (directly subsidised by the Government). Specialised advice is personalised and is available at full cost to the farmers. With around 1,136,000 hours of support and advice in 833,000 cases in 2011, and a broad portfolio of services and topics, the chambers are the backbone of the Austrian AKIS.



Under the umbrella of the chambers of agriculture, several sub-organisations operate: the rural youth and rural women's associations, the project and business support unit (LK Projekt GmbH) and the Institute for Further Training in Rural Areas (Ländliches Fortbildungsinstitut, LFI). The LFI (Further Training in Rural Areas) is the biggest adult training centre in rural areas. It carries out around 14,000 courses with over 300,000 attendees every year, cooperates with European projects and is involved in regional development activities. The LFI and the Chambers cooperate in development and organisation of trainings, curricula and material.

The work of the Austrian Federation of Grassland and Forage and the Österreichische Kuratorium für Landtechnik und Landentwicklung focuses mainly on publication of information and fact sheets on a number of issues and participation in and organisation of trainings.

All four Federal Colleges and Research institutes in Raumberg-Gumpenstein, Francisco Josephinum, Klosterneuburg and Schönbrunn are considered as centres of excellence in the German speaking area. They have specialized in few selected fields, namely alpine farming, machinery, renewable energy, vinery and horticulture and work in research, education and advisory.

Bio-Austria is the biggest non-profit organisation, specializing in organic farming. It operates in all 9 regions and mobilises around 25 advisors. It delivers advice for existing and future organic farmers, publishes advisory material, fact sheets and a bi-monthly magazine, develops several training programmes and organises events for farmers and exchange meetings for advisors. In this field Bio-Austria cooperates with Chamber of Agriculture and the LFI, universities and agricultural research institutes, agricultural associations and other research institutions specialized on organic farming (Bio Forschung Austria, Fibl and ÖAG) and other NGOs (such as Arche Noah, ARGE Huhn & Co and Arche Austria). A number of associations and NGO cooperate with farmers in the area of their specialisation. ARGE Biogas & Kompost Österreich promotes energy and biogas production from biomass, ÖBV-Via Campesina's target group are small and smallest farmers, Biene Austria supports beekeepers, and Global 2000 collaborates with producers to reduce herbicides in agriculture.

Famer-based organisations, such as breeder and producer associations, cooperatives and producer groups, represent and support their members and clients in their area of responsibility. Their number is vast and an inventory or comprehensive overview does not exist.

Private companies hardly play a role in AKIS. Very few individuals work on a commercial basis and advice their clients on specific topics, such as horticulture, vinery, fruit and vegetable production, veterinary, accounting and legal issues. Up- and downstream industry cooperates and advices farmers in issues concerning product quality and logistics.

The majority of the service providers are active nation-wide and reach down to the clients on local level. Some have a thematic focus. Very few organisations run regional branch offices. Regional farmer associations and cooperatives, for example, are active in their field of expert reports only.

## **Belgium**

In both regions, a major supplier of services for farmers are upstream and downstream stakeholders of the supply chains. It is not possible here to outline organizations, nor to assess

precisely their number of advisors, which may differ from one sub-sector to another, and which are often disconnected from the public funding schemes. However, we can highlight the importance of certain companies, especially those connected to farmers' unions, such as AVEVE in Flanders, of AWE in Wallonia.

AVEVE is a company linked to the most important farmers' union in Flanders: the Boerenbond. This company, existing since the late 19<sup>th</sup> century, was the first collective organisation of farmers aiming at purchasing inputs, and later on at selling their products. The governance of this company is still based on local circles of farmers and provincial boards of representatives. The group had grown sharply in the 1980s when the company purchased many company (upstream and downstream) to become a holding company. Today, AVEVE is the market leader in agricultural and horticultural supplies in Belgium, it has more than 40 companies, it employs 1600 people (including the country's largest chain of garden centres), and it has a turnover of €1 billion (among the TOP 100 companies in Belgium). It is hard to evaluate the number of employees actually involved in advisory activities, but AVEVE is certainly a major actor of agricultural R&D in Belgium.

In the animal production, the *Association Wallone de l'Elevage* (AWE, the Walloon association of breeders) has a similar profile, although much smaller. It has two components: the association that implements R&D activities and provides services to farmers (with about 70 advisors in the field), and a company that is active in selling farmers' products, managing genetic resources markets and providing inputs to farmers. The association receive a subvention of 3 million euro from the region Wallonia, which cover 50% of the expenditure of the association for advice and applied research. Beyond these key actors, there are also many private suppliers of inputs that provide information to farmers. But there is no monitoring of their activity to our knowledge.

Another common point in the two regions is the role played by *applied research institutes* in the delivery of services to farmers. ILVO and CRA-W share more than a common history. Even though giving advice to farmers is not their core activity, both of them are in direct contacts with farmers for some of their activities. For instance, CRA-W reaches farmers through different means: publications (such as the White Book that provides results of experiments about arable crops), online tools that can be freely accessible (but that are more targeted to advisors than to farmers), information bulletin about crop contamination, and formal or informal meetings with farmers (through demonstration fields, open days, evening lectures), etc.

A third actor consists of a collection of *non-profit organisations* that provide advisory services to farmers. These associations share some common features in the two regions: they are non-profit organisations, and their members and boards often include a diversity of actors, including farmers and researchers. Nevertheless, the situation is different in the two regions.

In Flanders, these associations are mostly the 14 *experimental stations*. These stations, co-financed by the region, the provinces, and some farmers' contributions, provide a range of service to farmers. In total, they employ a few hundreds of researchers who work part- or full-time as advisors. For this project, interview was conducted with the director of one of these experimental stations, specialised in horticulture (Research Centre for Ornamental Plants - PCS). It employs 40 people among which 50% of researchers who are also involved in advisory activities through demonstration and open days, a warning system (about pest dissemination),

field courses, but also through individual services to farmers. Even though the experimental stations are autonomous and supported by the different provinces, they do not compete with each other. There is an institutional arrangement according to which they are specialised in different production sectors, reflecting the commodity specialisation of the different provinces.

In Wallonia, the situation is a bit more complex, as the regional ministry has contracts with a broader range of association, reflecting the history of collaboration between research and farmers in the region. These associations have different status and are often much smaller than the experimental station in Flanders. They can be classified in different types: centres pilotes (plant production), filières (animal production), provincial associations for the promotion of rural development, NGOs, and a wide scope of other associations. Some of these associations, which play a role of research, brokering, networking and advice, are managed by researchers from Gembloux or Louvain Universities.

*Farmers' unions* are also active in providing services. In Wallonia, the main farmers' organisation is the Fédération Wallone de l'Agriculture (FWA), with about 7000 members. Beyond its function of farmers' representation and lobbying, it proposes services for farmers thanks to the 15 advisors of its "département études", mainly about how to apply or comply with various European, national or regional regulations and standards (about rural development, water management, environmental standards, etc.). There are two others farmers' unions, the confédération paysanne, and the FUDIA.

In Flanders, the most important farmers' union is the *Boerenbond* (about 7000 members). Besides its historical role in the settlement of AVEVE, the Boerenbond also provides various services to farmers: social services (exchange, support to farmers facing crisis), but also coaching and support for innovation projects. Thus, 20 advisors work for the Innovatietepunt voor land- and tuinbouw. Its aim is to incubate and deliver experimental development projects that foster innovation and to play the role of innovation broker covering any aspect of the innovation process. The advisors are called "innovation consultants" and give advice to individual agricultural entrepreneurs, as well as to different types of partnerships. In addition, various training sessions are given to entrepreneurs on social, strategic and technical innovation. Most of the activities are project-based (EU or nationally funded innovation projects).

Among other farmers' unions, *Bioforum*, which is active in both regions, provides diverse training and information regarding organic farming, from technical to marketing issues.

There are also some services provided by an organisation dedicated to farmers facing difficulties, with the status of a *public-private partnership* in Flanders.

*Private advisory services companies* compose another category, which is more complicated to describe, as the companies are often less connected to public administration or to any other form of monitoring publicly available.

In both regions, there seems to be a difference between two kinds of companies: bookkeeping companies and technical consultants. In both regions, bookkeeping companies are involved in the implementation of the Farm Advisory System Regulation (FAS). In Flanders, we could identify 8 of these companies that are SMEs (employing often less than 15 advisors). One of these companies belongs to the farmers' union Boerenbond. It should be noted that, maybe due to

the reduction of the number of their traditional clientele (farmers requesting bookkeeping services), these companies tend to diversify their activity towards more technical and agronomic content (manure management, renewable energy), but also beyond agriculture (craft industry). In Wallonia, some of these companies are also part of the FAS. But in both cases, there are also many other individual bookkeepers that are not part of FAS, and which we could not identify.

*Companies providing technical advice* are more difficult to identify, as they often do not belong to any frame of public policy. However the interviews with experts made it possible to identify some of these companies. They are very often very small enterprises, with less than five advisors, sometime highly specialised in very small sectors of production (such as azalea production for instance). It should be noted that one Dutch private advisory company is active in Belgium (both Flanders and Wallonia) – DLVadvies, which proposes, besides management and bookkeeping services, advice on soil, environment, energy, quality, and building, with a few dozens of advisors.

Other examples of private advice company include *consultancy organisations* developed by Universities' initiatives, such as the Service Pédologique de Belgique (soil-science service), initiated by the University of Louvain, which provides advice based on the analysis of soil sample. Some associations mentioned in the paragraph above also commercialize a part of their services, such as Diversiferm, an association that provides and charges coaching and feasibility study for farmers willing to diversify their activity in Wallonia.

Compared to 15 years ago, when advice was provided by agronomists from the Ministry of Agriculture, *the public sector* plays, nowadays, a very limited role in the direct provision of services in both regions. In Wallonia, there are 10 people working on development issues within DGARNE. They are not involved in direct supply of services, but rather in monitoring of associations financed by DGARNE. Provinces have some extension departments, "offices provinciaux agricoles". For instance, the office of the Namur's province offers services to farmers: management (one engineer and two assistants), agronomic advice (two engineers) and a laboratory providing trials for farmers and other actors of the supply chain (soil and plant analysis). There are such services in each provinces, with about the same human resources (5 advisors), providing services based on laboratory activity. In Flanders, the Department of Agriculture and Fisheries (regional Ministry in charge of agriculture) is still involved in agricultural extension within the Duurzame landbouwont wikkeling (ADLO), which employs people in charge of combining research and practice through collective information activities (but they do not provide individual services to farmers). One of their main tasks is to support, together with the dedicated staff of the five provinces, activities of experimental stations. Like in Wallonia, Flemish provinces also have departments for advisory services, mainly focused on the follow-up of the provincial experimental stations and on collective operations and networking, and not on provision of individual advice.

## **Bulgaria**

The farm advisory services in Bulgaria are currently delivered by *the National Agricultural Advisory Service*. It was established at the end of 1999 with the Act regulating the activities of the National Center for Agricultural Science. The staff of NAAS is supported by different 'twinning projects' and programmes to prepare for the new duties linked to the CAP. The main mission of

NAAS was to provide farmers “with up-to-date information, specialised extension and consultancy services and expert support to ensure effective and competitive agriculture in line with EU standards”. In, 2012, according to Interviewed Director of Extension Services, “the advisory services in NAAS were funded by state budget (52%) and EU funds (48%) and their overall approach is to advise the farmers regarding plant growing, animal breeding, environmental protection, and to financially support their activities from national and European funds”.

Since the moment of launching Rural Development Programme (2007-2013), NAAS has been chosen as a single provider of advisory services by MAF in the context of measure 143, “Provision of agriculture advice and consultancy in agriculture in Bulgaria and Romania”. This measure was specially designed for Bulgaria and Romania and covered assistance to farmers (mainly small - and medium - scale farmers) with their applications and business plans for four development measures. NAAS with its 27 regional offices were responsible for writing applications for development measures and business plans for farmers and advising them on different agricultural issues. Their experts also supported farmers in meeting cross-compliance requirements in term of GAEC. During this period, many external experts were also hired to support preparation of applications for rural development measures to manage with the increased NAAS duties. NAAS produced nearly 11000 projects for those measures until 2011. However, until 2011 only 20 to 25% of registered farmers benefited from this assistance. At this time, according to interviewed expert “the regional offices of NAAS worked in close cooperation with the Regional Directorates “Agriculture”, the regional office of SFA-PA, local authorities and regional scientific institutes to support their advisory work”.

Since September 2011, measure 143 was replaced by measure 114 “Use of advisory services by farmers and forestry holders”. Registered consultants that can provide advisory services under this measure are organisations such as NAAS, Agricultural Academy through their regional scientific institutes, three universities, one foundation and sixth private advisory companies and one private advisor for forestry holders. According to an interviewed expert in one of the Universities “measure 114 started but it is not so popular among farmers and the interest for is low... expectations is that in near future farmers may become more active...” In 2012, after recognizing NAAS as one of eligible consultants, their experts started actively to promote measure 114 through seminars and to cooperate with farmers in filling in their applications.

Although public advisory services exist, private advisory services have also emerged due to increasing need of the farms to gain support from them through rural development measures. Their activities range from writing applications for financial support to technical assistance. These private services are used mainly by large scale farmers. Non-governmental organisations (farmer associations and foundations) at the national and regional levels advice their members in farming and participating in different development measures. Repeatedly, they provide information for private advisory companies that can support farmers to prepare their applications within RDP measures. Some members of farmers’ associations participate in the Committees, which approve the applications to rural development measures. They are in contact with both stockholders and decision-makers and actively participate in monitoring implementation of development of the measures. Cooperatives and producer groups also used private extension services for writing applications for RDP measures, but received technical assistance and specialized agricultural consultations by regional suppliers. International trade organizations and

regional suppliers, mainly, provide extension advices to farmers and farm organizations in issues related to agricultural production, plant protection and new machinery. They are important providers of new technologies and innovations for agricultural sectors. Scientific institutes and universities provide knowledge through mainly training courses and seminars to farmers. They actively participate in implementation of measure 111 “Vocational training, information activities and dissemination of scientific knowledge” and provide training and seminar courses to farmers. NAAS also organize courses for farmers under measure 111 and their staff.

## **Cyprus**

As it has already been mentioned, the Extension Section of the Department of Agriculture, Ministry of Agriculture, Natural Resources and Environment, is commonly accepted as being the main extension/advice provider in Cyprus. The Sections’ headquarters are located in Nicosia and closely cooperate with 6 District Offices which are further subdivided into 30 smaller target-areas called “agricultural beats”. It employs 120 officers (63% of staff are university graduates). Currently, the Section’s staff activities are divided between advisory work (50%) and other tasks (application of legislation deriving from Acquis 30%; administration and management 18% and R&D 2%). As far as advisory/extension work is concerned, it embraces advisory work (40%), management tasks (20%), information provision (20%), educational activities (10%) and staff’s own improvement (10%).

Their knowledge and information needs embrace all the challenges brought forward by the new CAP (2014-2020) which fall within the responsibility of the Department of Agriculture. Their main (very relevant) knowledge sources are the university, public research, public authorities and the internet. The Section cooperates with all kinds of actors (with the exception of NG research). Main challenges pertaining Cypriot agriculture are the very small farm sizes along with the fragmentation of such small farms and the drought climate (implying heavy irrigation needs). Furthermore, agricultural production suffers due to high production costs and thus in terms of competitiveness of products in the EU market; this is aggravated by high transportation costs (of mostly perishable products which, if not transported fast, are downgraded in terms of quality) as well as to the fact that marketing is the responsibility of another ministry (it is thus proposed that the marketing of agricultural products should be transferred to the Division of Agriculture as well as to re-establish campaigns which were terminated in 2004). To stay competitive, the extension service, besides establishing closer cooperation with the rest of the actors, needs to continuously update staff’s knowledge and skills (re: training in Cyprus and abroad) especially with regard to diversification of production (new crops and varieties) and marketing.

As far as ARI is concerned, they are engaged mainly in applied research; they run experimental fields and are in touch with farmers (although less than they used to) and coordinate the Cypriot FADN/RICA. ARI are in close cooperation with the Extension Section (and, in general, the Department of Agriculture) and participate with researchers in the activities of Extension Section (public presentations, training in KEGE, etc.). They also present the results of their research in public; however as aforementioned most research is carried out through EU-funded projects which do not necessarily correspond to farmers’ needs.

Currently, ARI do not know if research results are timely disseminated to farmers; if farmers adopt them, if they adopt them correctly and under which (on-farm/real) conditions they do it. To bridge this communication gap, ARI plans to establish a direct two-way communication process with producer groups, consultants, the industry (input and processing) and farmers in order to avoid information distortion and involve farmers in research projects or get to know about farmers' experiments. They are also willing to provide advice, if paid.

For ARI, the main problems to be addressed concern the quality, marketing, and competitiveness (imported products are cheaper) of Cypriot products as well as the low prices at farm gate (vs. the expensive final products offered to the consumer). On their part, input shops (private companies) make a living from selling inputs to farmers; advice *per se* is not paid for. Shops do not represent specific transnational input companies and transfer new knowledge related to their products to farmers. Such shops (companies) are long standing in Cyprus (established in the 1960s and 1970s, with the older one, among those interviewed, been established in 1936). Their espoused goal is to increase the quantity and quality of production through the provision of the best possible inputs, advice and innovations. The provision of assistance to farmers, and thus, to the Cypriot agricultural economy as well as the protection of the reputation of the company are also mentioned. These companies are, according to some of the actors interviewed, quite important in terms of knowledge generation since carry-out on-farm experiments and demonstrations (esp. on fertilization and plant protection). Therefore, one of the tasks of agronomists is to persuade progressive (large, innovative) farmers to accept trying innovations, on a small scale in their farms (in which case, relevant inputs are offered to farmers for free). These companies also bring in specialists from abroad/transnational companies to address seminars, public presentations, etc.

The shops'/companies' owners are agronomists (university graduates) and employ agronomists (average 10, ranging from 3 to 15) as well as other staff (average company staff – including agronomists – 42 persons, ranging from 4 to 65). Women account for less than 10% of the extension staff. Shops' agronomists do have any additional certification (none of the shops is involved in FAS) beyond their degree but most of the staff quite often receive additional training (for example, in technical/production issues as well as in topics, as mentioned by one company, such as sales, customer services, personal development and time management, depending on the company's size and orientation). Furthermore, agronomists often follow the public presentations of ARI on research results.

In each shop (company) agronomists with a wide range of working experience are found, especially in bigger companies where the change of younger staff is an usual practice (in their effort, as claimed, to find the most suitable ones). The overall companies' staff working time is devoted to advisory and R&D (experimental farms) activities (at least 30% and 10%, respectively), administration and management (25% to 30%) and marketing and sales (10% to 30%).

The most relevant knowledge source, as expected, are private (input) companies followed by private consultancies. In parallel, though, university and public research are included in the most relevant sources by two out of three companies. The cooperation of two of the companies is quite diversified including, besides private (input) companies and private consultancies, public research and public authorities.

Major challenges' understanding varies between companies. They concern the increased transport costs of the agricultural products to the EU as well as the downgrading of their quality (perishable produces); the ageing farming population and thus the lack of entrepreneurial spirit and the difficulty to introduce innovations; and, the further specialisation of production. One company representative also stressed the need for agronomists to cooperate with farmers, especially carrying out collaborative on-farm experiments.

As far as the companies' own needs are concerned, the continuous updating of their (mainly technical) knowledge and information (and the introduction of innovations) is a common concern.

Local consultants are agronomists or groups of agronomists (university graduates with further training and certifications, including FAS (all) and GLOBAL GAP). Their professional experience varies: two out of four consultancy companies have been established by retired public (Department of Agriculture) and private companies' staff and employ 10 agronomists (with one employing only retired agronomists), while the third one employs 7 young university graduates (experience less than three years) but cooperates with 6 more experienced (external) agronomists and the fourth one (Development Agency - DA) employs only one agronomist (experience: 9 years).

The consultancy companies' income comes from the fees paid by farmers or farmers' groups per package of advice or per application prepared, relating to EU programmes (Young Farmers, modernization schemes, etc.). Their espoused goal is to assist farmers through provision of technical advice and advice on running programmes as well as to prepare their applications.

The consultancy companies cooperate with a variety of other actors. Public authorities and public research hold a prominent position. Private inputs and processing companies are also referred to along with universities and the internet, with the DA also taking notice of collectives (rural women club) activated in its target area.

The main challenges concern the improvement of the quality of agricultural products and safeguarding farmers' income (since as income decreases the more likely it is for farmers not to be able to pay for advice as well as to abandon farming). The need for farmers to be better trained was also put forward.

As far as the companies' own needs are concerned, being in contact with farmers, their own continuous updating of knowledge and the cooperation between actors such as the state, farmers, and consultants, are acknowledged as important. The need for qualified staff was also mentioned by one of the consultancy companies.

Furthermore, *advisors-agronomists* are employed by producer groups and (processing & marketing) cooperatives. They were established after 2004. They employ a number of agronomists (permanent staff – on average 2-3 agronomists – with or without external assistance/agronomists). Depending on the group's business plan, i.e. on whether agronomists' salary is included in the business plan (co-financed by the EU and the group), advisors either charge farmers-members with a standard fee for advice or provide advice for free. Their professional experience roughly equals the number of year these groups are operational (average 7 years) and their goal is to enhance products' quality and safety (from cultivation to their



marketing), thus including cultivation techniques, quality standards (integrated production systems, etc.) and, where relevant, packaging and marketing. Overall, the staff of these groups is largely occupied with administration and management (on average: 50%), followed by advisory (35-40%). The rest of the working time is devoted, where relevant, to the maintenance of packaging units and/or marketing. As far as extension activities are concerned, educational activities occupy (on average) around 23%, information around 32%, advisory around 22% and own improvement around 13%. The rest (ca. 10%) is devoted to managerial tasks.

The advisors' knowledge needs are quite diversified, depending on their background and the organisation they work with. As far as their main knowledge sources are concerned, public authorities predominate, followed by public research and private companies (input and/or processing). The university and the internet are also mentioned as (very relevant to) relevant sources by two out of the three organisations.

The groups mainly cooperate with the public authorities. Other actors referred to are the university (by one of the groups as they cooperate on a project), public research and private (input) companies (by two of the organisations each).

Only one of these groups keeps records of advisory work (timesheets). The management, Boards, hold responsibility for putting together their strategic plans. The groups are not involved with FAS (although some of their agronomists are certified for FAS).

Major challenges for them relate to the ever increasing production costs (increasing prices for fertilizers and pesticides, along with unnecessary investments on machinery by quite some farmers) and marketing. The lessening of the EU Regulations to take account of the specific nature of the Cypriot agriculture was also put forward by one group's representative.

Finally, needs for them to stay competitive revolve around development of entrepreneurial spirit in the groups (as far as their management sections are concerned) and introduction of innovations (including updates/access to information on both scientific and policy topics by both agronomists and farmers).

### **Czech Republic**

The advisory system in Czech agriculture sector is directed towards farming, forestry, fisheries, water management and rural development, respecting National Rural Network Fiche (EC) and Council Regulation (EC) No 1782/2003. The whole system is based on Conception of Ministry of Agriculture (MoA) 2009-2013 – Farm Advisory System.

The advisory services are provided in various forms representing individual levels, from general informative advisory services to professional advisory services, individual field advisory services, up to synthetic information provided through inter-connected web sites. All these levels are inter-connected, complete, and support one another, thereby making up an integrated system, which is financially secured through supporting programmes. Advisory services are provided by various bodies. Advisory system has 4 levels. For each level providers are designated or registered, which supply free advisory services in frame of main activities or in return for payment.

On the first level – *Introduction Consultations* – the consultations are free of charge, serving as source of general information (time-limited) about questioned topics. Typically asked information concern subsidy programmes, deadlines or possibilities of next direct advisory.

This consultation form was procured through Agricultural Agencies (MoA AAs), in the programming period 2007-2013 and will be integral part of everyday activities of responsible employees, but in other state institution, the State Agricultural Intervention Fund (SAIF). All institutions are parts of organisation structure of National Rural Network. The staff workers shall provide information on *all kinds of programmes for aid granted by the Ministry of Agriculture*, help in formal terms, with filling in necessary form of check-lists, and shall act as methodical workplaces for similar activities of agrarian non-governmental non-profit organisations, and fulfil other tasks set down by the Action Plan of National Rural Network. They shall provide advisory services to land users in the sectors of the Land Parcel Information System (LPIS), and products of that Register, further on, keeping the other registers including farmer portal. They shall provide basic information in the field of legal regulations relating to agriculture. They organise seminars, schooling for farmers relating comprehensively to allocation policies of the Ministry of Agriculture and of the European Union, further for the spheres of the Nitrate Directive, vulnerable areas, registration of fertilizers, landscape-forming elements, etc. During their operation term, the AAs workplaces became significant centres contacted by farmers and agricultural bodies, starting or already enterprising, asking for advice or help.

*Agrarian non-governmental non-profit organisations* are the next subjects on the first level; some of them have statute of Regional Information Centrum (RIC), one for each region (totally 13 in the CR). Except aforementioned activities (general consultations) these institutions inform about obligations to observe the standards of good agricultural and environmental conditions (GAEC), and also give feedback to the Ministry on consultation needs of target groups and on advisory services and products delivered.

*National Rural Network* is framework institution associating state institutions, agrarian NGO/NPO, universities and enabling better sharing of information and theirs exchange.

The employees of non-governmental non-profit organisations shall be offered systematic education in the sectors of their consultative operation. They will also be provided, to support their activities, with information (software and database) and professional assistance by the *Institute of Agricultural Economics and Information (IAEI)*. The mentioned Institute makes basic information accessible to users free of charge, and the information will be transmitted in acceptable form. IAEI provides information about technological standards, methods and working instructions, norms and table data about sectors of agricultural production, information from the fields of veterinary and phytosanitary care, marketing information, estimated developments of domestic and foreign markets, and other information important for decision-making by entrepreneurs in market environment.

The second level – *Professional Consultations* – consultations are free of charge for users and solve individual professionally oriented questions of operational character.

Professional activities of scientific and research institutions may be directed also to the transfer of research findings useful for the improvement in the activities of advisors, lecturers and consultants

within the MoA Advisory System, of teachers at secondary vocational schools and possibly of public administration workers. This level also includes special advisory services for animal and plant production. Providers on that consultation level are agriculture-oriented public universities, research institutes and designated professional associations of non-governmental organisations (in case where corresponding research institute does not exist). These institutions, as research organisations, are a source of innovations for AKIS and for agriculture praxis. Guarantor of special advisory for animal and plant production is the Commodities Section of MoA, which realises advisory services through the existing breeders and growers associations or through authorised persons. On that level IAEI provides consultations too, through the *Infopult Service*.

The third level – *Individual Advisory Services from RDP, Measure I.3.4.* - Individual advisory services are used in cases where the questioner (usually agriculture holding or private farmer) needs to solve professional problem, mainly from the area of the Common Agricultural Policy principles, cross-compliance and GAEC; a much deeper and/or larger problem than offered by professional consultations. These services are financed with participation of client.

The State guarantees the selection of advisory service providers and inspection over the observance of the standard and volume of such services. The advisory services may only be provided by private natural or corporate bodies who have advisory services included in the subject of their activities and who are kept in the MoA Registry of Advisors, or who have registered advisors at their disposal. Registration of the advisors is conditioned by the accreditation thereof, at which they have to prove their professional knowledge and material assets. The rules of the accreditation and registration of advisors are regulated by the MoA Directive (214610/2012-MZE-17013 from 12.2.2013) on the accreditation of advisors and keeping thereof in the MoA Registry of Advisors. Also, the State is obligated to guarantee that the authorities and bodies selected for providing advisory services to farmers possess effective resources of skilled staff, administrative and technical equipment, and advisory experience and reliability as for the observance of the requirements, conditions and norms contained in Art. 24/1/a/b of Council Regulation (EC) No. 1698/2005.

The Ministry of Agriculture delegated a part of its implementing powers in field of AKIS to its contributory organisation, the Institute of Agricultural Economics and Information, which it charged – *inter alia* - with the performance of the activities of inspection authority. Duties of IAEI are accrediting of private advisory bodies that will operate in the Farm Advisory System (FAS), including the verification of the data presented in their applications for authorisation, providing methodical and information support to accredited subjects and controlling of the content, volume and quality of provided advisory service. IAEI cooperates with Forest Management Institute (FMI) in the field of forest management. IAEI is administrator of public database Ministry of Agriculture Registry of Advisors.

The fourth level is *Providing of Information through Specialized Web Portals*. Web portals as other (additional) source of advisory services are used in areas of agriculture, water management and rural development. At present, there are a lot of web sites bringing specialised information, methodical instructions, form sheets and recommendations. The information impact of these portals depends on the user computer literacy, on the easy way through which the user gets the information, or even on the necessity of paying for the access to certain information items. Web

information is provided on all levels of AKIS, for different degrees of professional knowledge. Support of web advisory has the aim to simplify access to advisory information, thanks to networking of web portals. Important role is played by Farmer Portal, application of MoA (<http://eagri.cz/public/web/mze/farmer/>), web pages of Regional Information Centre. RIC's plays an important role for direct contact with farmers and other users of information. Criterion for selection between bodies to ensure activities of RIC was knowledge of agricultural problems, connections with MoA, SAIF and regional governments and contacts with agriculture holdings. RIC information pages have many visitors from agriculture praxis.

## **Denmark**

The supply of advisory services in Denmark mainly happens within the farmer-based, owned and controlled advisory system known as the Danish Agricultural Advisory Service (DAAS). The Knowledge Centre for Agriculture is part of DAAS, but acts as the national research and knowledge facilitator. The DAAS-cooperation dominates the market for advisory services. Alongside the DAAS-cooperation or the DAAS-system the other main sources of advisory services are provided by private independent companies - all small in size - and input suppliers companies. Public universities and research units do not provide day-to-day advisory services to the individual farmer. Some companies within the food processing industry are involved in advising the farmers when making contracts with them. This happens within specific sectors such as potato growing. It is also significant that private independent advisors have a large role within limited specific sectors e.g. potato growing where the private advisors have a much higher market share compared to the large advisory services' areas of cattle, pigs and crops.

*The DAAS-cooperation* consists of 30 advisory centres and they have approximately 2,800 advisors. These do *not* form and are *not* to be seen as forming one unified structure with an overall centralised management where each centre forms a subdivision of DAAS. Each centre is independent of one another, *but*, on the other hand, they are all members of DAAS. The director of each DAAS centre is member of the DAAS Board of Directors. The DAAS board regularly meets and discusses the situation and needs of the farmers and the agricultural sector. The reason why having competing advisory companies at the same table is that they all share some common knowledge and information needs and the historical traditions for cooperation in the farmer controlled agricultural sector.

Each DAAS centre is owned by one or several (the trend) farmers' local associations. Traditionally there were many more local farmers' associations and each of them had their own society or association of advisors attached to them. In the last 30-40-50 years these local societies/associations have been separated from – but are still owned by – the local farmers' associations and have developed into more distinct business-like advisory centres increasingly looking like private business companies. This development has been intensified over the last 20-30 years, where the structural development within Danish agriculture and in the country side has reduced the number of farmers' associations and the number of DAAS-centres, too. Like many local farmers' associations, also DAAS-centres have merged to bigger DAAS-centres - now often regional in their market perspective and with geographical local offices. The competition among the centres has increased both because the DAAS-centres have become more “company-like” (as every other company in every other market) and as the informal rule of local

monopoly/exclusivity has been under pressure (“previously you did not offer services within another DAAS-centre’s area”). The competition among the centres is more severe than ever.

The different DAAS-centres differ a lot in size. The largest – after being merged with another in August – now covers 15% of the market of advisory services. The smallest DAAS-centres with a size of 4-10 advisors are primarily found on the fringe parts of Denmark; they have a stronger local identity.

Another aspect of the structural development within Danish agriculture which has affected the DAAS-centres is that advisory fields covering animals and special limited fields for advisory service such as stable design have been separated into individual specialised advisory centres. This trend first happened within pig production in the 1970s and 1980s. The latest merger - September 2013 - meant the creation of a pig advisory centre covering half the pig production in Denmark, equivalent to a production of 10 million pigs. This trend is also happening within the cattle advisory services, where 4 DAAS-centres in the southern part of Denmark (covering Southern Jutland and parts of Funen) have formed one advisory centre offering cattle advisory services.

The DAAS-cooperation market shares within the different advisory fields are estimated to be the following: economic advisory service (90-95%), crop production (90-95%), cattle advisory services (80-90%), pig advisory services (60-70%). The reason why the much lower market shares with regard to advisory services related to cattle and pig production is due to the presence of private independent advisors but mainly to the presence of advisory services provided by veterinarians, partly due to requirements stipulated in law. But the DAAS-centres employ veterinarians themselves among their staff and/or work closely with the (independent) veterinarians used by the farmers. Traditionally there is a good cooperation with the veterinarians. Furthermore it is a constituent feature of the Danish advisory system that different advisors, though they are competitors, work with one another based on the needs of a farmer. The trend among veterinarians working with the animal production of Danish agriculture is that over the last 20-30-40 years the traditional one-man veterinarian enterprise has merged with others into larger businesses, typically with 5-10 veterinarians. This has not been a slow or hasty trend but a steady trend. In this way Denmark has an extensive veterinary preparedness of control regime covering the agricultural sector.

The DAAS-centres cover and offer full supply of advisory services in relation to organic farming. The cultivated organic area in Denmark has continued to grow since the 1980s and organic farming and attendant advisory services are currently perceived fully in the line with other farming and advisory areas.

*The Knowledge Centre for Agriculture (KCA)* works as the connecting link between university research and education and the Danish day-to-day system of advisory services. In this sense, the Knowledge Centre for Agriculture acts as the first layer of two, where the second layer is the DAAS-Centres. This model is known as the Danish two-layer model for development and delivery of advisory services. The Knowledge Centre for Agriculture acts as research and knowledge facilitator in such a way that the Knowledge Centre for Agriculture adapts knowledge from national and international scientific research and knowledge sources. This is the core task of the Knowledge Centre for Agriculture. Earlier on - especially during the 1950s and 1960s and

as a result of the impact from USA through the Marshall Plan - most agricultural knowledge offered to the farmers had the character of knowledge transfer as in the concept of extension services, but services have since then developed even more towards advice, mentoring sparring and development of the farmers' own knowledge and abilities to be a farmer and manager of his holding. The activities of the Knowledge Centre for Agriculture are covering all major fields of advisory service, including organic farming which has its own department. Besides research and being knowledge facilitator on behalf of Danish agriculture the Knowledge Centre for Agriculture is in charge of running several databases and responsible of delivering on a regular basis reports and analyses of the state and situation of Danish agriculture.

Development of advisory services as such – i.e. how to conduct, build and form agricultural advisory services – has never been a part of the programmes at the universities or other publically governed institutions nor has it been the centre of attention in governmental policies. This has always been left to the agricultural sector, respectively the agricultural colleges, but mainly to the Knowledge Centre for Agriculture and its predecessors. Today, it is situated as a subdivision of the department of Business Finance & Management. Training and courses in being an advisor and on how to advice are offered alongside the other products and services from the Knowledge Centre for Agriculture. These products - like all other services within the Danish advisory system – are offered on the basis of the demand of the advisors and on the needs of the farmers.

*Pig Research Centre (PRC)* – alongside the Knowledge Centre for Agriculture is the Pig Research Centre. The reason why the Pig Research Centre is not part of the Knowledge Centre for Agriculture is to be found in historical reasons and different structure in terms of ownership and control between the Knowledge Centre for Agriculture vis-à-vis the Pig Research Centre. In short, the Knowledge Centre for Agriculture is owned by the farmers where the Pig Research Centre is owned both by the pig farmers and by the former federation of Danish Pig Producers and Slaughterhouses, now part of Danish Agriculture and Food Council.

The Pig Research Centre conducts extensive research and knowledge production including a comprehensive work with breeding. The Centre transfers knowledge, assists in developing advice and also provides specific advisory services both to Danish pig advisors and pig farmers.

*Upstream industries / input suppliers.* Input suppliers supply advice on the products they sell. This seems to be inevitable as an integrated natural part of their business. In Denmark upstream industries provide advice as an integrated part of their business. Concerning the companies dealing with farm supplies, where farmer-based and owned companies today in Denmark almost have a monopoly, reactions from them to the posted questionnaire showed that the respondents do not see their sale and extensive contact with the individual farmer as advisory services. Their perception of advisory services is that advisory services are provided by people specifically called advisors and hired in by the farmer, private or DAAS-advisor.

Upstream companies supplying pesticides have only few people deployed physically in Denmark, and it is estimated that they are not or only very little involved in providing advisory services.

*Private independent advisors.* The study only revealed two large private advisory companies. Patriotisk Selskab, which similar to the DAAS-centres is farmer owned but has its roots in being

owned and traditionally providing advisory service to the large estate landowners. Patriotisk Selskab who offers advisory services within all areas is invited occasionally and takes part in some meetings with the DAAS-centres. Patriotisk Selskab has about 70 employees. The second one to be found was LVK – Landbrugets Veterinære Konsulenttjeneste. It is also owned and controlled by its customers = the farmers. LVK offers veterinarians advisory service. LVK has about 40 employees.

The horticulture sector is served by HortiAdvice Scandinavia which is owned by the Knowledge Centre for Agriculture and the Dutch DLV Plant. Beside this company, also owned and controlled by the farmers, an unknown number of private advisors within the field of horticulture exists.

Apart from the DAAS-system, Patriotisk Selskab and LVK, a number (estimated to be around 8-15 on the basis of the internet research) of independent companies exists - typically 4-8 employees offering a variety of advisory services. Besides the small companies, there is a number of enterprises of 1-3 owners/employees, who typically have specialised in one advisory service offering advisory services either in relation to cattle, pig, plant, organic farming, bookkeeping or business management. There is no national public list of all Danish advisors and advisory companies.

Regarding stable building / construction of agricultural buildings there is a wide range of private companies and advice is certainly a part of the relation with these companies. But some of the DAAS-centres have formed 2 advisory centres specialised in advice related to the construction of agricultural production buildings. Some of the other DAAS-centres offer independent advisory services regarding agricultural production/stable buildings within their organisation.

NGOs – one NGO has been identified offering agricultural advisory services. This organisation is Økologisk Landsforening (in English: the National Organic Association) and it has, as part of its activities a department (with 12 consultants), which offers a large variety of advisory services.

## **Estonia**

There is an open advisory service market in Estonia, which has resulted in a fragmented advisory system. Advisors who provide advisory services for farms operate mostly through county advisory centres, and the activities of advisors and advisory centres are assisted by an advisory service coordination centre. Every county has an approved advisory centre and every centre has professionally certified agricultural advisors at least in the fields of plant production, animal husbandry and financial management. Lists of eligible advisors are available in each county office and on the Internet. Advisory services for people and enterprises can be obtained through forestry groups, Kodukant village movement network, county development centres operated by Enterprise Estonia, research institutions and universities, sellers, processors and buyers of inputs for agricultural products and through other advisors.

## **Finland**

ProAgria is the leading agricultural advisory organisation in Finland, serving members as well as other rural entrepreneurs. This country report concentrates mainly on the ProAgria Group, because the ProAgria advisory services covers the whole Finland and the organization gets about 80 percentage of the state subsidy directed to the agricultural advising.

ProAgria Group consists of three main sections; animal breeding and artificial insemination, IT-technology and services and advisory services and consultation. The objective of the Group is to build a locally, regionally, nationally and internationally strong operator which will develop and interconnect farming and business consulting services in the countryside. The principle of consultation is to customise the services from the customer's perspective and to offer comprehensive service packages which the customer can use to gain success and control all the facts of their businesses and farms. In future planning – business monitoring and generation transfer; in investment – investment plan, economic evaluation, investment teams; in production – yield, feeding, breeding, bookkeeping, tax and subsidy, “year-round” monitoring; in analyses – DW/benchmarking services, economic, efficiency, knowledge, environment; in management – business plan, competitiveness analyses, profit analyses, training and auditing; in IT-programmes – cultivation, feeding, breeding, bookkeeping, cattle registration. Furthermore, a greater portion of consulting is provided by consultant teams rather than individual consultants. This means that the customer benefits from more extensive expertise.

Besides ProAgria there are seven special agricultural advisory organizations in Finland which are independent organizations, but they have a cooperation agreement with the ProAgria Group. These special agricultural organizations are the Finnish Poultry Association, Work Efficiency Institute (TTS), Central Organization for Finnish Horticulture, Association for Finnish Beefarmers, Association of Organic Farming, Association for Trotting and Horse Breeding (Hippos) and the Finnish Fur Breeders' Association.

In Finland there are also some other private agricultural entrepreneurs, but we do not know the accurate number of the entrepreneurs and consulting companies. About half of the private advisors belong to the Association of Private Rural Advisors. The association has 50 members and all the members work independently. The advisors work with many topics e.g. cultivation plans, support blankets, farm advisory system and economics. The Association of Private Rural Advisors supplies general information for members and some material production.

## **France**

The first, very important stakeholder for the provision of advisory services and information to farmers are the organisations in direct relations with farmers for *the supply of input or the purchase of agricultural commodities*. There are two types of organisations providing such services: farmers' cooperatives or private traders. The evaluation of the number of advisors within such organisations is difficult. A first reason is fast reorganisation of this sector, especially for cooperatives. Another reason for this uncertainty is that the role of their field workers might be ambiguous and variable, between information on input/outputs' trade and the supply of advisory services. Nevertheless, there are some indicators of the importance of such organisations. The federations of farmers' cooperative (Coop de France) and the federation of input traders claimed in their last overviews to have respectively more than 7500 and 2600 advisors. Even though such statements are difficult to validate, other sources of information tend to confirm that such organisations are farmers' first partners for accessing technical information, as a survey about farmers in the Region Rhône-Alpes. A recent research (Vargas 2013), based on the study of six major cooperatives (that have altogether 57900 members, more than 10% of French farms, and more than 700 advisors), shows the strategic role of advisory services for



these cooperatives. First, they have signed a charter that sets the ethics and methods for advisors. Secondly, they invest both in front-office (the number of clients per advisor decreases, with less than 80 in average) and in back-office, with the creation of R&D units. Advice appears more and more as an important dimension of their economic activity and of their relations with farmers. These services are partly charged separately from the commercial transactions of inputs or outputs. Some of these cooperatives are grouped under an umbrella company, INVIVO, which is a major player of agricultural R&D nowadays.

A second major actor are the *chambers of agriculture*, which are present at different geographical levels: national (the umbrella organisation Assemblée Permanente des Chambres d'Agricultures - APCA, with 200 employees), regional (the 21 regional chambers of agriculture, with 335 employees) and departmental (the 94 departmental chambers of agriculture, with 7300 employees). 73% of the employees are engineers or technicians involved in advisory or R&D activities. The chambers are consular organisations: they are chaired by a president, and a board of farmers (4200 selected farmers belonging to different unions), who nominates the director, but are subsidized mainly by public funds and are endorsed with public missions. They combine different sources of funding: a local tax on "non-developed" land (in average 50% of the funding of chambers), subsidies from the Ministry of agriculture (CASDAR fund, about 17% of total funding), contracts with local authorities (regions, departments), and purchase of services by farmers. The domains of intervention are the following: individual business advice for farmers (commercial strategy, organisations, investment in equipment), agronomic and environmental advice, territorial and local development, quality of products (standards), and the monitoring of intangible resources and data bases. Some of these services are mandatory missions associated with the delegation of service from the Ministry. The chambers of agriculture also hold a training centre (Resolia, 23 employees), and an agricultural private college (ESITPA, 52 employees).

A third group of actors is composed of various farmers' associations that provide services to their farmers. Some of them have been grouped under the terminology of *Organismes Nationaux à Vocation Agricole et Rurale (ONVAR)*. The ONVAR are national umbrella organisations of local non-profit organisations and/or provincial federations of farmers and workers. They are often grounded on collective and participatory approaches so as to promote alternative farming practices or models of farm management. They are mixing different sources of funding: public subsidies (including CASDAR), farmers' contributions, projects, and purchase of service by clients (training, advice). The main ONVAR that actually provide advisory services to farmers are:

- The federation of *Centres d'Initiatives pour Valoriser l'Agriculture et le Milieu rural (CIVAM)*, which represent 135 farmers' groups (10000 members) ran by 107 advisors with the support of a national federation employing 6 people. The main themes for advisory services are: low input agricultural production systems, localized agri-food systems, exchanges within rural communities, and economic and social activities and networks in rural communities;
- *TRAME*, a network of federations, mainly the federation of agricultural employees (ASAVPA, 6000 members and 50 technicians) and the federation of farmers' groups for agricultural Development (FNGDA). The latter has more than 40000 members distributed in 1200 groups. These groups can be connected to the chambers of agriculture (Groupe de

développement agricole, GDA, often supported by chambers' advisors), or independent, like the Centre d'Etudes des Techniques Agricoles (CETA), where advisors are paid by farmers' contributions.

- The *Associations de Formation Collective à la Gestion (AFOCG)* merge 2000 farmers who share the willingness to benefit from life-long collective learning based on discussion groups about management and socio-economical issues (Inter-AFOCG), with the help of 35 local agents and 4 employees at a national scale in an umbrella organisation;
- *l'Association de Formation et d'Information Pour le développement d'initiatives rurales (AFIP)* has 6 regional associations facilitated by about 20 agents with competences on rural development, land planning, sociology, educational and projects methods;
- Other ONVAR are dedicated to the support of certain social groups or companies, like *GAEC&Sociétés* for collective farm structures (8 employees) or the *Mouvement Rural de Jeunesse Chrétienne (MRJC)* dedicated to young people (15000 members, 80 employees).
- There are two other federations of *non-profit organisations* (not subsidised by CASDAR) that play a key role in the provision of services for farmers, in the field of advice related to technical and economic performance of farms.
- The first network is *CERFrance*, a network of 70 farmers' associations providing bookkeeping services and advice to 182000 farmers (and 63000 other SMEs essentially in craft industry), thanks to 12000 employees, among which 6300 accountants and 1300 advisors. These associations were created 50 years ago. They are independent organisations that benefit from the support of a national federation (17 employees) involved in networking, training and foresight. More than half of the funding comes from members' contribution, and 25% from the sales of services. There are no formal agreements with public actors beyond specific contracts related to the production by CERFrance of *ad-hoc* databases for the Ministry of Agriculture, mainly about farms' economic performance indicators (CERFrance is also a key actor of the FADN system in France). Despite the decrease in the number of farms, the activity (both in terms of employees and gross income) is still increasing, due to a diversification, not only towards new clientele beyond agriculture, but also thanks to the diversification of services for farmers. Some CER associations have thus locally invested in agronomic advice (both for back- and front-office).
- *France Conseil Elevage (FCEL)* is a network with a rather similar trajectory than CERFrance. It is also a very old network (its history dates from the beginning of the 20<sup>th</sup> century). It is composed of farmers' associations (with different status: unions, associations), whose former mission was not advice but rather measurement and monitoring of performance of animal production (amount of milk produced per cow and weight growth rate for meat cattle). Today, such organisations are diversifying their activity more and more towards advice, on animal feed, milk quality, reproduction, economic performance, fodder production and even fertilization. There are about 70 associations for milk production, with 1250 advisors and more than 45000 members (66% of dairy farms and 82% of milk production); and also 70 for meat cattle (with 230 technicians). The associations do not benefit from public subsidies: they are financed by farmers' contributions that cover basic services. Extra advice is billed individually. The associations are independent but benefit from the support (for networking, training) of the

10 employees of the national federation. This federation is also involved in research projects and in maintenance (with applied research institute and the Ministry of agriculture) of a database on milk production that supports the national system of genetic selection for animal production; Another active actor is the federation of the 11500 *Coopératives d'Utilisation du Matériel Agricole (CUMA)* that merge more than 220000 members. Their primary mission is to organise a collective and shared utilisation of agricultural machinery among farmers. These cooperatives benefits from the support of 350 employees within regional federations, among which 150 advisors (and 150 bookkeepers) who propose services such as individual and group advice, experiments, demonstration (trials with constructors), training, methodology.

The last group of actors are *private advisory companies*. There are, at the moment few of such companies, and moreover, few information about them. Some of them have recently created a national association: *the Pole du Conseil Independant en Agriculture (Pole for Independent Advice - PCIA)* that gathers about 20 companies for a total of 50 to 60 advisors (who share a few thousands clients); and advocates for independent companies that "only sell knowledge". Some of these companies are individual consultants, other are SMEs with 5 to 10 consultants. Most of them are based on the provision of agronomic advice for arable farming or horticultural or wine production.

It should be acknowledge here that there are less data about private consultants for animal production, where veterinarians may play the role of advisors. Also, it was not checked whether private independent bookkeepers offer advice to farmers, and if so, to what extent. Another new field of service is the development of companies selling software to farmers, such as ISAGRI, European leader of the market, with more than 150 employees, and a network of farmers for peer-to-peer diffusion.

Beyond this case of private advisory companies, account has to be taken of different limitations of the study as we could not assess the development of services for certain segments of clientele, for certain actors, or for certain domains of agriculture.

As mentioned earlier, it proved more difficult to assess advisory services for animal production, where the supply might be more fragmented. The interviewed experts mentioned that producers' organisations, farmers' groups and the dairy industry are the key actors. It should be noted that sanitary issues, such as the prevention of disease and contamination, play a key role in this sector. This is for instance the case of the *Groupe de Défense Sanitaire (GDS)*. These is one GDS in each French department, with the aim of monitoring the animal health and of preventing from sanitary risks thanks to advice provided by veterinarians on vaccination, hygiene, and practices. A vast majority of farmers are members of GDS, but we could not collect information about their advice activities. More globally, there is a need to better understand how farmers and agricultural workers have access (or not) to information on the work safety related to pesticides use.

No information was collected about the specific advisory organisations dedicated to the development of organic farming. There is an applied research institute dedicated to the R&D on organic production (Technical Institute on Organic Research - ITAB), which has recently been acknowledged as one of the ITA, and receives subsidies from the CASDAR. There are also some associations of farmers (Groupements d'Agriculture Biologique) that support farmers with any aspect of the production (either technical or economical). But field research indicates that

organic farmers also receive advice from private companies that collect their production or supply them with specific inputs that suit their production systems. The survey also did not assess the services provided to farmers willing to start a new business. A study in one French region reveals that this sector of services is extremely fragmented, especially when it comes to supporting the settlement of part-time farming, with many associations (from within and out of the agricultural sector) with heterogeneous competences (management, economics, technical), and lack of coordination.

More globally, there are some new trends associated with advisory services provided for the support of new forms of agriculture. It was highlighted by Goulet (2011) in the case of the diffusion of no-tillage technologies. He showed that this technology was diffused thanks to new networks of farmers, relying on collective exchanges of knowledge, but also supported by various industries that provide specific inputs to these farms, together with new methods for providing services to farmers.

Also, it was impossible to evaluate information flows between farmers and regional or departmental administrations. Beyond their role in financing advisory services, they are also a source of information for farmers, especially about the content of local, national or European regulation. To the researchers' knowledge, there is no systematic assessment of neither of these activities.

### **Germany**

The provision of advisory services lies within the responsibility of each federal state. The advisory services of every state feature individual characteristics and have evolved historically, so that basically, 16 more or less diverse advisory systems exist in parallel. Three city states have either transferred competences for advisory services to the surrounding state (e.g. Berlin-Brandenburg) or possess own agricultural chambers (Hamburg and Bremen) while integration of politics into the competences of Lower Saxony takes place.

According to the terminology defined in PRO AKIS conceptual approach five major advisory systems can be identified in Germany:

*Public advisory services* exist in the states of Baden-Württemberg and Bavaria in the form of public authorities, particularly agricultural district authorities which also comprise agricultural advisors. Hessen and Rhineland-Palatine offer advisory services through public service centres which combine tasks of agricultural advisory, education, research and experimental stations under one roof. Saxony is still dismantling its advisory services into a private system.

*Agricultural chambers* prevail in Rhineland-Palatine, Saarland, North Rhine-Westphalia, Lower Saxony, Hamburg, Bremen and Schleswig-Holstein. In those states, membership and payment of fees to the chamber is mandatory for every farmer. In turn, farmers have access to advisory services, information from research and experimental stations and agricultural education from the chamber. Moreover, the chambers execute state duties that are provided by provincial agricultural authorities in other states.

Advisory services by *private advisory companies* compose the main extension system in Mecklenburg-Vorpommern, Brandenburg, Saxony-Anhalt, Thuringia and Saxony. The concentration of private service provision in the eastern German states is due to historic

developments while privatization tendencies and hiring private advisors by farmers is common in all other states as well.

Apart from this, advisory services through FBOs exist, e.g. the German Farmers Association offers advice on selected topics on a wide-scale regional level. Advisory circles are another established form of FBO which are specifically set up for advisory service provision to groups of farmers. In Lower Saxony and Schleswig-Holstein they have a long tradition, but they exist in numerous other states as well.

Advisory services offered by NGO tend to be fragmented. In this research, NGOs only include ecclesial institutions which offer social and family counselling for farmers.

It is important to keep in mind, however, that despite the description of responsibilities for the operation of advisory services in each state (which is determined by each state's agricultural ministry) the reality of advisory services appears much more pluralistic. Therefore, despite these five major types, every state features a very diverse set of actors involved in agricultural extension.

It should be noted that the survey is not representative for the whole of Germany's advisory services, simply because the total number of organisational forms, despite the publically funded ones (public administration and agricultural chambers), is unknown. Nevertheless, the survey gives a good impression of the rough distribution of advisory services in Germany – i.e. few public advisory service institutions (with a relatively large sphere of influence in the states), numerous private advisory companies and FBO offer advisory services to farmers.

## **Greece**

Currently, none of the national level organisations, i.e. MRDF, ELGO (especially NAGREF; less OGEEKA) or HEIs, is involved in the provision of advisory services, with the exception of PASEGES. It may thus be argued that while NAGREF and HEIs generate new knowledge or adapt the existing knowledge, currently they face rather insurmountable difficulties in transferring such knowledge to farmers with the exception of sporadic events (seminars or public presentations/talks) and publications which nevertheless do not actually reach farmers (or are not written for farmers).

MRDF is primarily occupied with the CAP implementation (albeit without serious efforts to adapt them to the Greek peculiarities). As far as NAGREF is concerned, it has to be noted that although representatives of Ministries (MRDF & Mo Development) and the GEOTEE (Geotechnical Chambers of Greece) are in the Board of NAGREF the lack of a clear strategy for the Greek agriculture and funding do not enable designing a research strategy in order to meet the contemporary needs in agriculture and rural development. The lack funding results in the dependence of researchers on EU funded projects which nevertheless rarely correspond to the needs of Greek farmers. Furthermore, even when in a few cases research is carried out covering topics of interest to Greek agriculture (for example arboriculture) there is no mechanism for the dissemination of the results. For the moment, NAGREF also suffers from the lack of researchers with the personnel occupied in administration surpasses, by far, the numbers of researchers. Currently, there are indications that NAGREF may be supported with post-doc researchers. Overall, there is a need for major restructuring of the Foundation (including the recruitment of researchers and the re-organisation of its institutes).

On the other hand, OGEEKA, although having the mandate to provide information to farmers, does not have the staff (and funds) to carry out extension activities; it is thus only involved in training (and, sometimes, initiatives undertaken by the organisation's local employees-agronomists to carry out talks and presentations). The fact that there is no cooperation between the aforementioned organisations (and extension programmes are not carried out) makes the design of appropriate courses for farmers difficult, due to, among others, the lack of knowledge of the local farming systems.

PASEGES carries out some short seminars and presentations at local level, mainly on technical matters; however, due to financial restrictions (including withdrawal of the funding, on the part of MRDF, intended to support farmers' training) in the last few years such activities have also seriously been curtailed (estimated 50% as compared to 2008). Their main information activities relate to projects in which they are partners. Main sources of information are their office in Brussels and the umbrella organisation COPA-COGECA, and project partners. PASEGES has the potential to address specific target groups, as they have relevant data and can mobilize target groups through their branches at sub-regional and local level. Nowadays they work through their portal (including a, previously printed, e-magazine) as well as with specific types of cooperatives (as for example women's coops which they assist with fiscal and legal issues as well as with information on marketing and the production of safe and qualitative products). The organisation's representatives stress the lack of an advisory mechanism as well as of a strategy for agricultural development in Greece. They see some potential in contract agriculture and underline their knowledge needs in relation to the new CAP as well as the competitiveness and marketing of Greek products. Finally, on their part, branches of transnational input companies transfer new knowledge related to their products to the private agronomists (running input shops) at a local level.

The same is, more or less, true for the regional and sub-regional (ex-Prefectural level) public services created through two decentralisation waves/laws. Structures at that level(s) are exclusively occupied with administrative-bureaucratic work. For example, the Prefectural Directorate of Rural Development in Karditsa sub-region (ex-Prefecture) comprised (until the second wave of decentralisation in 2010) 12 Sections. The Agricultural Extension & Development Section was responsible for: (a) the provision of information to any interested person or agency in relation to the EU/national programmes carried out by MRDF; (b) the monitoring of investments and the follow-up in relation to the compliance to the prerequisites; (c) FADN/RICA; (d) updating the Farmers' Registry; and, (e) bureaucratic tasks. The Directorate was also in charge of four local offices located in 4 main towns of the Prefecture; the agronomists working in these offices were carrying out extension work (information provision, on-farm advice, public announcements through the Directorate concerning warnings and emergencies). With the new structure (according to the Kallikratis plan, 2010), a new Directorate of Agricultural Economy and Veterinary is established (relating to two Directorates at regional level, that is the Directorate of Agricultural Economy and the Directorate of Veterinary). This new sub-regional Directorate does not include an Extension Section as such; it is only indirectly (i.e. the implementation of programmes relating to the quality of produces) that agronomists may undertake some extension work. Furthermore, the local offices are in the process of being transferred to the municipalities. These offices (Agricultural Production & Development) include

extension as one of many tasks. At the sub-regional (and local) level, private agronomists (shops) and private consultants-agronomists are the main supporters of farmers, albeit in differing roles.

Private shop owners-agronomists make a living from selling inputs to farmers. Their espoused main goals are the improvement of quality and quantity, (production) cost reduction and environmental protection. Information/advice is provided for free to farmers and mainly concerns the use/application of inputs, esp. fertilization and plant protection, and the introduction of new crops and/or varieties. Shop owners are university graduates (but none of them have additional training or certification), with varying professional experience (3 to 14 years) and mainly operate the business by themselves and at local (sub-regional/ex-Prefectural) level; if such a shop operates at extra-local (i.e. regional) level other agronomists and/or auxiliary staff may be employed (women agronomists in shops are a rather marginal phenomenon). Shop owners may be also involved in other activities; for example, in Karditsa, one of the interviewees also runs an oenological lab, while another one works with the introduction of new crops (hippohaes). The former advisory service was paid per analysis by the farmer concerned, while the latter works on a contract basis with farmers.

### **Hungary**

Advice and consultancy in Hungary are currently offered via a very fragmented, un-coordinated system. There are four main types of actors/institutions: (a) free advisory services at the national level, funded by the EU and domestic resources; (b) the Hungarian application of the Farm Advisory System (FAS), a consultancy service with 80% support under the CAP; (c) commercial consultancy; and (d) free consultancy by input providers.

*Free consultancy.* Free advice is currently offered by two types of actors. The most widespread is the ‘village extension service’, functioning since the early 1990s. Currently some 600 advisors work as public servants, each serving 1 to 20 villages (depending on village size, production type, local specificities etc.) and giving free advice to producers. Their main task in recent years has been to help producers to fill out the Internet based electronic payment requests. Their role in the system is somewhat ambiguous. According to EU regulations, being public servants and partly responsible for the control over producers, they should not perform advisory services. In practice, they often do anyway, but as such, they cannot be held responsible for their advice since there is no contractual relationship between them and the producers

The Hungarian Chamber of Agriculture also runs, until the end of 2013, a free-of-charge, so called ‘complex advisory service’ with some 200 advisors. This service is partly subsidised by the technical assistance (TA) budget under the CAP (EUR 57 million for seven years), its main purpose being to give advice to all producers (not only members of the Chamber) concerning cross-compliance, direct payments, rural development measures, obligations, deadlines etc. They are also supposed to help with electronic applications and payment requests. However, until recently they had no access to the official producers and land area databases (which areas are entitled to receive agro-environmental subsidies, NATURA 2000 territories, etc.).

*Subsidised consultancy - Farm Advisory System.* Maintaining a Farm Advisory System (FAS) is an obligation for each EU Member State under the CAP. It is funded by the TA budget and

consists of a range of different institutional levels. In Hungary NAKVI acts as the national level coordinator of the system: it selects, trains and monitors lower level centres and the advisors themselves, provides information, training material and IT background. There are seven Regional Advisory Centres (mainly universities) fulfilling similar tasks to NAKVI at the regional level. Some 82 Sub-regional Advisory Centres were also selected (county level agricultural chambers, consultancies, research institutes etc.) of which less than 50 per cent are active today. These Centres conclude contracts both with the producers and the advisors and coordinate the process locally.

*Commercial consultancy.* Owing to culture, traditions and the currently available free or subsidised options, commercial consultancy is at a very low level in Hungary. Only very large or specialised commercial farms use such services. Contacts with advisors often originate from previous FAS contracts and sometimes even foreign advisors work with Hungarian producers, particularly focusing on highly specialised activities/topics. There are also larger EU consultancy networks, mostly present through Hungarian/ foreign joint venture farms/businesses. These are expanding and competing with the local consultants. Two examples are (a) the famous, established wine DOC, Villany: this mixed ownership winery employs an Italian consultancy company (thus giving up the entitlement to the 80 per cent consultancy fee reimbursement) because of their knowledge of global trends, worldwide marketing etc.; and (b) a Dutch knowledge importer provided technology for strawberry producer farms that allows an earlier harvest, giving a comparative advantage on the market.

Another type of commercial consultancy concerns applications for investment in agriculture and rural development. This is a huge market, with many companies involved. Applications and reimbursement claims are normally very complex, requiring special knowledge and skills. The price of project writing and management is normally an eligible cost (sometimes up to 12 per cent of an investment), therefore this is a huge market for consultancy companies. In practice, consultancies normally receive a minimal fee for writing the project and they receive most of their fee as a percentage of the contract value in case of the bid succeeding.

*Input providers, private sector actors.* Since the early 1990s this sector has experienced a massive concentration process, by now leading the applied innovations market, aimed to satisfy specific market demands in three specific areas: (a) herbicide/fertiliser producers; (b) seed producers; and (c) agricultural machinery manufacturers and dealers. These companies are in many senses ahead of traditional AKIS suppliers, building networks and providing combined packages of technology (machinery, seeds and plant protection agents). One way of raising interest is through product shows where farmers can participate. These are hugely popular events, where entry is normally free of charge, that have become the main way of distributing and getting information on new technologies, chemicals, production methods etc.

Large producers are also regularly visited by regional representatives of providers offering free consultancy concerning particular technologies. Their market behaviour is similar to integrators and public services, who, lacking resources, cannot match their activities. ‘Sustainable agricultural practice’ is not normally targeted by these companies, thus they target farms characterised by ‘traditional industrial agriculture’.



## Ireland

Ireland has retained a strong, largely publicly funded advisory service integrated into its research and education functions based on a model of recovering 33% of its cost from farmers. Teagasc – the Agriculture and Food Development Authority – is the national body providing advisory services to the agriculture and food industry and rural communities. This company was described in detail in the previous chapter. Publicly funded and privately funded services coexist. In addition, the role of more sophisticated rural professionals and organisations providing specific product, commercial advice and services to support and influence innovation and change is important.

## Italy

In Italy agricultural advisory services are provided by diverse suppliers, presenting different objectives and organisational patterns. It follows an overview of the most important providers, differentiating between the private sector, farmer-based organisations, the public sector and other actors.

In *private sector* – upstream and downstream industry. *The upstream industry* plays an important role in the diffusion of innovation to farmers, and it is also increasingly involved in R&D activities with high potential market returns. The upstream industry has a widespread network of retail and wholesale stores and technicians working in the field in direct contact with farmers. It is extremely difficult to make an accurate estimate of the advisors working in the upstream industries, because usually the staff employed working in direct contact with farmers plays also a guiding role in giving technical support. An INEA study published in 2008 estimated 5000 advisors working in agricultural upstream industry in the sectors of seeds, fine chemicals, veterinary medicines, agricultural machinery, irrigation, greenhouses and animal feed. The high number of actors involved and their wide geographical spread is due also to the distinctive fragmented supply of some sectors. For instance, the Italian structure of pesticide distribution is really fragmented with respect to the European context characterised with higher concentration. It includes approximately 4300 distribution companies and around 2.93 billion euro turnover. The pesticide distribution consists of 60% private traders companies, 25% *Consorti agrari* and 15% cooperatives.

The private traders companies are mainly federated in the COMPAG (National Federation of Agriculture Products Traders) a representative organisation that includes most of the commercial companies providing agriculture inputs such as pesticides, fertilizers, seed, feed, vegetable garden and garden products, storage and marketing of cereals and also advisory services. The Federation is a representative organization, but it also provides advice on fertilizers and pesticide regulation, work safety and food security.

Regarding the farm machinery, advisory services are provided both by the sellers and by the companies, working under contracts, such as the services companies in soil working equipment. For instance, the UNIMA, National Union of Agricultural Mechanisation Companies, representing over 85% of agro-mechanical Italian, includes 45 local associations, the 17 provincial structures of National Union Olive Oil Mills (UNFOs), 5 Regional federations, overall

represents 8,000 professional companies with 40,000 employees and 10,000,000 hectares processed.

*Downstream industry* may provide agriculture advisory service to the farmers under contract farming, with the aim of allowing farmers to meet the quality standards and delivery schedule set by the purchaser. In 2007, the number of farms under contract farming with industrial companies are 39,249 and the farms under contract farming with commercial companies 94,980, totalling 134,229 farms. The contracts may allow a producer to benefit from technical advice, managerial expertise and access to technological advances provided by the contractor. According to an INEA estimate, in 2008, 734 are the advisors working in the downstream industries of poultry, pig, meat, fruits and vegetables destined for canning, sugar beet and wheat for beer.

The relevance of contract farm depends on the productive sector. It's really important for the dairy cattle, poultry, pig, durum wheat for pasta, fruits and vegetables destined for canning, sugar beet, malting barley. The contracts could be individual or collective, operating at local, Regional or national level. Due to the very atomized agricultural production usually the contract farming is concluded through farms associations, including often the entire supply chain.

*Private professional advisors.* In Italy, the agronomists or veterinarians working as professional advisors have to be registered with a professional order. In 2010, there are 20,993 people enrolled in the Agronomy professional order, 14,712 people in the Agro-technical professional order, 17,671 people in the Agrarian Expert order and 27,891 people in Veterinary professional order. However in practice not all the enrolled in the professional orders work as advisors.

Usually the medium and large farms have a private advisor to rely continuously or only periodically for specific activities (such as the soil preparation, sowing, fertilising, weed, disease and pest control, etc.). In some sectors such as the wine production, even the smallest companies have an enologist. In recent years, the private agriculture advisory experienced a strong expansion, especially concerning the application procedures to obtain national and European funds. For instance the presence of private advisors prevails in the projects eligible for RDPs innovation funding (measure 124), that in Italy has been very successful.

There is a growing demand for highly specialized experts in soil, animal health, etc., beside the need to operate in more integrated territorial approach, the private advisors work individually or in companies. The FAS application has pushed hard to increase the professional associations. In fact all Regions, except Emilia Romagna, exclude the accreditation to individuals for measure 114 of RDPs. In 2007 the three professional orders created Fondagri (Fondation for agricultural advisory services), a network of freelance advisors working in all Italian Regions, with the main objective of participating to the FAS measures of RDPs. By 2012 Fondagri provided advisory services to livestock farmers mobilising 159,687 Euros of the 114 measure of RDPs.

*Farmer-based organisations* can be grouped into different types: farmers unions, farmers cooperatives, producer organisations.

*Farmers unions.* The three main farmers unions are Coldiretti, CIA (Italian farmers confederation) and Confagricoltura. They represent and uphold the economic, social and civil interests of both farmers and people living in rural areas. Historically, the affiliation with a farmers union reflected political affiliations, but actually this issue is not so relevant anymore.

The Coldiretti is the largest farming organisation in Italy and also in Europe, representing about one and a half millions of farmers, with approximately 10,000 sections in the most important agricultural areas. It is traditionally allied with the Christian Democrats/ centrist parties. As well as Coldiretti, the CIA associates mostly small and medium size farms, while the Confagricoltura associates the largest Italian farmers. These three organizations are decentralized with local offices, widely disseminated geographically. They include different structures by sector, function, target group (such as gender issues), etc.

The Unions provide several services to their farmers, in some case thanks to specific agreements with Regional administrations and paying agencies. Through CAFs (tax assistance centres) they carry out tax assistance for employees, pensioners and project contractors. Through the CAAs (Agricultural service centres) they take care of activity related to the management of EU subsidies, such as bookkeeping, legal services and administration. Furthermore, they also offer information and technical advisory services through specialised staff, adopting both individual and group methods. Historically they have played a major role in the service provision.

The confederations are partly funded by public money for services delivered, partly by the farmers through their annual fee and the paid services. They also offer services free of charge.

In addition to these, there are other smaller farmers organisations, which play an important role in representing the various sectors, such as the APA (Provincial Breeders Association). There are 56 APA federated in AIA (National Breeders' Association), providing technical assistance and managerial support in animal husbandry sector.

*Farmers Cooperatives.* In Italy there is an important farmers' cooperative tradition, especially in the North and Centre of the country. The most recent data of Italian agricultural cooperation observatory indicate around 5,901 agricultural cooperatives in 2011, including almost 993,400 farmer members, with approximately 94,000 employees and revenues exceeding 35 billion euros. The study provides data on “services cooperatives”, a category that includes 1,827 units, with 246,497 members (25% of total) generating about 17% (5,9 billion euro) of the cooperative revenue. Service cooperatives provide various services to their members, mainly they supply farm inputs (e.g., seeds, feedstuffs, agrochemicals, etc.) and the storage and sale of farm products - primarily cereals. To a smaller extent, the services cooperatives work in the sector of scientific/technical research (analysis, experimentation, etc.) or in providing commercial or technical advisory services (insurance services, certifications, etc.).

In 2011 the major confederations of Italian agricultural cooperatives (Fedagri-Confcooperative, Legacoop Agroalimentare and Agci-Agrital), created the Alliance of Italian cooperatives, to coordinate their actions.

Historically, a special kind of farmers cooperatives, the *Consorti agrari*, played a very important role as advisory services. In the late nineteenth century, they were created to operate mainly as purchasing groups (especially as to chemical fertilizers and agricultural machinery), but their activity began soon to be extremely relevant to improve farms knowledge and innovation. In 1991, after the financial collapse of Federconsorzi (the National Federation of Consorti agrari), many consortia were subjected to compulsory administration and winding-up proceedings. Over time different consortia were able to reorganize its business, actually they are federated in

ASSOCAP, including 38 Consorzi agrari with ordinary administration, 7 Consorzi agrari into compulsory liquidation and one managed by government commissioner. The agricultural advisory service is provided through a capillary network of agencies, about 1200, spread throughout Italy.

*Producer Organisations (OPs).* In recent years the OPs have experienced a constant growth. The MIPAAF Registry includes 195 non-fruit and vegetable producers (august 2013) and 297 fruit and vegetable Ops (regulated under (EC) 1234/2007 for Common Market Organisation), often they are farmers cooperatives. The majority of OPs adopts actions to improve the production quality and safety (such as disciplinary, traceability systems, certifications) and offers expert advice for achieving this goal. The POs role in innovation and knowledge transfer processes could be crucial, however it's highly variable, depending on the sector and geographic area.

*Others actors.* In recent years, in the Italian AKISs, numerous new innovation networks have emerged. Apart from the traditional players, these experiences include also several informal actors delivering advisory services. Usually, these networks aim at preserving and enhancing local resources and quality and sustainable food production, involving a broad range of stakeholders, including medium and small farmers, consumers, citizens, local governments, retailers, environmental associations, etc. They work together to promote socio-technical innovations operating along the whole supply chain, in rural and also urban areas. Sometimes, however, also members of the public or classical AKIS are involved. These experiences are spread throughout the territory albeit with a different intensity, among the most significant experiences there are: the Consortia for the protection of typical food specialties, some of the local group promoted by the EU LEADER programmes, the Community-supported agriculture initiatives, the networks to preserve local seeds and agricultural production, the Slow Food Presidia, the care farming associations, etc.

*Public sector.* As already mentioned, the Regions have jurisdiction over agricultural extension services. Each Region establish trough a Regional law the organization of Regional agricultural extension, the actors involved, the competence fields, the fund allocation. Usually, the Regional authorities provide strategic direction, coordination and planning, while the implementation is delegated to the Provinces, to other local government structures (such as Comunità montane, Consorzi di bonifica, etc.), to farmer-based organizations, to private or NGO advisors. Some Regions have dedicated Regional agencies or foundation providing directly specific services or dealing with external providers, organizing calls for tender, managing the funds, etc. The Regional agencies have really specialized staff and may combine research and advisory services (as in Trento province). The number of Regional employees working for extension services ranges from 3 employed in Toscana to the 220 in Calabria, dealing manly with administrative tasks. In some cases the Regional advisors have really the possibility to work on farms. For instance in the Trento province about 70 experts offer daily technical advisory services reaching more than 8,000 farms (out of 16,428 total). The Regions usually provide also technical support services, such as agro-meteorological service, soil analysis, etc. They conduct diverse information activities to disseminate technical and scientific innovations related to very different fields such as market opportunity, production processes, environmental resources (biodiversity, soil protection, cross-compliance). Finally some Regions organize also training activities for the private advisors providing the services that they fund (such as in Piemonte).

## Latvia

Agricultural advisory service in Latvia is diversified and decentralised, as more and more public, private and third sector organisations are involved in providing advice to farmers, and there are no strong coordinating mechanisms among them. For some of those organisations agricultural advisory service is among their major occupations (like LRATC, private consultancies, also farmer organisations), for others it is only a supplementary activity to research (research institutes), business (processing companies, input suppliers), education (agricultural schools, universities), or civic activities (NGOs). Many market actors hire their own advisors' corpus to improve quality of consultations.

## Lithuania

Currently, in Lithuania advisory activities are carried out by accredited advisory agencies. The legal status of accredited institutions varies. There are 13 public agencies, the Chamber of Agriculture, 6 scientific and educational institutions, 4 associations, 14 private companies and 1 sole proprietorship. Territorial distribution of these institutions is as follows: 18 institutions are located in Vilnius, 10 in Kaunas, 2 have nationwide network and the remaining 9 are located in other cities in the country.

## Luxembourg

Public extension services are available to every farmer in Luxembourg free of charge or for a small fee. According to the interviews it can be assumed that almost all farmers currently are or have been involved in advisory services in the past. However, precise data on the number of farmers involved in advisory services were not available. In Luxembourg there are four main organisations providing advice for agriculture (three public and one chamber). The agricultural chamber is a coordinator of publically funded advisory projects and a provider of advisory service. Advisory topics for each of these organisations are presented in table 3.

**Table 3.** Advisory topics for all organisations

Advices	ASTA	IVV	SER	LWK
Advisory topics	funding aids (investments), plant & animal production, horticulture, pest management, accounting	All viticulture and winery issues	(socio-) economic issues, accounting services & investments	plant production, Agro-Check
Topics of public interest	landscape conservation aids, integrated plant production, agriculture in protected areas	sustainable production procedures in winegrowing	-	Protection of water bodies, nature conservation issues
Interface with EU-regulations	Regulation of priority 2 programmes	Implementation of EU-rules on national level	Implementation of CC regulation	Implementation of Agro-Check (CC- advisory tool)
Other relevant tasks and functions	Monitoring and processing meteorological data	Education and training of winegrowers,	Coordination of accounting services of 3 advisory bodies	training of advisors, agri-education
Control functions	Control of microbiological parameters, CC-controls	Control of quality and compliance with laws	CC-control	Monitoring of advisory project advances

Source: ASTA 2010; SER 2006a; SER 2006b; SER 2007; SER 2009; LWK Luxembourg n.y. a

## Malta

Currently, in Malta there are three major types of suppliers: public, private and semi-public bodies.

*The public bodies* are mainly represented by governmental departments, all coming under the authority of the MSDEC, that operate through their own civil servants. They still play a relevant role in delivering information and advice to farmers on matters mainly relating to compliance with relevant legislation on health and safety of agro-food products, water and waste management, veterinary services, including the use of governmental abattoir premises, soil and nitrates. Particularly, the Department for Rural Development and Aquaculture and the Agriculture and Fisheries Regulation Department are directly involved in fostering knowledge dissemination, increasing awareness and informing farmers and the general public, through organizing lectures and mass media campaigns. Indeed, one of their missions is to develop and implement research programmes, providing technical and scientific support for policy designing, while providing advisory and extension services to the farming community. Particularly, the Plant Health Directorate (PHD), within the Agriculture and Fisheries Regulation Department assists farmers and the general public on a number of phytosanitary issues.

*The semi-public bodies* are basically represented by the FAS Consortium, which is the only organization officially recognised as a FAS institution, in accordance with the Council Regulations 1782/2003 and 73/2009, and under Legal Notice 113 of 2010. However, since its management was only engaged in September 2012 and the measure 114 has been not yet implemented, at the moment, it basically provides advisory services to farmers which occurred in relation to penalties for not being compliant with the cross compliance requirements.

*The private bodies* are fully owned by private entities or individuals. They offer a variety of services to their members/clients, by employing their own staff and external advisors. In Malta they are mainly represented by producers' organizations (POs) and cooperatives. These had historically a significant role in fostering knowledge and enhance skills of their members. The services they provide are mainly aimed at ensuring the products' market and the provision of the best quality products at an affordable price. This includes advisory service and training, supplying with seeds, fertilizers and farming equipment, auctions and connections with international cooperatives movements, in view of sharing practices (namely veterinary practices). Although, since recently, they have been providing vocational training and other advisory services which address directly the need for support of the farmers investing in capital assets, innovation and modernizing the holdings under the RDP framework. Among the others, the KPH (Milk Producers Cooperative Ltd) and the KIM (Pork Producers Cooperative Ltd), help providing formal farm advisory services related to the cross compliance through being partners of the FASC.

This category also includes two entities – APS Consult Ltd. and Farm Advisory Services Co-op Limited – which, although recognized as farm advisory service providers according to the Legal Notice 113 of 2010, did not afterward attain the minimum score for support granted under measure 115 of RDP and, therefore, provide advisory services without public sources.

Moreover, in recent years, it could be observed the emergent of new private actors, such as NGOs and a few private companies, which provide a vary of technical advices (business plan, application forms, credit questionnaires, renewable energies, etc.). In particular, the NGOs are relatively recent organisations in Malta, aimed at acting as agents of social change in view of safeguarding the well-being of the rural development. Among them, the Malta Organic Agriculture Movement (MOAM) is very active in promoting organic agriculture in Malta, through organizing training courses, sharing practices and disseminating ideas and methods among the wide public. Also, it acts as a pressure group and in coordination with some environmental bodies and NGOs, both locally as well as internationally, it sets the specific national organic agriculture standards and coordinates the product certification on organic agriculture in Malta. Its members include farmers, consumers, technicians and many others who have the local natural environment at heart.

### **The Netherlands**

A full description of agricultural extension providers in the Netherlands is very difficult to achieve for different reasons: they are private actors for which there is no official census, for the strong dynamism of the advisory arena changing extremely quickly and becoming increasingly globalised, for the hybrid identity of many AKIS actors performing different functions from the original tasks and for breaking into the advisory market of new actors traditionally active in other areas/sectors. Finally the severe competition of advisory market may create the players less inclined to provide internal information.

*The upstream and downstream industry* can play a very important role in providing agricultural extension services. Dutch upstream industry is highly innovative and has internationally leading position for different products, such as ingredients, enzymes, animal breeder material and biological crop protection. For example, in 2011, the Netherlands produced 1.5 million tons of nitrogenous fertilisers (N) and 122 500 tons of phosphate fertilisers (PO). More than 90% of Dutch production is exported. The fertiliser industry generates turnover of approximately 1 billion EUR and provides jobs to 2 000 employees. The animal feed industry is, in turn, the third largest segment of the food and beverages industry (LEI 2013). Furthermore, The Netherlands is a global market leader in machinery e.g. for poultry processing, red meat, bakery and cheese production. In some sector, the role of these industries as extensions providers is particularly important, like in the case of pork production chain, where the pig semen supplier in many cases is also the buyer of the grown pig. Another example is the large-scale open air vegetable growing, that is mostly governed by strict contract with detailed instruction and requirement provided by the processing industry. Also, the role of Dutch Food Retailers is growing important in the agricultural innovation process, due to the high trade concentration (5 players control more than 90% of the market), their high purchasing power and the development of retail labels. A clear example is the Beter Leven (better life) concept, developed by the animal protection society (Dierenbescherming), in cooperation with retailer Albert Heijn and meat company Vion, to promote the introduction of higher welfare standard in livestock farming with slightly higher price. Other retailers and companies have followed the same green marketing concept.

*Private professional advisors.* DLV Advisory Group is the largest Dutch consultancy firm, providing technical, economic and management advice to farmers and other agri-food business

as well as consultancy services to private and public institutions. It used to be a government institute, while actually DLV is a holding with limited company corresponding to the five business units (Plant production, Animal production, Chain management, Construction, technology and environment, Countryside). The core of DLV business over the years has greatly expanded to include all the technical, economical and environmental issues able to optimize farmers' production (such as energy, soil and water management or farm construction). It has about 500 employees. The advisors work in teams, adopting since 2005 a Management by objectives (MBO). Each advisor is responsible for contracts with farmers and has an individual financial task (approximately 80-100,000 EUR). The advisors offer on-going consultancy to farms, assisting them with customized advice.

DLV also provides thematic trainings and study group meetings for producers, organizations and extension officers. DLV's experts also work outside the Netherlands, coordinating and carrying out agricultural development projects financed by national and international donors.

In particular DLV plant (with about 200 consultants and researchers working in the horticultural and agricultural sectors) is active in 50 countries with 8 international subsidiaries (in UK, Belgium, Russia, East Africa, Latin America, Middle East, Spain and Scandinavia).

DLV also undertakes applied research commissioned by its clients, to translate new techniques into specific company situations.

In addition to DLV, in the Netherlands there are also individual professional advisors and several other private consultancy companies, mainly smaller and specialized in different sector (such as dairy farming, construction) and/or target groups (such as organic farming). For instance, the non-profit organization ETC focuses in a niche of knowledge (agro-ecology in dairy sector), operating with high specialised advisors.

Some *private companies* have been created as an offshoot of the historic farm-based associations, such as Arvalis, that is an agricultural consulting company established in 2006 from the Limburg Agricultural and Horticultural Association (LLTB). Arvalis has four offices and employs 60 people, working also in Belgium and Germany. Many extension providers operate also outside the Netherlands, while others provide their services only to developing countries, such as HVA International.

*Other agricultural advisors* are consulting companies not specialized in agricultural but working in a larger market of services provision, such as the ABAB Groep B.V. It has over 700 employees working in 14 offices and a division called Food&Agri.

In addition *new players* in the market are ICT enterprises developing and/or commercializing agronomic modelling software for farm management.

Private independent advisory services are associated in VAB (Ambitious Agricultural Consultants), an association for corporate consultants in agriculture. The VAB was founded in 1997 and actually has over 500 members. The consultants support all types of farmers in the strategic development and optimization of their businesses, especially regarding legal and environmental issues, accountancy, etc. VAB certifies corporate consultants in agriculture, assuring that they have the skills to effectively support farmers when considering complex projects and large investments. Certified consultants are recognizable by the title 'ab'. The



association is a career-network and it assists its members in extending their knowledge, organizing meetings for knowledge-exchange and supporting members in the development of their consultancy skills.

LTO Nederland (Land- en Tuinbouw Organisatie Nederland / Dutch Organisation for Agriculture and Horticulture) is an entrepreneurs' and employers' organisation with three regional divisions, LTO Noord (in the North), ZLTO (in the South) and LLTB (in Limburg Province). It represents and supports the economic and social interests of almost 50,000 farmers and growers on a local, regional, national and international level. The Confederation was formed in 1995 through the merger of KNBTB (Dutch Catholic Federation of Farmers and Horticulturists), KNLC (Royal Netherlands Agricultural Board) and NCBTB (Dutch Christian Federation of Farmers and Horticulturists), that were organized along religious lines. Actually LTO is organised into 15 sub-sector organisations, representing the members in their branch, like the Glastuinbouw (Greenhouse Horticulture), Varkenshouderij (Pig farming), etc.

The Confederation supports the interests of agricultural entrepreneurs and it provides a large number of additional services for its members ranging from advice and commerce to real estate and insurance. LTO has its own consultants and specialists who provide customized advice for individual farmers, especially on business succession, changing to different products and production methods, expansion, specialisation, new business opportunities and business discontinuation. LTO Nederland also functions as a buyers' cooperative and help the organization of farmers study groups. In addition, LTO Nederland's informative website, its weekly magazine 'Nieuwe Oogst' (New Harvest) and trade journals 'Veehouderij' (Livestock Farming), 'Gewas en Tuinbouw' (Crops and Horticulture) are important sources of information for its members.

*Farmers' Cooperatives.* In Netherlands there is an important tradition of large cooperatives, including in the agricultural sector. The data provided by the Statistics Netherlands indicate 55 agricultural cooperatives active in 2010. The sector is interested in a rapid decline in the number of enterprises, especially due to the continuous consolidation process through mergers; from 2006 to 2010 the active agricultural cooperatives decreased by 33%. According to research conducted by the National Cooperative Council (Nationale Coöperatieve Raad), 11 of the 100 largest farmer-led businesses in Europe are Dutch. Among them, FrieslandCampina is the largest agricultural cooperative in Europe with revenue of 9.6 billion EUR. FrieslandCampina has offices in 28 countries and employs a total of 19,946 people. The Company is fully owned by Zuivelcoöperatie FrieslandCampina UA, with 19,487 member dairy farmers in the Netherlands, Germany and Belgium.

As the farmers union in the past, the agricultural cooperatives were organized along religious lines. To pursue competitive strategies many cooperatives are evolving into new organisational models, for instance some local companies become to operate internationally. The crucial aspect of these new cooperative models is the increasing distance between the cooperative management and its members. However, the cooperatives continue to provide several services to their members, including commercial or technical advisory services. A recent study about Dutch cooperatives shows that they are a rich learning environment for their members.

In the 1990s a new kind of cooperatives, the so called “Environmental cooperatives” (ECs), emerged. They represent an innovative form of social organisation defining a new mode of rural governance. ECs involve farmers but also non-farmer actors, working in close collaboration with local, regional and national authorities to integrate environmental management into farming practices by adopting a regional perspective. The first environmental cooperative was established in 1992 as a self-help group with voluntary membership. Currently there are about 150 environmental cooperatives which have important role in the Dutch agri-environment policy.

*Farmers study groups.* The study groups are farmers organisations based upon their cooperative spirit of self-help and solidarity. They are based on a sectoral perspective and/or geographical proximity. However if most of the study groups are established at local or regional levels, thanks to the ICT support their boundaries are expanding. The groups may have a long history or they have a very limited existence when they are organised just to find a solution to a particular problem. Usually they are autonomously managed by farmers, but in some cases they may have an external facilitator. Several interviewees indicate the study groups as one of the most important source of farm innovation. Each farm participates in several networks concerning different field and aspect of the farming system. It is difficult to accurately estimate the number of study groups, because some are informal networks. A study indicates that approximately 60% of Dutch horticulture growers participate in study groups.

The study groups could be open networks or closed organisations. Some study groups are originally established thanks to public subsidies, then fail as a result of the extension privatization such as the Landbouwvoorlichting Dalfsen e.o. This is a club with about 160 members and it was founded by government subsidy more than 75 years ago. Currently, the Association is a completely Independent club. The high value of farmers study groups is recognized by politics and academics. They are used also in public funded innovation programmes as effective tools to improve knowledge and innovation.

*Product boards (Productschappen).* The Dutch agricultural products boards operate as a chain platform to strengthen their chains and to support their sector companies. They function also as a centre of knowledge to sustain the members’ decisions, organizing a wide range of information activities, such as newsletters, websites, symposia, magazines publication, but also providing specific extension service. In this regard, a very important factor is the presence in several chains of quality assurance schemes. For example, in the Dutch pork supply chain the sector product board for Livestock, Meat and Eggs (PVE) organizes the Integraal Keten Beheer (IKB, Integrated Supply Chain Management) Pig Scheme. The purpose of IKB is to guarantee issues such as quality, animal origin and production, through the transfer of information along the chain. IKB is voluntary and approximately 85% of pigs are raised according to this quality assurance scheme (Boston 2004). The various products boards participate also in programming, coordination, financing and guidance of research.

*Innovation network and knowledge brokers.* In recent years, as already mentioned, in the Dutch AKIS numerous new innovation networks have emerged. Beside the traditional players these experiences include also several informal actors delivering advisory services. Klerkx and Leeuwis (2009), adopting a function-based typology, identify seven distinct types of agricultural innovation brokers that can currently be seen in the Netherlands:

*Types 1 and 2: Innovation consultants.* They focus either on the individual farmer (Type 1), or on a collective of farmers with a common interest, who wish to jointly develop or implement an innovation (Type 2). They help the farmers in demand articulation and in network composition, e.g. in the case of the Poultry Centre or the Platform Agrologistics.

*Type 3: Peer network brokers* or so-called study clubs (described above).

*Type 4: Systemic instruments.* They are systemic intermediaries for the support of innovation at higher system level, involving complex constellations of business, government and societal actors, dealing with complex problems and radical innovations. This type of innovation broker is often a civil society organisation (but with public funding), reflecting its interests in innovation and policy issues that go beyond the conventional domain of government or the private sector, like the Innovation Network Rural Areas and Agricultural Systems (INRAAS).

*Type 5: Internet portals and databases.* They display knowledge and information relevant to farmers and related parties, e.g. Agroportal.

*Type 6: Boundary organizations.* They act at the policy/research/user boundaries in research planning. For instance they operate as research councils with innovation agency, such as Bioconnect involves more than 600 farmers, companies, research organisations and the government to work together to improve organic farming, promoting knowledge and policy development projects.

*Type 7: Education brokers.* They are boundary organizations that act at the policy/ education/ research interface, e.g. the Green Knowledge Cooperative (GKC).

## **Poland**

Agricultural advisory system in Poland is represented by Agricultural Advisory Centre (CDR) in Brwinow (with divisions in Krakow, Poznan and Radom), 16 Provincial Advisory Centres (ODRs), 16 agricultural chambers (IR), 163 private advisory organizations and numerous NGO's which were created after economic and political changes in 1989. NGOs cover a wide spectrum of educational, environmental, ecological, developmental and cultural activities. Most NGOs work under operational programmes for Poland in projects financed by EU funds on rural, agricultural and non-agricultural development, implementing the extension or advisory type activities.

The Agricultural Advisory Centre in Brwinow (CDR) is a state organizational unit with legal entity. It employs 118 specialists and is under the Minister of Agriculture and Rural Development as a supervisor responsible for the management and control of CDR. The main advisory organisations in Poland are Provincial Advisory Centres. They are decentralised organizations – 16 independent self-governmental provincial organizations with the official legal status, subordinate to the Provincial Self-Government Boards. They have 308 counties teams of agricultural advisory and they employ 3454 well-prepared advisors, recognized by farmers and other AKIS stakeholders as very important for agriculture and rural development. The special act (from Oct. 22, 2004 and revised in 2009 and 2012) specifies the goals and tasks of the centres, their internal structure, as well as their method of administrative and financial management. This new Act introduced for the first time in Poland large list of paid advisory services. Price lists of

this services are approved annually by the provincial self-governments boards with a positive opinion of provincial agricultural advisory councils.

The agricultural advisory system in Poland is decentralized. Such a dispersed structure has both advantages and disadvantages. Arguments 'for' are: adapting the offer of advisory service to the needs of specific agriculture in each of the provinces and directing it to a specific audience. Arguments against decentralisation are: the fact that the dispersion of advisory units is not conducive to cooperation in improving the quality of services and the introduction of new standards, difficult management of units because someone else finances statutory activities, and another supervises the activities of the ODR, the level of state funding is highly diversified, professional development programs for advisors are inconsistent. Thus, each individual creates their own reality, dependent on the will of the Regional Board. The change of government makes the advice from the people who it govern. Despite the positive assessment of advice on the implementation of CAP instruments in 2004-2006 and 2007-2013, in the opinion of respondents ODRs must subject themselves to the Ministry of Agriculture and they see the need for a central small entity coordinating the activities of agricultural advisory services in our country.

### **Portugal**

*Public agricultural services.* The policy of the Portuguese Ministry of Agriculture over the past two or three decades has been characterised 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. Currently, their major functions involve 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). 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.

*Farmers' organizations.* In the agriculture sector, in Portugal, there are three major umbrella farm-based organizations: 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 former ones, includes exclusively cooperatives. These organizations 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 site, it 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 specialised 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 consulting bodies of different public authorities. The CAP has a permanent delegation in Brussels and participates in all Agricultural Committees, Advisory Groups and other European organizations (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 the entire country. The organisation publishes a monthly magazine devoted to agricultural policy, agricultural economics and current technical issues (“Farmer Magazine”).

*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 bodies, such as the Economic and Social Council being the major one. As in the case of the Confederation of Portuguese Farmers, most advisory and training tasks are performed by the affiliated organizations, 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.

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, organized in Federations and other structures, representing an annual turnover well in excess of 7500 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. 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 organizations. 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. CONFAGRI signed a protocol with the Ministry of Agriculture, which gave the Confederation the management of the Vocational Training Centre for Farmers in Viseu, with a view to conducting professional training for farmers, cooperative managers and technicians. It promotes actions primarily intended for managers and technicians of Agricultural Cooperatives and Agricultural Credit Cooperatives. 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.

*Other farmer-based organizations.* Besides these major national level farmer-based organisations, that bind a number of other very numerous associations and cooperatives as its members, there is a very large number of other autonomous organizations that develop various support services to farmers, including training, information 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). 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 (and 30 offices spread throughout the country), but works closely with about 50 organisations.

*Organic farming.* The Ministry of Agriculture is practically absent in this field, being an exception, the case of the Autonomous Region of Madeira, where a specialised Technical Division of the Regional Agrarian Services was created 10 year ago, involving 25 staff members performing information, extension, experimentation and administrative tasks. At the national level there is the Portuguese Association of Organic Agriculture (AGROBIO). Besides, there is a small set of consultancy companies and independent consultants, and the occasional involvement of municipalities and development associations.

*Private consultancy companies and services.* A great number and variety of private consultancy companies 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 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 very small and small private consultancy companies that deliver various services for agriculture, scattered throughout the territory and

developing activities such as consulting in specific areas, training, project planning and management, management and accounting, support for agricultural subsidies, marketing services, new technologies, etc.

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.

*Local development associations.* In the early 1990s, with the new EU promoted LEADER Initiative, new Local Development Associations (LDAs) were created in all rural areas. 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.). They represent one of the new types of rural extension work, more decentralized, with a wider focus, based on multidisciplinary teams and participatory methods.

## **Romania**

As mentioned in the previous chapter, many AKIS players provide advisory services. Among these, the public service is best known and most important. It operates based on the following current legal framework: *Government’s Decision no. 1609/2009*, on the establishment of county agricultural chambers, through the reorganization of the county agricultural consultancy offices/centres, under the subordination of the NAAC; *Emergency Ordinance no. 70/2010*, with regard to certain measures for the reorganization of the MADR, as well as certain structures under its subordination; *Government’s Decision no. 1901/2004*, on the establishment of the Agronomist’s House.

The agricultural advisory system is organized according to a pyramid-like structure. In the territory, the agricultural consultancy service is organized by two levels: *county level* - 41 *County Agricultural Chambers* subordinated to the county councils and coordinated by MARD from the technical and methodological point of view. These were formed by the reorganization of the County Agricultural Consultancy Offices; *communal level* - 500 *Local Agricultural Consultancy Centres* under the subordination of the CAC.

The public consultancy service focuses on promotion and implementation of MARD strategy and programmes; organization of extension, consultancy, technical assistance, vocational training actions; support to agricultural producers in accessing the EU funds and other internal and external funding sources; support to agricultural producers in the establishment of association forms.

At a declarative level, the public agricultural advisory service carries out its activity in collaboration with the research-development institutes and stations, higher education units, commercial companies supplying inputs, agricultural producers’ associations, agricultural and food industry companies, as well as with private agricultural advisory services.

## **Slovakia**

Among the agricultural extension services, which are recognised as suppliers of advices, educational/training activities, information, technologies etc. more than 100 organizations are listed. The largest group is formatted by research institutions followed by academic institutions/universities and secondary professional schools and apprentice schools. The third group is represented by public organisations under the supervision of MOARD (Agroinstitut, IFEE etc.). The fourth group is composed of self-governing organisations, such as Slovak Commerce and Agricultural Chamber which plays a meaningful role under Slovak conditions. Furthermore this group also includes Individual Farmers Association, Agricultural Entrepreneurs Association, Slovak Food Chamber, Entrepreneurs and Cooperative Union. The fifth group is comprised from suppliers of agricultural services, such as individual advisors, private extension organisations, including NGOs. The important role of service suppliers is fulfilled by the Association of the organic product producers called EKOTREND.

## **Slovenia**

FAS in Slovenia is centralised and organised within national chamber of agriculture (CAFS). CAFS operates on three levels. The first level is the Chamber's Headquarters in Ljubljana, the second level consists of 13 district subsidiaries established throughout Slovenia and 59 local units operating on a local (third) level. The organisation structure divided in such a way provides accessible service in every part of the country.

Organisational structure of CAFS is divided to general sectors (coordination of elected bodies, PR and international cooperation and general affairs) and the Sector for agriculture and forestry. The later consists of four sectors (livestock production, plant production, rural development, forestry and renewable sources) and provide three public services: FAS, selection and monitoring production in stockbreeding and public forestry service.

FAS operate within Departments for Agricultural Advisory at 8 Agricultural and Forestry Institutes though farmers can get support also in 59 local units throughout Slovenia. There are following institutes: Agricultural and Forestry Institute in Celje (with 11 branches, 13 locations, and 54 advisors); Agricultural and Forestry Institute in Kranj (with 5 branches, 10 locations, and 22 advisors); Agricultural and Forestry Institute in Ljubljana (with 13 branches, 21 locations, and 46 advisors); Agricultural and Forestry Institute in Maribor (with 1 branch, 3 locations, and 23 advisors); Agricultural and Forestry Institute in Murska Sobota (with 4 branches, 12 locations, 39 advisors); Agricultural and Forestry Institute in Nova Gorica (with 9 branches, 15 locations, and 45 advisors); Agricultural and Forestry Institute in Novo Mesto (with 8 branches, 9 locations and 44 advisors); Agricultural and Forestry Institute in Ptuj (with 5 branches, 6 locations and 37 advisors). Core tasks of FAS are defined in Agriculture Act and Chamber of Agriculture and Forestry Act (OJ RS No. 41/99 and 25/04) and are further defined in detail in the annual Programme of Activities and financial plan. Programme is confirmed by the government.

## **Spain**

As it has happened elsewhere in other surrounding countries, the agricultural sector is experiencing significant structural problems. New agricultural techniques, training of farmers, profitability of farms, and changes in the CAP, are vital elements for strengthening the sector.



The research in the agro-food sector and the technology and knowledge transfer by research centres therefore play a key role in the development and strengthening the sector.

In Spain AKIS network has a very scattered structure in the territory, not only physically but also in terms of management or organisation. It is necessary to remember that the decentralisation from the central government towards the 17 regions configured a complex administrative structure, with the assumption of much of the competences transferred to the regional governments, including that of agriculture, livestock, fisheries and forestry.

At the national level there are two main public centres of research, currently under the Ministry of Economy and Competitiveness, CSIC (formerly under the Ministry of Education and Science) and INIA (formerly under the Ministry of Agriculture). Both centres lead and/or coordinate other centres created in the different regions. CSIC has delegations in all the regions as well as a research structure which encompasses many scientific areas, among which the agricultural sciences stand out for its international recognition. Moreover, since INIA leads the Coordination Commission of Agricultural Research, it partially coordinates the activity of public research centres dependent on the regional governments (although each of the regional centres are independent in their budgets, organization and research planning). One important aspect is that in the decision making structure (Governing Council in the case of INIA and Executive Council in CSIC), especially at the time to design the research policy, they participate the key stakeholders involved in the sector (mainly OPAs, cooperatives, regional research centres, representatives of the Ministry of Agriculture and Economy and Competitiveness in the case of INIA, and the last one in the case of CSIC, added to the universities also in this case). Moreover, the strategic programme of CSIC is assessed by an international committee, which brings high prestige to the centre.

In addition to these two main centres and regional institutes, there is a wide variety of centres, usually public, carrying out important research in different fields of the agro-food issues. Universities and centres which depend on them play a very important role in this regard. On the other hand research centres created from contributions from other public as the CSIC, INIA or different universities centres (new joint centres), are increasing their importance since they contribute to the generation of new and collaborative knowledge but also to the transfer of knowledge and technology between research centres.

The relationship between AKIS organisations is not only focused on creation of these joint centres but also signing cooperation agreements and collaborate in projects or joint research.

Furthermore, knowledge transfer between AKIS organisations, although it could be significantly improved, is done normally through training courses, publications or cooperation of available services for this purpose (OTRIs), etc. The Technological Centres participated by private institutions complete the framework of research in Spain.

## **Sweden**

The actors of the Swedish agricultural advisory services have become quite diverse since the establishment of the first private advisory service in the 1980s. In general, it is possible to divide the Swedish advisory services into three groups: the commercial advisory services that have agricultural advisory service as their main occupation, the selling advisory services where

advisory service is not a product on its own but part of the sales strategy when selling input goods, and the free advisory services where all of the advisory service is paid by the public. For a long time, The Rural Economy and Agricultural Societies was the only agricultural service supplier, but with the establishment of the first private agricultural service in the 1980s, the suppliers of advisory services has become quite diverse with public, private and farmer-owned organisations.

There are some leading national suppliers of commercial agricultural advisory service – the Rural Economy and Agricultural Societies, which is a farmer-based member organisation for farmers and has a diverse service supply of e.g. advisory service, field trials, education, Växa, which is farmer-owned and stems from the animal husbandry and breeds organisations and focuses on animal production, and finally LRF Konsult, which is an affiliate to the Swedish Federation of Farmers' and mainly focuses on economy and bookkeeping for both agricultural and non-agricultural business. These three organisations can be found in local and/or regional offices all over Sweden, and have a total of 700, 500 and 1500 employees. In total there are about 60-70 private/farmer's owned suppliers of agricultural advice, many of these are local actors with less than 10 employees.

There are quite a few actors that could be defined as “selling” advisory service, as they sell input goods to the farmers and act as advisors in these discussions but they do not sell advisory services on their own. The market leader is Lantmännen with approximately 13 000 employees all over the world, but Svenska Foder and Gullviks are other large national players. There are some smaller, local retailers of input goods, many of which are members of the Danish DLA-group, and there are also food companies like Nordic Sugar and Findus that have advisors for their contractors, in order for the contracted farmer to produce as high quality as possible.

In some regions the County Administrative Board offers free advisory service. The producer organisations used to give free advisory service to their members in the past, but as profitability has gone down, the structures of Swedish cooperatives has changed, and as some have been sold and others have emerged, it has become very rare for these producer organisations to offer free advisory services, unless it is a part of a specific project.

### **United Kingdom**

There is considerable diversity within the UK regarding the way advisory services are delivered and the extent to which the state is involved. As Analysis for Economic Decision Consultancy describes, “*England has a fully privately-driven extension approach, whereas Wales uses a strong publicly-driven approach supported by various private advisory networks, while Scotland and Northern Ireland operate through a fully publicly-managed system, even though some of their services are outsourced to advisors accredited according to subject*”.

The current strategy in relation to advisory services is to “hand it to the market”, with the exception of advice relating to public-good provision, e.g. for the agri-environment. Even here, UK governments favour a market-led approach, e.g. by awarding time-defined and specific contracts under competitive tendering to private companies or parastatal agencies. Indeed, Cook *et al.* (2008) observe (for North-East Scotland, but equally true elsewhere): “*there is no true*

*market in training... organisations just follow the subsidy*”, and accordingly tend to focus on compliance with regulation rather than on business improvement.

Technical (crop, livestock, soil) and business advice on farming is offered by private consultants (individuals and small companies, usually regional) as well as by some college and institute staff. NGOs (FWAG, Wildlife Trusts, RSPB) are involved in providing agri-environmental advice or advice related to conservation, species and habitat management on farms. Hobby (lifestyle) farmers use different routes to commercial farmers; they tend to approach organisations such as Scottish Land and Estates or crop consultants for advice. Broader innovation is supported by rural networks that exist across the country (e.g. Scottish National Rural Network SNRN, Rural Network for Northern Ireland).

Other actors involved in providing advice are e.g. Quality Meat Scotland (QMS) who are the principal funder of the livestock Monitor Farms Programme which currently has 11 farms in Scotland (also financially supported by Scottish Government and Scottish Enterprise). SAOS run a similar programme for Arable Monitor Farms, and the Cairngorms Monitor farm attracts further support from the Cairngorms National Park Authority.

## **4.2. Public policy, funding schemes, financing mechanisms**

Although public policy in terms of agricultural advisory services seems to be very similar or even the same in all EU countries, the differences in the schemes and financing mechanisms of its implementation are noticeable. The differentiation stems mainly from the local policy, the type of advisory providers, type of main clients, clients’ needs, methods of advice used, sources of financing the advisory services, linkages and cooperation within AKIS actors. Description of policy and financing mechanisms is given below individually for surveyed EU countries.

### **Austria**

*The public character of the extension and advisory services* makes it possible that services are offered nation-wide and independent from private interest. Extension and advisory services should be available and affordable to all farmers. Extension and advisory services should furthermore cover a wide range of topics and all branches of production. Thereby, also “exotic” topics are covered and smallest agricultural enterprises can access services. Basic services are generally free of charge. Private companies play only a minor role. Individual advice, directly paid for by the farmers, is called upon only in few specific fields (such as veterinary, fruit and vegetable growing, vinery, accounting, and legal advice).

*Extension is financed* by various sources, while public funding constitutes the important share followed by membership contributions and fees. Mixed funding of advisory services prevails in Austria with both federal and regional governments providing financial assistance. Most organisations depend on several sources of income: public subsidies, membership fees and chamber contributions, EU funding and income from the sale of services and products.

*The Ministry of Agriculture supports* the work of the chambers of agriculture, farmer associations, breeder organisations, machinery pools and several other NGOs, and transfers subsidies which are administered by yearly fixed packages and accompanied by activity reports. The “Beratervertrag” and other agreements form the basis for the funding of advisory services.

The federal regions primarily support the work of their agricultural chambers. Cooperation between the Ministry and its federal offices, which are in charge for i.e. the publication of official reports and analysis, is based on law and organised along yearly plans.

Research activities take place in the framework of programmes or projects. Contracts form the basis for projects, contracted work, or are compensated for specific tasks between universities, federal offices and public and no-profit research institutes. The relevance of project funding as an income source increases slowly. Funds from the European Union and private sources are of minor importance only.

Farmers receive general advice free of charge (directly subsidised by the Governments and with member contributions), for some more specific services a cost contribution is charged. Few organisations charge on an hourly basis. Private advisors operating on a commercial basis provide specialised and personalised advice at full cost to the farmers.

### **Belgium**

As mentioned in previous section, the main recent feature of the Belgian AKIS is its *decentralisation*. There is no more support from the national State. Each region has its own policy, even though there are some common inherited structures. The decentralisation of services goes even one step forward with a growing role of provinces in the system. In both regions, the principle of public intervention regarding advisory services could be described as a *delegation of services*.

In Wallonia, besides the financial support of CRA-W, the government has organised its support by creating within its public administration (Service Public de Wallonie – SPW) a department “Development” that is in charge of following the diverse contract between the DGARNE and associations providing services to farmers. These could be annual contracts or framed pluri-annual conventions. At the moment, there are such contracts with over 70 different associations. There is a governmental decree (with precise mission to fulfil) for each association, and a steering committee that provides a follow-up of the project. The DGARNE contributes to a maximum 80% of the budget of the associations. As described earlier, the associations supported by the State are very heterogeneous, reflecting the history and the diversity of Walloon agriculture and rural areas.

Nevertheless, the interviews with the different stakeholders reveal that there are some debates about the effectiveness of this system. Firstly, due to the system redundancy and fragmentation, the costs (financial and transaction costs) for its monitoring are high. They were evaluated at a level of 4000€ per advice operation by the cabinet of the new Minister of Agriculture. Moreover, the subsidies are not indexed on the raise of salaries costs of association, which inhibits the development of many structures. Secondly, the associations are considered too numerous, with some overlapping, poor coordination and clarity as to who does what for the farmers.

This view is shared by the Minister of Agriculture, who plans an important reform of the Walloon development policy. If the present system enables many interactions between advisors and researchers, the Minister wants to simplify it and to give more power to the farmers in the system. The planned reform does not consist in a withdrawal of the State. It is a new conception of the modalities of the service delegation with more farmers’ participation, more regional

centralization in the funding, and a longer term perspective in the contracts with AKIS actors. To do so, it is planned to set new institutions up and to formalize a feedback loop with farmers thanks to producers' committees. Some organisations will be merged within thematic R&D units (where CRA-W, pilot centres, and associations will be regrouped). Farmers' group will be created to formulate demands to the Strategic Agricultural Committee of the DGARNE that would set up together with CRA-W and other stakeholders a multi-annual development plan for the financial support to R&D teams. Thus, this reform would be an institutional transformation of modalities of the advisory services delegation.

In Flanders, the situation seems to be more stable after the intensive reorganisation that followed the regionalisation in 2002. The reform of public intervention regarding agricultural advisory service is nowadays the expression of the broader transformations of regional innovation policies, targeted towards more integration of science policy, innovation policy and economic policy in a context of further decentralisation and growing role of provinces. As it has previously been mentioned, first involvement of the State is through the presence of employees for the follow-up and implementation of funding schemes and institutional funding both at regional and provincial levels (mainly for ILVO and the experimental stations). Another domain of regional public investments consists in integrating diverse actors in project dynamics, and in various platforms of exchanges to feed a foresight of important subject matter for further R&D.

## **Bulgaria**

The main EU funding schemes for Bulgaria for the period 2007-2013 were: (1) the direct payments which are complimented by national payments, and (2) measures under the Rural Development Programme and the Fisheries Programme. All these programmes actively work for supporting farm productions and their activities. *Direct payments* include single payment per hectare scheme, national animal supplement, agri-environmental payments, payments to farmers in disadvantaged areas, support for producers of energy crops and support for producers of strawberries and raspberries intended for processing. Main beneficiaries are individuals and legal entities. *The Rural Development Programme* is aimed at the development of competitive agriculture and forestry, innovation in agri-food industry, preservation of natural resources and the environment and to promote employment opportunity and better of quality of life in rural areas. The programme budget for 2007-2013 amounts to 3 242 billion EUR, paid by EU funds and state budget. Financial resource of the programme is distributed in priority areas, which are divided by concrete measures to financially support individual candidates. Managing authority of the RDP is Directorate "Rural Development" at the Ministry of Agriculture and Food while SFA-PA through its 28 regional offices applies different measures for financial support. Eligible applicants under the programme are: farmers; forest owners and their associations, forest cooperatives, state forestry, micro processing forest products, national parks; producer organizations; enterprises in the food industry; enterprises in sectors other than agriculture, working in rural areas; municipalities in rural areas; non-governmental organizations and community centres; local action groups. *Fishery Programme* started in 2007. The main strategic objective of the programme is transforming the fisheries and aquaculture into a competitive, modern and dynamic sector and improving quality of life in fisheries areas. Programme budget is over 101 billion EUR, paid by European Fisheries Funds and state budget. Main beneficiaries are legal entities, sole proprietors, owners of fishing vessels, etc.

In Bulgaria, the *state aids* for supporting farmers include over 30 programmes. Some of them are target subsidies to support the nourishment of animals and birds from the national genetic fund and the controlled population; target subsidy to support farmers who produce bee honey: target subsidy to support the breeding associations: target subsidy for use of irrigation by the rice producers, etc. There are, also, small programmes for purchasing forage for animals (i.e. stock-breeders, poultry-farmers and pig-breeders); credit schemes for long and short term investments for buying seeds, mineral fertilizers for productions, fodders, seedlings, etc. In the last interviews, the minister of the MAF reported that until the middle of 2013, 80% of the state aids were utilized by farmers for 22 schemes, 87% of the total budget of RDP were contracted and more than 55% of these funds were paid.

### **Cyprus**

There is any specific policy framework or formal agreements between the AKIS actors. The Extension Service covers, as a coordination mechanism, more or less, actors' bonding needs. The service is, for example, in contact with producer groups and coops (through District Offices) as well as with individual farmers through District Offices and beats extension officers; therefore, a two-way communication mechanism between the Extension Section and farmers is, despite shortcomings, established a long ago and still working. Important in this respect is the knowledge produced by innovative farmers who produce adapted knowledge since they inform or ask for advice from the District Offices which, in turn inform (or ask for help from) the Extension Section and, generally, the Division of Agriculture. Furthermore, the Extension Section cooperates with ARI in putting together its annual extension programmes (which the Section monitors) as well as in defining research needs. On the other hand, ARI staff actively participates in the service's educational activities and tries (although without a relevant section/staff or funds) to grasp farmers' problems.

### **Czech Republic**

Advisory services are financed from different sources for each individual AKIS level. The financing of the 1<sup>st</sup> and 2<sup>nd</sup> levels is designed in the form of programmes included in *national subsidies*. The need of financial sources necessary for the realisation of newly conceived allocation programmes for introduction and professional consultations is expressed by a minimum amount of CZK 26.5 million per year.

Public means in case of the 2<sup>nd</sup> level are pointed to the support of transfers of research results to praxis; providing consultations on highly scientific and professional level at universities, research institutions and designated professional associations as holders of professional knowledge. 10 organizations were subsidized from these programmes. Institutions recorded 11,941 consultations from professionally technical area via telephonic, electronic, written and oral contact.

FAS, as it is set in the first CAP pillar, can be financed within the framework of the second CAP pillar by two measures. The first measure is used for co-financing advisory services for farmers. This measure should help farmers to pay costs arising from use of advisory services for improving total performance of their agriculture holding. Advice must cover CAP, GAEC, agro-

environment or from work safety areas. This support is restricted to 80% of eligible cost on advisory service, to the maximum amount 1,500 Euro.

In the Czech Republic these financial means are gained through the 3<sup>rd</sup> level of AKIS, from RDP, measure I.3.4. For advisory purposes there are allocated at European Agriculture Fund for Rural Development (EAFRD) in year average amount about 2.8 million Euro. Applicants share is in average 0.7 mill. Euro per year. The maximum amount of subsidies and the manner of administration are based on EU law. Subsidies are given from *the State Agricultural Intervention Fund (SAIF)* as a grant to purchase advisory and consultation services up to maximally 315 thousands CZK per one applicant for whole period 2007-2013. Advisory services on the 3<sup>rd</sup> level at RDP measure I.3.4. were supported 46,073 thousands CZK.

For the purpose of financing the delivery of information through specialised web portals (4<sup>th</sup> level), the Ministry of Agriculture (MoA) financial means designed for the building up of the MoA information system shall be used. The activities realised through the National Rural Network will be covered from RDP measure V.2.

## **Denmark**

From 1852 the government started paying for advisory services to farmers. This support ended in 2004, but already in the late 1980s and at the beginning of the 1990s much of the support was stopped. So, today no public policies exist in Denmark for the funding of agricultural advisory services.

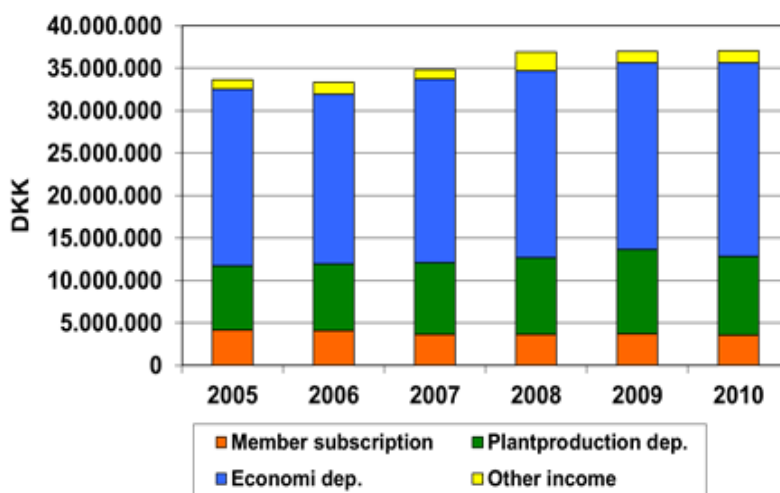
The Knowledge Centre for Agriculture's services and advice are primarily user-financed. The income from sale and user payment of actual services amounts in 2012 to 62% of the total turnover; 19% project financing from various innovation and development funds; 16% from the levy funds and 3% from the Danish farmers' organisation, Danish Agriculture & Food Council. The total turnover in 2013 was approximately 569 million Danish kroners equivalent to 76 million Euros.

The main sources of financing for the entire Danish Agricultural Advisory System (DAAS) are generated as payment for services from farmer clients to the local advisory centres and from services provided by the Knowledge Centre for Agriculture (KCA) to the local advisory centres. In relation to specific projects that aim at creating new knowledge, research as well as more applied development, KCA applies for funds from different foundations, national and EU related funds. Of these, the agricultural sector's own funds are extremely important. They consist of production levies which the sector collects and administers as well as taxes on chemicals (pesticides and fertilisers) which the government collects and whose part is returned to the funds for agricultural development purposes. This means that the agricultural sector has a substantive amount of funds in research and development programmes, which is administered by the sector itself. Often research and development programmes are co-financed by public funds and the sector's own funds in collaboration. Public funds for research are primarily used for basic and strategic research programmes related to issues of public interest, for example environmental protection, organic farming systems and green energy.

The advisory services at the local centres provide services for approximately 48,000 customers. 40,000 of these are farmers and 8,000 are rural based SMEs in other trades. The services are paid

by the users at normal market conditions. The distribution of income at an average sized agricultural advisory centre is shown in fig. 18. Please note the relative high importance of the economic department. The income here comes from a combination of accounting services and actual economic advice.

Another major source of financing of the Knowledge Centre are the levy funds paid by the Danish farmers and redirected back to knowledge and innovation to the general benefit of all Danish farmers.



**Figure 18.** Annual income for a medium sized advisory centre 2005–2010

*Source: Country Report for Denmark, 2013 on the base of Danish Kroner, 2011*

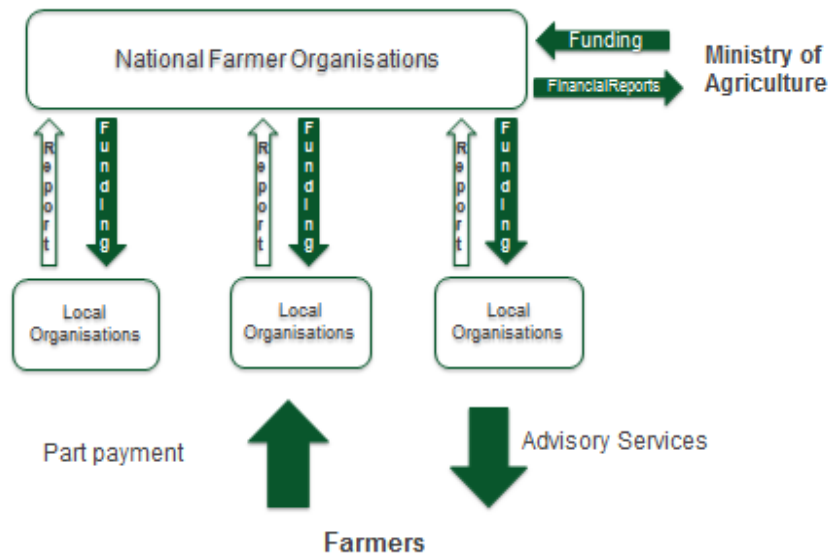
*Financial and regulatory tools.* The financing of the Danish Agricultural Advisory Service has gone through several changes over time and there is a complex set of sources and mechanisms involved. It should be noted that from 1971 till 2004 the sources of financing were different (public, support to agricultural advisors, support to education of farmers and advisors, state-consultants to oversee export markets and pass information and feedback to farmer leaders in the coops and researchers, the agricultural sector’s own funds, membership fees, subscription fees, direct payment, production levies and chemical taxes), but since 2004, there has only been public funding of the State Consultants. State Consultants are associated with a number of Danish public agencies outside Denmark. They deal with tasks related to political issues and the export of Danish agricultural and food products.

*Public support to advisory services.* The Danish Government has provided support for agricultural advisory services since 1887 and until 1971 this happened based on annual national budgeting. From 1971 the support for advisory services had its own law, which up to 2004 provided the framework for public support to the agricultural advisory services. For expenses such as salaries, transport, pension and in-service training of the advisors, the law provides for up to 70% support to the expenses and for publication of technical reports up to 50%. In special cases of difficulties, the law, however, has the possibility to support up to 85% of the costs. The percentages were gradually reduced over the years. From 1988, the government, however,



decided on a gradual reduction of the support (from 240 million DKK in 1988 to 135 million DKK in 1992).

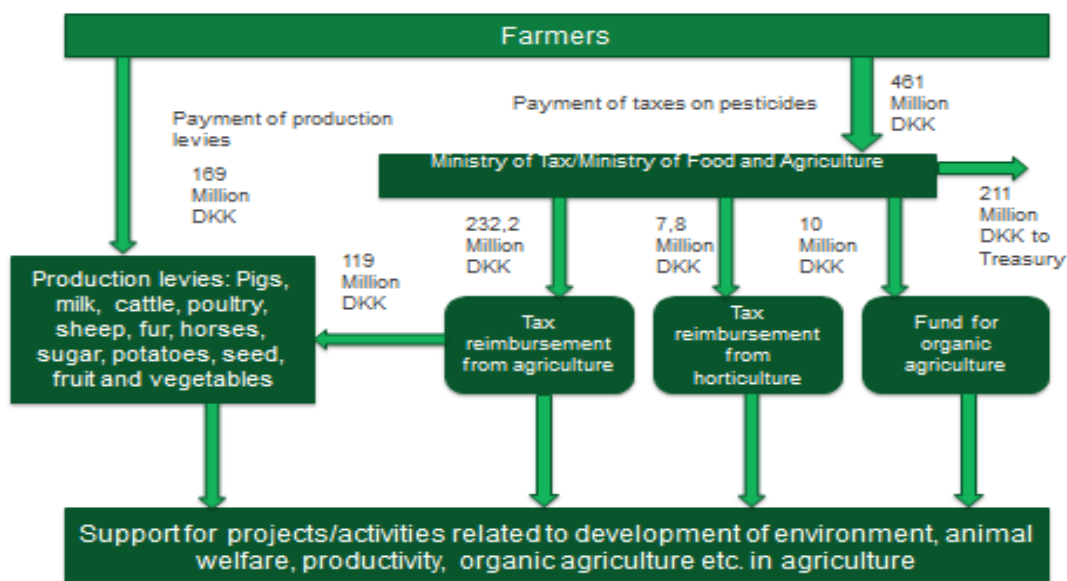
The mechanism for providing the support was that the national organisations received a frame amount that would be subject to adjustment according to the actual expenses and distributed this to the local organisations (fig. 19).



**Figure 19.** Mechanism of support providing

*Source: Country report for Denmark, 2013*

*Production levies and tax reimbursements for development tasks.* The funds from production levies and tax reimbursement represent a grey zone between private and public funds. The Danish agricultural sector has a long history of collecting production levies on its own, to be used for important common tasks for the sector, that cannot be solved by the individual producer or company. When Denmark entered EEC in 1972, it became necessary to institute the levies by law and the agricultural sector therefore requested the Government to do this and the funds have now its legal framework in the Law of Agricultural Support. Thereby, the funds became public funds in a way, but the agreement was that the sector's own organisations continued to fix the size of the levy and also to administer its use. The tax reimbursement fund was instituted in 1977. At that time, it consisted of land taxes going back to the agricultural sector. Since 1995, the funds have been complemented by taxes on pesticides which today are the main source of funding. The distribution of agricultural funds according to production levies 2010 is presented in fig. 20.



**Figure 20.** The distribution of agricultural funds in Denmark

*Source: The Ministry of Food, Agriculture and Fisheries, the Danish AgriFish Agency, 2010.*

There are eleven production levy funds today. The payment of levies is instituted by law, but the rate of the production levies is determined by the agricultural sector itself. Moreover, there are three tax reimbursement funds – for agriculture, horticulture and organic agriculture. With approximately 90% of the total fund for the three tax reimbursement funds the tax reimbursement fund for agriculture is by far the largest. The rate of payment of taxes on pesticides is determined by Government and only part of it is distributed to the tax reimbursement funds. The rest goes to the treasury. Each fund is managed by a Board appointed by the Minister for Food, Agriculture and Fisheries by nomination from the sector organisations. In the board of the three tax reimbursement funds, there are six representatives of the farmer organisations and five representing different public interest: Workers’ unions, consumers and two research councils. The fact that the agricultural sector has the majority in the Boards is of symbolic importance as it means that the farmers regard their contribution to them not as actual taxes but as their contribution to development of their sector. The administration of the funds is provided by the Danish Agriculture & Food Council.

The tax reimbursement fund for agriculture supports development projects within the following nine main purposes: market development 15%, research, trials and product development 45%, advisory services and education 15%, disease prevention, combating of disease and animal welfare 15%, co-financing of EU projects 10%.

*Importance of the financing mechanism for the direct advisory services.* First of all, it is clear that the public support for developing the advisory service system has been of decisive importance. Without it, it would not have been likely that the widespread and effective services would have been developed. An interesting issue is the importance of the fact that the public funds from the government went to the farmers’ associations rather than to the public agencies, which had a particular impact in terms of the demand orientation, the speed of transition of

knowledge to practice, facilitation of the farmers access to markets, the capacity of the farmer organisations, and the role of the advisors.

### **Estonia**

The Estonian farm advisory system, advisory services and dissemination of knowledge-based information (e.g. specialized advisory service, training and information activities, clarifying the state and research information to rural entrepreneurs, etc.) are financed by the state budget, Estonian Rural Development Plan (ERDP) and farmers. The state budget contribution to the extension services is about EUR 550,000 per year. State budget is for financing of information activities and publications, information distribution through advisory centres, coordinating activities (free service for farmers, basic salary for new advisors, support for practice and training, including information-days, study-trips, etc.). The ERDP contribution to support the advisory services is ca. EUR 3.6 million and for training and information activities, about EUR 4.2 million in the programme period (2007-2013).

### **Finland**

The advisory service structure in Finland is based on public-private partnerships. The Ministry of Agriculture and Forestry (MMM) defines annual goals together with representatives from the advisory service sector. An annual agreement is drawn up between the MMM and service providers, based on which the ministry partly finances the service provision.

The state's share in terms of finance is decided by the Parliament of Finland, which is based on the statute in Finnish laws. The principle of the state subsidy is that the services are available in all parts of the country. Money is assigned to the Ministry of Agriculture and Forestry. ProAgria Group and the Ministry of Agriculture and Forestry negotiate utilization of the money every year. The "rules" are described in an annual partnership agreement. Execution of the agreement is controlled at the committee headed by the Ministry of Agriculture and Forestry which has members e.g. from Farmers' Union, ProAgria's head office and local centres, Ministry of Finance and Ministry of Agriculture and Forestry.

According to the annual agreement between the Ministry of Agriculture and Forestry and the advisory organizations, the MMM has the right to coordinate the agricultural advisory services on that part which is paid by the state government. The annual agreement is also a tool to communicate about common subjects and means between the partners. The annual agreement involves all agricultural advisory services in Finland which provides services countrywide. These advisory suppliers are the Association of ProAgria Centres and Swedish speaking Association of ProAgria Centres – as the central associations, Rural Advisory Centres as nationwide advisory service suppliers, Faba Osuuskunta (animal breeding and artificial insemination in Finland), Hippos Ry (the Finnish trotting and breeding association), Suomen Siipikarjaliitto Ry (The Finlands Poultry Association), Suomen Turkiseläinten Kasvattajain Liitto Ry (Finnish Fur Breeders' Association), Työtehoseura Ry (work efficiency Institute) and Puutarhaliitto (The Central Organization of Finnish Horticulture) as the Special Advisory Organisations.

Other private agricultural advisory entrepreneurs come from the state subsidy, because they do not operate nationwide, which is one of the biggest precondition to get the state subsidy for

advisory services. Private rural advisors typically get their revenues from service paid by farmers.

The goals for the state subsidy are described in the annual agreement. Three main goals are highlighted in the annual agreement for the year 2013: (a) Production, profitability and competitiveness – the main task of this goal is to secure the profitability of the agriculture and food sector. It is also important that the production continues in all parts of Finland. It is important to take account of management, continuation of production (change of generation and investments) and welfare and managing of an entrepreneur. One of the main goals for the agricultural advising is to increase market and business knowledge to assure profitable agriculture in the future; (b) Environment – the main task of this goal is to decrease the nutrient loads and emissions from the agriculture. In addition one goal is to increase the efficiency in energy; and (3) Food policy – whose main task is to produce domestic foodstuff from raw materials with high quality. It is also important to produce goods meeting the consumer expectations. Goals also includes to increase the responsibility and traceability in the food chain and to increase the share of organic and locally produced food.

In the 2013 the state subsidy for agricultural advising sector was 7,168,000 euro. It was 6.5 percentages lower than one year ago, meaning that the amount of state subsidy is decreasing in the long run. The subsidy for advising the organic farming was the only sector where the grant had increased from the earlier years. The biggest reduction was in the animal breeding and research (17%), development and training sectors (13%).

The revenues of ProAgria amounted in 2012 in percentage, to: 14% of state subsidies, 57% of customers' payments, 18% of projects, 3% of service payments from the government and 8% of "other profits". The turnover of the company in 2012 was about 50 m€

## **France**

The CASDAR is the central element of a public policy characterised by procedures of delegation of services, where the state funds and regulates the supply of services without being directly active in their provision. Besides CASDAR, there is a second major fund to support advisory services: a tax collected on "non-built" land. This tax is collected at a departmental level and benefits essentially to the chambers of agriculture (about 50% of their budget in average). To our knowledge there is no publicly available overview or evaluation of this tax. More globally, three trends are worth being acknowledged in the evolution of the funding and planning of agricultural advisory services: (a) there is a growing trend towards decentralization, as departments or regions tend more and more to develop their own instruments to support advisory services (as voucher systems in different regions); (b) there is no global coordinated national policy regarding farm advisory services: there are different instruments, associated to different agricultural and rural policies. These instruments are conceived and evaluated separately by different directions of the Ministry of Agriculture. This for instance the case of CASDAR (linked to rural development policy), Ecophyto 2018 (linked to Grenelle de l'environnement) or the Farm Advisory System (linked to cross-compliance of CAP 1<sup>st</sup> pillar); (c) An important part of these instruments are not aimed at transforming the supply of services, but rather at supporting interactions (in a project dynamics) between the different actors of AKIS and advisory services.

## Germany

Due to federalism, every state features its own policies and regulations which determine the organisation of advisory services in terms of their provision and funding.

*Current and forthcoming policies.* It is therefore also the states, which act as the co-financier for EU funds. The processing of EU funds happens to be decentralized in the 16 states. The states are obliged to prepare regional planning documents, so-called "development programmes for rural areas". These rural development plans set the base for the funding measures on agricultural advisory. The state ministries either enable ("programme") or neglect eligible measures of the European Agricultural Fund for Rural Development (EAFRD). Within the current funding period, the following measures were programmed in the rural development programmes in the German states (according to BLE 2010):

- Within the scope of priority 1 of EAFRD 2 concise advisory measures are offered, focussing on "strengthening human capacities". The first measure "Use of advisory services by farmers and forest owners" is programmed in the rural development programmes of 6 states (Baden-Württemberg, Lower Saxony, North Rhine-Westphalia, Saarland, Schleswig-Holstein and Thuringia). The second measure "installation of farm management services and advisory services" is not programmed by any state.
- In contrast, in the second priority of EAFRD, agricultural advisory service does not form an explicit measure, but it is indirectly part of some agro-environmental measures which supports farmers to receive additional information to implement measures.
- Similarly, in the third priority agricultural advisory indirectly forms a part of e.g. the measures on "diversification to non-farm employment opportunities" and "rural heritage" – both measures are programmed in all German states.

It can be seen that the states make use of the funding possibilities in a different manner. Previous studies and several interviewees noted the high administrative effort together with the lack of own state funds to co-finance as the major burden for not programming measures, e.g. on advisory services.

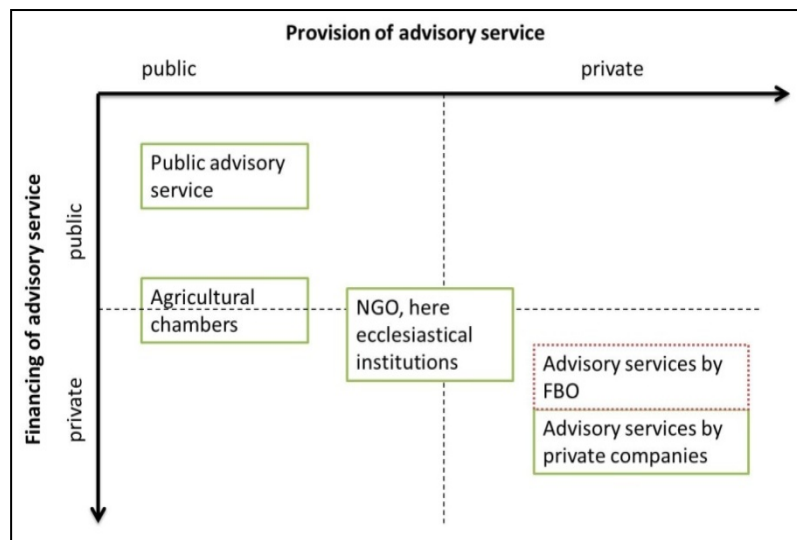
In addition to EU support, the national legislation enables funding of advisory services. Since implementation of the FAS in 2007, the *federal fund for agriculture and coastal protection (GAK)* offers reimbursement for specific advisory services of public interest, if the federal states co-finance and implement it in their rural development plan. Topics such as Cross Compliance advice on the basis of Farm Management Systems and later on also for advice on energy topics and advice related to the 'new challenges' (climate change, water management and biodiversity) are eligible for reimbursement. In the current funding period, only 2 states make use of this measure (Lower Saxony and Baden-Württemberg) on topics of the new challenges.

For this study, the internal preliminary version of the funding rule of the prospective policy document was provided with kind admission of the national ministry for agriculture. It will come into force in 2015. The document reveals alterations for eligibility of state extension systems by national funds: advisory service will be one of nine funding rules in the GAK; for the first time, agricultural producer groups are eligible as well; the new rules on financial procedures will also allow reimbursement of advisory service providers (previously only farmers were beneficiaries);

the states may raise rates for advisory measures on agro-environmental topics up to 100% or 2000€ maximum.

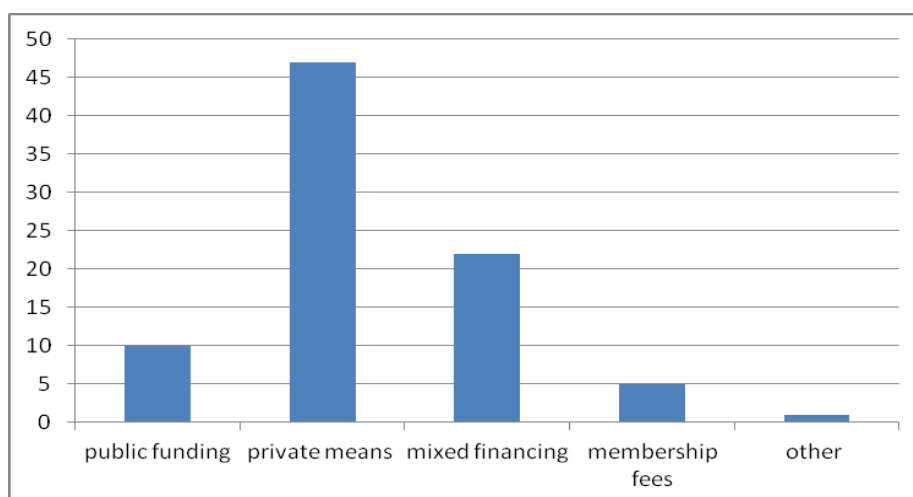
Nevertheless, it needs to be kept in mind that the states do not necessarily have to codify these measures into their rural development programmes. In accordance with the EU timeframe, the states are currently programming their rural development programmes (state: July 2013). However, the ministerial representatives stated that there is a significant interest as well as a demand for discussion and information among all states in terms of funding possibilities of EU and the national fund GAK. States and the federal government are in close exchange via the thematic working group on agricultural extension, to which the state extension referees are frequently invited by the agricultural ministry.

*Funding schemes and financial mechanisms.* The provision versus financing of advisory services is presented in fig. 21. It shows a classification of the five organisational forms offering agricultural advisory services in Germany.



**Figure 21.** Funding mechanism for agricultural service in Germany  
 Source: Country report for Germany, 2013 (scheme is based on Rivera et al., 2001)

The major *funding source* of surveyed organisations in respondents opinion is displayed in fig. 22. More than half of the respondents charge private payments from clients. Of the mixed financing category, in almost 2 thirds of the cases, mixed funding refers to public and private funding.



**Figure 22.** Financing of advisory service

*Source: German experts' survey, 2013*

*Billing* of advisory services is based on hourly rates in 55% and on fixed rates for a certain time frame in 40% of the cases. Advisory packets are used in 38% while “according to specific advisory topics” was confirmed as a billing settlement in 29% of the cases. Another 29% of the respondents indicated other billing details, among them membership fees and daily rates. In case of service provision by public authorities and ecclesial services (NGO) no costs arise for clients (category “other”).

### Greece

As it was mentioned before, none of the national level organisations is involved in the provision of advisory services, with the exception of PASEGES. It may thus be argued that while NAGREF and HEIs generate new knowledge or adapt the existing knowledge, currently they face rather insurmountable difficulties in transferring such knowledge to farmers with the exception of sporadic events (seminars or public presentations/talks) and publications which nevertheless do not actually reach farmers (or are not written for farmers). MRDF is primarily occupied with the CAP implementation (albeit without serious efforts to adapt them to the Greek specificity).

A further problem is that services at all levels are understaffed, a phenomenon which is expected to intensify due to the retirement of a large number of agronomists who entered the service in the period 1981–1987 and the prohibition of hiring new staff. On top of this, the restriction of travelling by 2/3 further confines agronomists in office and thus curtails the contacts between agronomists and farmers.

Overall, in the last 30 years the need for extension has been seriously downplayed as a result of the dominant attitude according to which the absorption of available EU funds (subsidies and grants) overwhelmed ‘the need to produce’; in this sense, the scientific support of farmers (being thought of as ‘entrepreneurs’) was not deemed ‘necessary’.

## Hungary

Sub-regional Advisory Centres have a yearly quota for a certain number of individual contracts with producers. Producers pay for the service, then can claim back 80 per cent of the contract value. One farmer may receive a maximum of EUR 1,500 during a seven year period (with a limit of EUR 700 per year) and may use the service up to three times during the seven years. The mechanism is quite cumbersome: firstly the farmer selects a registered consultant, agrees and signs a contract, pays the advisor, then submits his/her request for partial reimbursement to the VM. It can take up to 1.5 years to get the reimbursement. This system has been subject to extensive criticism, e.g. for administrative burden, late payments, very limited amount of financial support and also quality of the advice provided. Total budget in Euro for 2004: 8.13 million euro and for 2012: 2.9 million euro. There are three sources of budget – national budget 22%, EU CAP projects and funds 58% and 20% – fee for services (paid by farmers).

## Ireland

The state largely finances agricultural advisory services in form of a subsidy to the cost of advice. This is done at the national level through Teagasc and then passed down to Teagasc county and local offices, and advisors. Around 75% of Teagasc's yearly budget comes from the Irish exchequer and EU funding, with the balance generated from earned income. Some 40% of the budget is devoted to research, with the remainder split half and half between advisory and education services.

Farmers can become Teagasc Advisory Service members in order to avail themselves of a variety of services, including club packages, options planning for the future, farm partnerships services or a profit monitor. Advice is offered on a range of topics. Farmers can also join the BETTER farm programme and benefit from its three components, the research demonstration farms, the BETTER commercial farms and discussion groups.

There is a recognition that government no longer needs to provide the sole source of finance for all services offered by a public advisory service, but it does need to support the provision of public goods which otherwise would not be provided due to market failures, e.g. advice in remote areas, or to small enterprises. Teagasc (2011) noticed: *“The range of services provided by Teagasc reflects a mixture of public-good and mixed public-private-good provision which led to a mixed-funding model. Overall, there is a direct cost recovery of about one-third from individual farmers. This rate of funding varies depending on the “public good” nature of the service. The contribution from farmers ensures a focus on the immediate service needs of farmers while also allowing a development agenda to be pursued. This, in turn, provides a semi-commercial focus for the public extension agency. It allows the users to have a choice, and when supported by focussed targeted development schemes, ensures that contact with a dispersed sector such as farming can be maintained. This also provides opportunities for the coexistence of private and publicly-funded providers in the extension space”*.

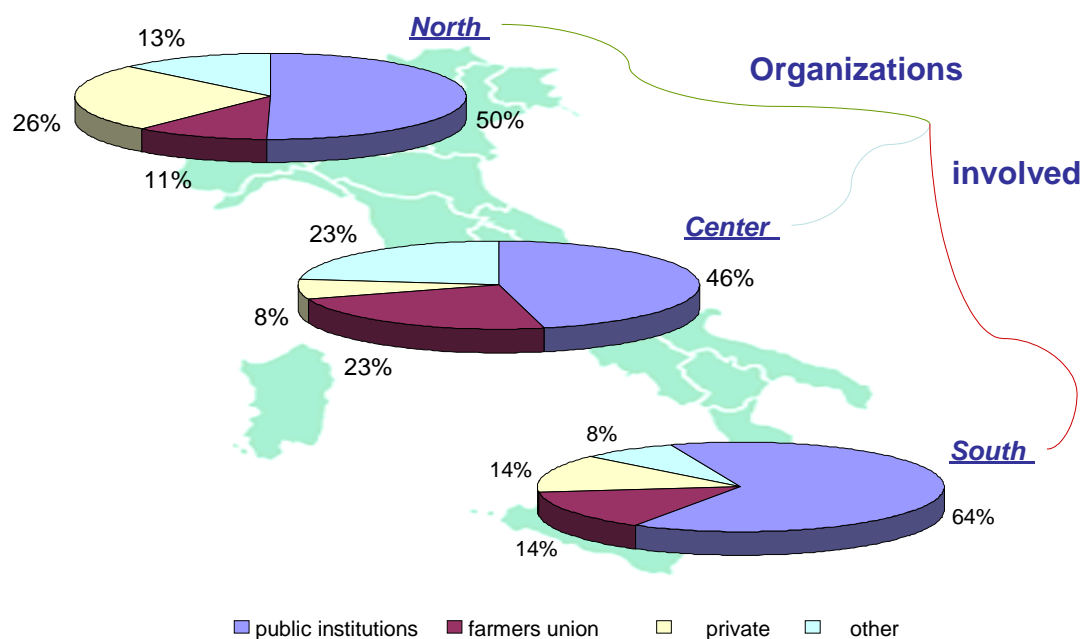
*Public policy.* The Governmental Policy Priority is to support a sustainable, competitive, multifunctional agriculture, food and forestry sector, while also maintaining the maximum number of family farms in rural areas. The Government’s Food Harvest 2020: A Vision for Irish Agri-Food and Fisheries (2010) sets growth targets which are to be supported by increasing the



competitiveness of Irish agriculture and food. Other key documents that set out national policy objectives include: Action Plan for Jobs 2012; Government for National Recovery 2011-2016. Programme for Government (2011); Food Research Ireland (2011); Stimulating Sustainable Agricultural Production through Research & Innovation (2011); Department of Agriculture, Food and the Marine Statement of Strategy 2011-2014; Building Ireland’s Smart Economy: A Framework for Sustainable Economic Renewal (2008); Innovation Ireland: Report of the Innovation Taskforce (2010); and Government Statement: Public Service Reform Plan (2011). Public policy measures include the Dairy Efficiency Programme (DEP) and the Beef Technology Adaption Programme (BTAP), which were promoted by DAFM for incentivising group participation among farmers and served as a significant milestone in the development of discussion groups. Group participation is expected to facilitate peer-to-peer learning. DEP and BTAP measures are seen as a key activity of technology transfer. For example, Hennessy and Heanue (2012) find discussion group members in the DEP have higher gross margins than non-members, but non-members could increase their gross margins if they join discussion groups and overall, the findings confirm positive returns to discussion group membership.

### Italy

The structure of public advisory services in still influenced by the effects of already mentioned Reg. 270/79, so the role of public actors in the South and Islands is more important than in the remain part of Italy. Figure 23 refers to an INEA survey about the delivering of advisory public funded services. It covers the period of 2003-2007 and at the state it is the last systematic survey on the topic. As highlighted in the report, however, since then there have been important changes with an increasing role of the private advisors.



**Figure 23.** Provision of public funded advisory services  
 Source: INEA 2007

The public funded advisory services include a wide range of fields, with a great diversification among the Regions. According to the INEA, the main fields of extension service funded by public institution are: very specialized technical supports, including back-office extension services (like meteorological networks, chemical laboratories, multimedia initiatives etc.) – 33%, basic extension services (32%), specialized extension services (14%), information services (6%).

A recent study of Cassino University proposes a quantitative approach to describe the organisational models of Regional agricultural extension. The study included a multivariate analysis to identify homogeneous clusters of Regions respect to the governance structure. The key elements of the governance analyzed used a set of indicators: decentralisation, privatisation, pluralism (the degree of involvement of different potential actors in the organization), completeness of the Regional law in indicating the advisory governance, participation (checks if the different functions are performed in a balanced way by the different parties in charge), diversification (of services provided by the different actors), specialisation (calculated in relation to the activities and functions provided by every actors) and contractualisation (calculated as the share of RDPs expenditure in measures 111 and 114).

The analysis identifies four clusters of Regions sharing the same level of governance:

1<sup>st</sup> cluster: Regions with prevalingly public structures of governance (Abruzzo, Prov. Bolzano, Calabria, Campania, Piemonte, Puglia, Toscana, Sardegna) and low level of pluralism.

2<sup>nd</sup> cluster: Regions with decentralized structures of governance (Basilicata, Friuli V.G., Lombardia, Molise, Trento, Umbria) with an high level of different actors participation and a reduced level of contractualization.

3<sup>rd</sup> cluster: Regions with prevalingly centralized governance and mainly non public structures and low level of contractualization (Lazio, Liguria).

4<sup>th</sup> cluster: Regions with private and pluralistic structures of governance (Emilia Romagna, Sicilia, Marche, Veneto). The last cluster is characterized by high pluralism and participation in the governance structure. The relatively high incidence of measure 111 and 114 demonstrates a growing level of privatisation jointed to the pluralism of the actors participating to the supply of extension services.

## **Latvia**

Public rural and agricultural policy, as a set of laws, regulations and priorities, forms the general framework for agricultural development according to which also agricultural advisory organisations operate. However, there are no central coordinating mechanisms of all advisory services. Organisations providing advisory services are financed from public, private and mixed sources. Public funding is assigned for budget institutions (like educational and research institutes) and on contract and project basis for others. The very advisory services are financed from the state budget, EU funds, and contracts with the state, local authorities and to a lesser extent, with NGOs. Farmers' and entrepreneurs' fees also compose a considerable part of financing for advisory organisations. On some occasions advice is provided for free on voluntary

basis, this is the case of public educational establishments whose functions do not formally involve advising.

Main national agricultural and rural policy documents (Law on Agriculture and rural Development, Rural Development Programme and Rural Development Strategic Plan) refer to agricultural and rural advisory services in the context of broader rural development goals among which farmers' and rural residents' education has been set as a priority. Public involvement in agricultural advisory services is mainly implemented through one organisation – LRATC, which is state co-owned advisory organisation. The centre carries out the state's commissions to provide farmers' training and informing regarding national and EU policies and regulations, cross-compliance, maintain rural advisors network, organise demonstration projects and field days, collects statistical data and makes prognostics on agricultural production. However, LRATC is not fully financed by the state and has to use other public and private sources to finance its activities and there are introduced fees for a big part of its services. LRATC is delegated to supervise and operates within the framework of National Rural Network, the EU initiated instrument introduced to coordinate agricultural and rural information and knowledge activities. The training activities are defined for each year on the basis of farmers' and rural dwellers' survey as well as taking into account topical events.

However, as already stated above, there is a discrepancy between the political claim towards support for agricultural education and the actual spending priorities in 2007–2013. The preference has been given to farm modernisation in terms of purchase of machinery rather than education and skills. This marks the domination of commercial interests in setting and implementing agricultural policy priorities. Big farmers do not see great value in public educational system, as they can afford buying advice from anywhere. A lobby of small farmers who are more dependent on public advisory services is weak. In interview, the leader of farmers' organisation suggests that small farmers lack mutual trust and long-term view. Therefore this group is inefficient in securing itself with free high-quality consultations.

## **Lithuania**

The main objective which is aimed at implementing the CAP (and advisory) policy is to implement a sustainable model of agriculture that connects the coordination of economic and social objectives, ecosystem management, and market orientation. Agricultural development must meet the farmers', consumers', taxpayers' interests, and follow international rules. Policy framework and support for its implementation orient farmers towards making changes, and facilitating this process requires knowledge, information, and advisory services.

Strategic agriculture and rural development documents include the provision on agricultural advisory. Being an instrument of the state policy, it has to provide information to agricultural operators, help assess the situation and expectations, understand the essence of the problems, choose the right solution for economic development, investment, participation in support programmes, environment protection, animal welfare and implementation of other requirements. National and EU funds support, granted to advisory activities, partially offsets farmers' funds, which they should use to get the necessary advice.

Political provisions regulate advisory activities directly and indirectly, i.e., through the changing farmers' needs: changes in the content of the services, emergence of new services. In recent years, the advisory service has launched some new services to farmers: crop area measurement using GPS devices; evaluation and design of manure storages; development of environmental design for a construction project; preparation of tender documents, etc. reflect this situation.

Advisory activities are currently being carried out by accredited advisory agencies of "The Centre for the LEADER Programme and Agricultural Training Methodology". Accreditation is granted for three years and three advisory sectors. The legal status of accredited institutions varies. There are 13 public agencies, the Chamber of Agriculture, 6 scientific and educational institutions, 4 associations, 14 private limited liability companies and 1 sole proprietorship. Territorial distribution of these institutions is uneven: 18 institutions are located in Vilnius, 10 in Kaunas, 2 have a nationwide network, and the remaining 9 are located in other cities of the country.

The state finances advisory services provided by Chamber of Agriculture of the Republic of Lithuania (CARL) and partly (about 13%) by Lithuanian Agricultural Advisory Service (LAAS). LAAS receives 87% funding from the private sector paying for services. In general, advisory services are financed from a variety of sources: (1) private advisors are paid for the documents prepared for the EU and national support (based on individual projects), for advice on fertilizers, accounting management and other; (2) advisors from Universities are hired under individual projects financed by private funds, associations and the structural funds; (3) private advisors are paid by farmers themselves.

The state mostly provides funding at the national level: under individual advisory projects (e.g., conducting seminars in municipalities of the country). Mostly, funding goes to seminars and procedures for conducting courses. The Ministry of Agriculture calls for tenders involving various (usually big) individual advisory organizations and their partners (ASU, LIAE, LAAS, Advisors Associations), who are usually awarded the contracts.

### **Luxembourg**

The national agricultural law of April 18<sup>th</sup>, 2008 (Service Central de Legislation 2008b) has commissioned the chamber in article 17 to coordinate agricultural advisory services provided by non-public advisory bodies in form of state-funded advisory projects of up to 5 year duration. The agricultural chamber is responsible for the selection process of these projects. General objectives of publically funded advisory projects are to offer advice for individual farm holders in particular with respect to sustainable farming practices (LWK Luxembourg n.y.a). Proposals are submitted by professional agricultural organisations (FBO), farmer groups or by the agricultural chamber itself. Funding rates amount to 50%, respectively 80% of project costs when topics of national interest and environmental issues in particular are concerned. Currently, 12 projects are funded under this scheme.

When asked about the funding source, an emphasis on co-financing of advisory services through public money and other sources was indicated by the advisory organisations (n=8) in the quantitative survey. In two cases, national funding constituted 100% of the organization's financial source. Six other advisory organisations indicated mixed funding with a state

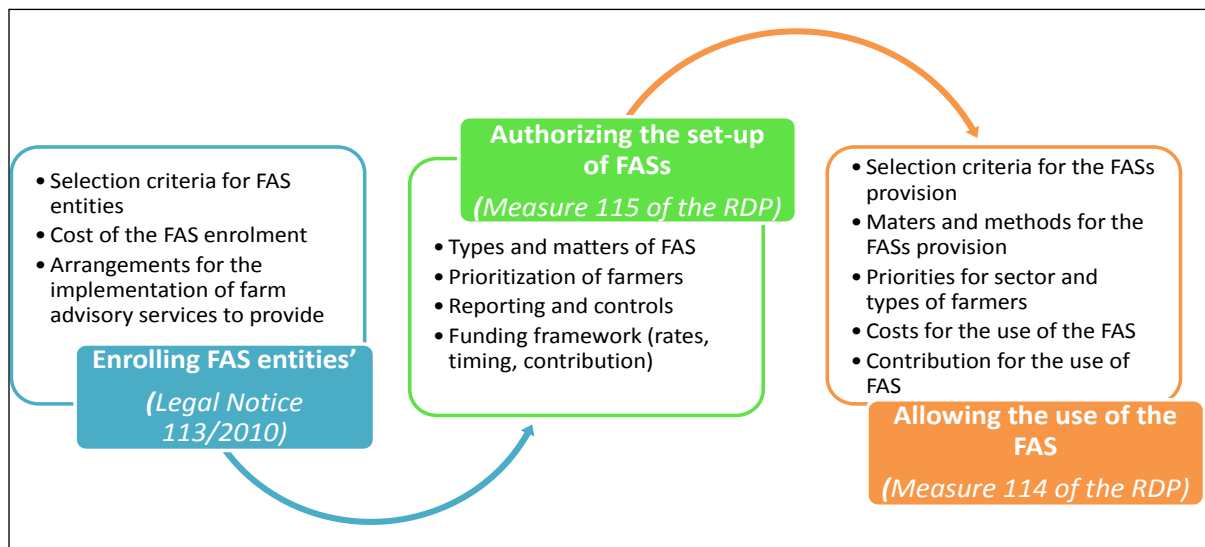
contribution ranging between 70 and 80%. The remaining share in these cases is made up of farmer's contributions or fees and (private) consultancy services. With regard to *billing services*, 2 organisations indicated hourly rates, 3 according to advisory packages, 2 according to specific advice (multiple answers were allowed). In addition, 4 organisations specified that advisory services were free of charge for farmers. However, it was mentioned in the interviews and internet sources that advisory services from public advisory organisations and from the chamber are also available at no costs for farmers.

## Malta

The policy framework on the FAS is basically defined by the National Rural Development Strategy Plan 2007-2013 (NRDSP), the RDP 2007-2013 and the national Legal Notice 113/2010. These provide the basic strategy, the main objectives, the implementing rules, the funding schemes and the mechanisms for the establishment and the use of the farm advisory services, as well as for the vocational training and the follow up of the research in agriculture. Particularly the NRDSP, by recognizing that the Maltese farmers need to be made aware of the relevant EU and National regulations, in particular cross compliance requirements and their implications, outlines the opportunity to use training, information and diffusion of knowledge (measure 111), as well as advisory services to help the farmers reach the required level of technical know-how and expertise (measures 114).

In this context, the establishment of the FAS is recognized as instrumental in helping farmers to adapt (measure 115), improve and facilitate management and furthermore improve the overall performance of their holdings by further enhancing the human potential operating in the agricultural sector. In addition, measure 111 of RDP supports the vocational training and information actions and, indirectly, promotes research in agriculture, by including the set-up of demonstration projects and experimental sites, as part of long-term research projects. Overall, the budget allocated for the three measures represents 6% of the total Axis 1 and almost 3% of the total allocations on the RDP of Malta.

However, other national funding schemes are applied to the cooperatives and the producers organizations, which, in providing extension services to their own members, are financed by the ordinary national budget, by the common marketing organization (CMO) funding schemes (applied only to POs), by the RDP measures 124 and 142, and by the membership fees paid by the associates. Still, for the case of the cooperatives, by the central cooperative fund (CCF) which is feed by the cooperatives themselves with a contribute of 5% of the surplus of each financial year. In very few cases, some advisory companies are also financed by the fees paid by the farmers for the provision of specific extension services. Indeed, as it is regulated, the establishment and implementation of the FAS implies a three-steps procedure (fig. 24).



**Figure 24.** The three-steps model for the FAS implementation

Source: report of survey for Malta, 2013

With regards to the specific national framework, Legal Notice 113/2010, regulates the selection and enrolment of the FAS entities to the Farm Advisory Services Register. This is subordinated to the compliance of a number of selection criteria that regard mainly organisational engagements, professional skills, experience of the applicants, costs of enrolment and rules for implementing and reporting the activities to be provided (table below). Here, the selection criteria and the detailed requirements on the expertise on the subject and the recurrent training of the FAS team let emerge the strong interest of the MA to foster the continuous professional development of the FAS entities. In addition to the legal notice, the EU framework, by the measures 114 and 115, sets out the financing arrangements and the criteria for authorizing the provision of the farm advisory services as well as for selecting the intended FAS users, defining the contents and the methods to be applied in the provision of the advisory services and the farmers' costs for using the services.

### The Netherlands

A full description of the providers is very difficult to formulate for various reasons: they are private actors for which there is no official census, for the strong dynamism of the advisory arena changing extremely quickly and becoming increasingly globalised, for the hybrid identity of many AKIS actors performing different functions from the original tasks and for breaking into the advisory market of new actors traditionally active in other areas/sectors. Finally the severe competition of advisory market may make the players less inclined to share internal information.

The upstream and downstream industry can play a very important role in providing agricultural extension services. Dutch upstream industry is highly innovative and has the internationally leading position for different products, such as ingredients, enzymes, animal breeder material and biological crop protection. Furthermore, the Netherlands are a global market leader in machinery, e.g. for poultry processing, red meat, bakery and cheese production. In some sector, the role of these industries as extensions providers is particularly important, such as the case of

pork production chain, where the pig semen supplier in many cases is also the buyer of the grown pig. Another example is the large-scale open air vegetable growing, that is mostly governed by a strict contract with detailed instruction and requirement provided by the processing industry.

Also the role of Dutch Food Retailers is growing important in the agricultural innovation process, due to the high trade concentration (5 players control more than 90% of the market), their high purchasing power and the development of retail labels. A clear example is the Beter Leven (better life) concept, developed by the animal protection society (Dierenbescherming), in cooperation with retailer Albert Heijn and meat company Vion, to promote the introduction of higher welfare standard in livestock farming with slightly higher price. Other retailers and companies have followed the same green marketing concept.

Private professional advisors – DLV Advisory Group, individual professional advisors and several other private consultancy companies, like Arvalis, HVA International, VAB (Ambitious Agricultural Consultants), LTO Nederland, Farmers' co-operatives, farmers' study groups, product groups.

DLV Advisory Group is the largest Dutch consultancy firm, providing technical, economic and management advice to farmers and other agri-food business as well as consultancy services to private and public institutions. As mentioned above, it used to be a Government institute, while actually DLV is a holding with limited company corresponding to five business units (Plant production, Animal production, Chain management, Construction, technology and environment, Countryside). The core of DLV business over the years has greatly expanded to include all the technical, economical and environmental issues able to optimize farmers' production (such as energy, soil and water management or farm construction). It has about 500 employees. Each advisor is responsible for contracts with farmers and has an individual financial task (approximately 80-100,000 EUR). The advisors offer on-going consultancy to farms, assisting them with customized advice.

DLV also provides thematic trainings and study group meetings for producers, organizations and extension officers. DLV's experts also work outside Holland, coordinating and carrying out agricultural development projects financed by national and international donors.

In particular DLV plant (with about 200 consultants and researchers working in the horticultural and agricultural sectors) is active in 50 countries with 8 international subsidiaries (in UK, Belgium, Russia, East Africa, Latin America, Middle East, Spain and Scandinavia).

DLV also undertakes applied research commissioned by its clients to translate new techniques into specific company situations.

In addition to DLV, in the Netherlands there are also individual professional advisors and several other private consultancy companies, mainly smaller and specialized in different sector (such as dairy farming, construction) and/or target groups (such as organic farming). For instance, the non-profit organisation ETC focuses on a niche of knowledge (agro-ecology in dairy sector), operating with highly specialised advisors.

Some private companies have been established as an offshoot of the historic farmed based associations, such as Arvalis, that is an agricultural consulting firm which emerged in 2006 from

the Limburg Agricultural and Horticultural Association (LLTB). Arvalis has four offices and employs 60 people, working also in Belgium and Germany. Many extension providers operate also outside the Netherlands, while others provide their services only to developing countries, e.g. HVA International. Other agricultural advisors are consulting companies not specialized in agriculture, but working in a larger market of services provision, e.g. ABAB Groep B.V. It has over 700 employees working in 14 offices and a division called Food&Agri. In addition new players in the market are ICT enterprises developing and/or commercializing agronomic modeling software to farm management.

Private independent advisory services are associated in VAB (Ambitious Agricultural Consultants) an association for corporate consultants in agriculture. The VAB was founded in 1997 and actually has over 500 members. The consultants support all types of farmers in the strategic development and optimisation of their businesses, especially regarding legal and environmental issues, accountancy, etc. VAB certifies corporate consultants in agriculture, assuring that they have the skills to effectively support farmers when considering complex projects and large investments. Certified consultants are recognizable by the title 'ab'. The association is a career-network and it assists its members in extending their knowledge, organizing meetings for knowledge-exchange and supporting members in the development of their consultancy skills.

LTO Nederland (Land- en Tuinbouw Organisatie Nederland/Dutch Organisation for Agriculture and Horticulture) is an entrepreneurs' and employers' organisation with three regional divisions, LTO Noord (in the North), ZLTO (in the South) and LLTB (in Limburg Province). It represents and supports the economic and social interests of almost 50.000 farmers and growers on a local, regional, national and international level. The Confederation was formed in 1995 through the merger of KNBTB (Dutch Catholic Federation of Farmers and Horticulturists), KNLC (Royal Netherlands Agricultural Board) and NCBTB (Dutch Christian Federation of Farmers and Horticulturists), that were organized along religious lines. Currently LTO is organised in 15 sub-sector organisations, representing the members in their branch, likes the Glastuinbouw (Greenhouse Horticulture), Varkenshouderij (Pig farming), etc.

The Confederation supports the interests of agricultural entrepreneurs and it provides a large number of additional services for its members, ranging from advice and commerce to real estate and insurance. LTO has its own consultants and specialists who provide tailored advice for individual farmers, especially on business succession, changing to different products and production methods, expansion, specialisation, new business opportunities and business discontinuation. LTO Nederland also functions as a buyers' cooperative and helps the organization of farmers study groups. In addition, LTO Nederland's informative website, its weekly magazine 'Nieuwe Oogst' (New Harvest) and trade journals 'Veehouderij' (Livestock Farming), 'Gewas en Tuinbouw' (Crops and Horticulture) are important sources of information for its members.

Farmers' Cooperatives. In the Netherlands there is an important tradition of large cooperatives, including in the agricultural sector. The data provided by the Statistics Netherlands indicate 55 agricultural cooperatives active in 2010. The sector is interested in a rapid decline in the number



of enterprises, especially due to the continuous consolidation process through mergers; from 2006 to 2010 the active agricultural cooperatives decreased by 33%.

In the 1990s a new kind of cooperatives, the so called “Environmental cooperatives” (ECs), emerged. They represent an innovative form of social organisation defining a new model of rural governance. ECs involve farmers but also non-farmer actors, working in close collaboration with local, regional and national authorities to integrate environmental management into farming practices by adopting a regional perspective. The first environmental cooperative was established in 1992 as a self-help group with voluntary membership. Currently there are about 150 environmental cooperatives which play an important role in the Dutch agri-environment policy.

Farmers study groups – they are farmers organisations based upon their cooperative spirit of self-help and solidarity. They are based on a sectoral perspective and/or geographical proximity. However if most of the study groups are established at local or regional levels, thanks to the ICT support their boundaries are expanding. The groups may have a long history or they have a very limited *existence when they are organised just* to find a solution to a particular problem. Usually they are autonomously managed by farmers, but in some cases they may have an external facilitator. Several interviewees indicate the study groups as one of the most important source of farm innovation. Each farm participates to several networks concerning different field and aspect of the farming system. It is difficult to accurately estimate the number of study groups, because some are informal networks. A study indicates that approximately 60% of Dutch horticulture growers participate in study groups.

The study groups could be open networks or closed organisations. Some study groups are originally established thanks to public subsidies, then fail as a result of the extension privatisation such as the Landbouwvoorlichting Dalfsen e.o. This is a club with about 160 members and it was founded by government subsidy more than 75 years ago. Currently, the Association is a completely independent club.

The high value of farmers study groups is recognised by policy and academy. They are used also in publicly funded innovation programmes as effective tools to improve knowledge and innovation.

Product boards (Productschappen). The Dutch agricultural products boards operate as a chain platform to strengthen their chains and to support their sector companies. They function also as a centre of knowledge to sustain the members’ decisions, organising a wide range of information activities such as newsletters, websites, symposia, magazines publication, but also providing specific extension service. In this regard, a very important issue is the presence in several chains of quality assurance schemes.

Innovation network and knowledge brokers. In recent years, as already mentioned, in the Dutch AKIS numerous new innovation networks have emerged. Beside the traditional players these experiences include also several informal actors delivering advisory services, e.g. innovation consultants, peer network brokers, systematic instruments (for support of innovation at a higher level), Internet portals and databases, boundary organisations, education brokers.

## **Poland**

Agriculture is one of the branches of the national economy, which are the basis of life and the maintenance of the population. It produces about 90% of food products and raw materials for food processing. The appropriate level of agricultural development is one of the pillars of the development of the whole economy. Its condition and development depend on three groups of factors. The first of these are internal factors – land, labour, capital – which are the production base of each farm. The second group includes agricultural environmental factors, which covers economic policy, including the wider agricultural policy, the level of economic development, the development of technical and social infrastructure in the country, the state and the development of education and science, including agricultural research and innovation. Finally, a third group of social and political factors that largely affect the attitudes and behaviour of farmers and professional activity, expressed attitude to the farmers and the prospects for the development of this sector of the economy, and through the creation of opinion also have some influence on the perception of agriculture and farmers from other professional groups.

With the changes caused by globalisation we can observe rapid changes in the economic, social and political processes. Globalisation puts pressure on farmers to become more competitive, which requires increasing knowledge and skills, fast access to reliable information and innovation. All of this requires appropriate amount of funds. Increasingly, intervention of public sector in agricultural extension more and more depends on the will of taxpayers, who - having already contented the needs of food security - do not support agricultural subsidies. It is clear that government subsidizing extension will require innovative and higher effectiveness of advisory work and puts significant attention to tasks of extension work, which should implement innovations, meet current challenges and farmer needs.

The common trend (not only in Poland) is a charge to more advisory services, and the financial burden is transferred to the producer (farmer). In Poland, we can observe, year by year, less finance support from government to agricultural advisory and necessity to look for other sources of funds (i.e., commercial services, EU funds). It is expected that Polish farmers will pay for majority of services receiving from advisory staff. The issue is that owners of small farms (dominated in Poland) may not afford for such paid services.

In Poland, there is no special funding scheme to cover advisory work. At present situation, majority of purpose subsidies to advisory services provided by Provincial Advisory Centres (16 decentralised units) is covered by government (in 2012 – 56,2% of total cost of advisory services). The amount of funding coming from other sources depends on a well-developed plan and the programme of advisory services, the needs of farmers and rural residents, entrepreneurs, facing the challenges of today's market, and often also on the ability of ODR to co-operate with local stakeholders and to compete with other professional advisory organisations in the competition on EU funds.

The basic sources of funding of advisory services provided by Provincial Advisory Centres in 2012 were: subsidies from state budget, funds from other public sectors, EU funds, and service recipients (beneficiaries – farmers, businessmen and farmers' organisations). The participation of different sources of funding in total ODRs budget was as follows:

- subsidies from the central state budget: 56.2%, including specific subsidies (60%) and purpose subsidies (40%);
- funds from other provincial units of public sector (15.2%), which include most of all the funds from the Provincial Funds for Environmental Protection and Water Management (59%), Province Self-Governments (28.2%), Provincial Employment Agencies (8.8%), Animal Science Institute (2.6%), as well as Regional Social Policy Centres (1.4%);
- paid agricultural advisory services (24.3%);
- paid business advisory services (0.7%);
- other revenues (2.4%);
- other: EU funds (1.2%).

### **Portugal**

There is no public extension service or national extension structure. The State initiated a process of transfer of extension functions to farmers' organizations in the early 1990s and today numerous set associations and cooperatives are involved in this area, coordinated or under umbrella organisations, with fragmentation and lack of national coordination as the two major weaknesses. Each organization develops efforts to attract funding, through contracts with the government, training programmes supported by public money or charging for service delivery.

### **Romania**

The establishment of the strategic development directions of the agricultural advisory service is still MARD responsibility.

Funds for the activity of county agricultural chambers come from the state budget and from their own incomes. Funds from the state budget are obtained by transfer from the central budget to the county budgets. The own revenues of the county agricultural chambers come from specific services provided to farmers and economic operators. The types of services, the fees that are requested for each type of service, as well as the modalities of cashing and utilisation of funds are approved each year, by the county council decision, while observing the legislation coming into effect.

The funding level for the agricultural advisory service is quite limited. There are severe financial constraints that hinder conducting basic activities. Both the budget for wages and the budget for the technical endowment are inadequate. Small wages lead to the impossibility to attract and maintain qualified staff, with a negative impact upon the provided services. The financial resources for the material endowment are low and lead to the diminution of the consultants' mobility in the territory, and frequently to their informational and communicational isolation.

### **Slovakia**

For agricultural extension systems in order to operate effectively, it is important to be responsive to the current needs and requirements of farmers. If it is envisaged that agricultural extension should have innovative dimensions to its services and effectiveness, then it is clear that governments will be compelled to pay greater attention to such services and take into consideration the decisive impact of agricultural extension on more effectively dealing with today's needs and challenges.

In the Slovak Republic significant challenge is posed by the inadequate recognition given to current agricultural system. The country is lagging at the level of its extension behind of EU-12 states and there is a significant difference in comparison with EU-15. From the government side moderate support to agricultural extension is provided. For this purpose the MOARD is providing to Agroinstitut and IFEE annual budgetary allocation in the limited mode. This refers also to Slovak Commerce and Agricultural Chamber, research Institute for Food and Economics and to Research Institute for Animal Production.

Nowadays, it is expected that Slovak farmers will pay almost in full for service provided despite the fact that they have had little opportunity to adapt themselves to this kind of treatment. It should be underlined that in current climate of economic development of worldwide and in domestic agriculture, agribusiness-men are not prepared to participate in a cost recovery system with payment of additional fees for services, which have no tangible nature, unless they are mandatory.

In summary, in Slovak Republic there is no special funding scheme functioning, apart from co-financing farmers or rural businessmen, in addition to the provided EU funds. The support from this funding may be granted to farmers if the services cover SMRs, GAECs and occupational safety standards based on Community legislation as a minimum (art 24 of Council Regulation (EC) No. 1698/2005 ). The Slovak Government through the Agricultural Paying Agency has earmarked 8.57 million EUR for farmers in planning period for 2007-2013. As it was already mentioned, the national coordinating units for agricultural extension are Agroinstitut Nitra and for IFEE. Both of these institutes are intensively cooperating with research and academic institutions, professional organizations and unions, as well as with commercial advisory agencies and certified agricultural advisors.

## **Slovenia**

FAS is funded from different sources according to annual plan of service agreed by government. Nevertheless majority of funds is provided from national funds, though its share and total amount for public service is gradually lowering down. Funds available for FAS in 2003 were 8,331,367.55 € and 9,898,479.00 € in year 2010 when the budget was the highest in last decade. Compared to the year 2010, budget for the year 2013 (7,135,318.00 €) is 28% lower. The advisory activity under FAS in 2013 were financed from following sources: public funds (62,9%), users (subsidy campaign) – 11.8%, commercial activities (projects and others) – 25.3%.

## **Spain**

In Spain national or regional governments participate in the functioning budget of its respective centres. However, funding for research for those public AKIS organizations comes mostly from the central government, mainly through the National R+D+I Plan. Central government exert a sort of coordination since it decides on the topics for the research programmes on which the competitive calls are based. The main programme affecting agriculture research includes four main topics, the challenge in security and quality food, productive and sustainable agricultural activities, natural resources, and marine research. This programme is managed by the national Coordinating Committee for Agricultural Research, being exclusively addressed to INIA and the regional centres included in the INIA system – regions. This means a reserved funding for the

regional research centres and some dependence from INIA guidelines (at least in the way that this Committee decide what are the topics to be included in each call and that the funding is controlled by the Committee).

The remaining programmes and sub-programmes have non-restricted calls, thus all research institutions (including universities, CSIC or any other research public or private organizations) may present their projects in different ways, individually or collaborating with some other research institutions. If joint proposals improve the relationships and knowledge transfer between institutions, they are increasingly favoured, being one of the criteria to have more possibilities to obtain funding.

With regard to the type of research carried out in the regional centres, it tends to be usually a research applied to the needs of the sector. However INIA and CSIC conducts more of a fundamental or basic research since their researchers are not so much in contact with the final users at the basis of the agro-food sector (farmers, stockbreeders, etc.).

### **Sweden**

The only public policy that covers the agricultural advisory service is the Rural Development Programme, funded by EU and Sweden. A large part of the public financing of knowledge transfer lies within the programme “Skills acquisition support” that has ten focus areas for the programme of 2007-2013. Many of these ten areas are closely related to the 16 environmental goals of Sweden, and public financing of advisory service is therefore mainly focused on environmental issues. The ten areas are: (1) *Development of Enterprise* – with the objective to make it possible for the enterprise to increase the quality of production of goods and services and boosting business development and competitiveness. The target area is divided into companies in the green industry and companies beyond the green industry; (2) *Rural development* – with the goal to contribute to a better quality of life in rural areas by enhancing skills in the areas of service, rural development and the development and conservation of natural and cultural heritage; (3) *A varied agricultural landscape* – with the objective to help to strengthen farmers' knowledge about the natural and cultural values in the agricultural landscape; (4) *Zero eutrophication* – with the goal to increase knowledge and give the farmers tools to reduce nitrogen and phosphorus losses in a cost effective manner; (5) *Non-toxic environment* – with the goal to raise awareness about the risks of using pesticides and on how the use and management of these can be done so that the health and environmental risks are avoided. It also handles adjustment of chemical control of weeds and pests, biological control methods and other alternatives to chemical control; (6) *Reduced climate impact* – with the objective to stabilize greenhouse gas concentrations in the atmosphere at a level that ensures that human impact on the climate system is not dangerous; (7) *Organic production* – with the purpose to facilitate the transition process and the development of organic production; (8) *Increased animal welfare* – with aims to raise the awareness of the animals' different needs and gain knowledge of how these needs can be met; (9) *Cross compliance* – with the goal to provide farmers with knowledge of cross compliance; (10) *A magnificent mountain landscape* – with the aims to raise knowledge on how activities in the mountains can be operated, to promote sustainable development in the mountains.

The County Administrative Boards decide on how to spend the money from the Rural Development Programme in their specific region, and decide which of the ten goals are more or less prioritized. This is usually done in discussion with regional farmers' organisations and other actors that are affected by the priorities. Both individual and group advising can be carried out within these ten goals. Every year, the County Administrative Board gives the regional advisory organisations a possibility to send in their ideas for activities within the ten goals that they plan to do during the following year. The County Administrative Board then decides which activities and organisations that should have public financing, according to the regional priorities.

There is one large national project concerning advisory service, called "Focus on Nutrients", where the goal is to reduce the leaching of nutrients. In the beginning it was financed with money from the RDP and from environmental taxes, but due to changes in national environmental taxes, the RDP is now fully financing the project. The regional advisory services submit a tender on conducting free advise within the project "Focus on Nutrients", and then the County Administrative Board choose regional advisory services for the advisory work, and the budget frame for the advisory work.

Farmers can also apply for support within the programme "Support for skills development in rural businesses". The support aims to develop the farmer's business, increase the production quality, strengthen competitiveness and enhance the environment and animal welfare. Farmers seek the support from the County Administrative Board or the Semi Parliament. The support is given for various activities. It may include courses, corporate training, study tours and professional development in the form of advice.

The national project "Sweden – the national culinary nation" aims to increase production and profitability in the Swedish food chain, and sometimes there is project money to seek from the Swedish Board of Agriculture in order to arrange courses etc.

According to the survey, a rough estimation would be that approximately 50% of the financing of the agricultural advisory organisations comes from farmers that pay for advisory service. About one third comes from public financing at national or regional level, e.g. by working with projects such as "Focus on Nutrients". Some advisory organisations sell input goods such as e.g. software programmes, and some organisations are financed partially by trusts and foundations. Public advisory service is usually fully funded by public money, whereas selling advisory organisations have a higher share of private financing, from selling products and service to farmers. The advisory service is usually paid per hour, but advisory packages are also quite common. Some of the advisory work is paid according to specific advice, but this is not as common as payment per hour or packages.

### **United Kingdom**

Public policy on agricultural advice is fragmented: *"There is no clear national policy, but different ministries apply different instruments. New rural networks originate from both public and private organisations and operate on all scales from local to international and even virtual. A partnership approach is being increasingly used by governments to initiate change with stakeholders from the public sector, academics, NGOs and industry"*. The four UK-countries have different ways of organising the provision and funding of advice (table 4).

**Table 4.** Overview of state involvement in advisory services in the 4 countries in the UK at Region level\*

State involvement	England	Scotland	Wales	Northern Ireland
State finances agricultural advisory services	Partially	Partially	Yes	Yes
Procedure (subsidy/ competitive calls)	Co-funding of advice and contracting agencies or private consultancies	Subsidy, funding the VAS programme through the SAC	Fully funded or 80% funding for subsidised services	Delivered through CAFRE and 'Helping Farmers Comply Forum'

\* 'Region' meaning the respective country within the UK

Source: *Country report for UK, 2013*

In England, the advice delivered under pillar 1 of the CAP is organised through the FAS contracting independent commercial advisors. Advice delivered under pillar 2 (Rural Development) is divided between DEFRA (Axis 1,3 and 4) and Natural England (Axis 2). Natural England administers the RDPE-funded Environmental Stewardship Scheme and the Energy Crops Scheme (while the Forestry Commission administers the RDPE-funded English Woodland Grant Scheme). Natural England also contracts out specific packages of work related to the England Catchment Sensitive Farming Delivery Initiative. This initiative is a joint-agency venture, managed on the ground by Defra, with advisors (also called Catchment Officers) being drawn from Natural England and the Environment Agency (due to its focus on diffuse water pollution in fifty priority catchments in England). Overall, most advice is provided by contractors who report to Natural England and Defra and voluntary agreements/ partnerships. Defra pursues a Whole Farm Approach where one point of access (an information hub) is provided for regulatory information and forms in order to reduce the regulatory burden and number of duplicate requests for information. This is primarily an online service.

In Wales, Farming Connect subsidizes 80% of the cost of advice. This applies to the Whole Farm Plan, Farm advisory service and skills development programme. Fully funded services include Demonstration farm events, open meetings, discussion groups, business clubs, workshops and clinics, the Agri-Academy, planning advice and Agrisgôp (discussion groups under the management development programme). Study tours are funded up to £250. In addition to local advisors, there are designated regional coordinators for the Farming Connect scheme.

In Scotland, the Scotland's Environment and Rural Services (SEARS) was launched in 2008. It is a partnership between eight public bodies aiming to improve the experience among land managers by working together to provide an efficient and effective service. The eight bodies are: the Animal Health and Veterinary Laboratories Agency, the Cairngorms National Park Authority, the Crofting Commission, Forestry Commission Scotland, the Loch Lomond and the Trossachs National Park Authority, the Scottish Environment Protection Agency (SEPA), the Scottish Government Rural Payments and Inspections Directorate, and Scottish Natural Heritage. They are pursuing a "one door any door principle" with the aim of reducing inspections and simplifying the forms and surveys that land managers need to complete ([www.sears.scotland.gov.uk](http://www.sears.scotland.gov.uk)). SEARS covers a broad range of farming-related topics.

The Scottish Government provides a wide range of advice through its Public Good and Veterinary Advisory Services (VAS). These are delivered by the Scottish Agricultural College (SAC) on a generic free basis. This service has been in place since the 1990s but has been adjusted to meet EU requirements, i.e. this service now also delivers the EU farm advisory service. The contracts for advice delivery between Scottish Government and SAC follow government policy objectives (e.g. “more competitive and dynamic agricultural sector that contributes to the long term viability of rural communities while maintaining high standards of animal health and welfare and environmental management”).

In Northern Ireland, the Department of Agriculture and Rural Development (DARD) is the designated authority to ensure that a Farm Advisory System is provided. The farm advisory service is wholly funded by DARD through CAFRE which is an integral part of DARD. For example, DARD business development programmes are delivered through CAFRE and promote sustainable development of farm businesses. The Farm advisory system is centrally co-ordinated by a group called ‘Helping Farmers Comply Forum’. There are not many private sector advisors within NI. The Northern Ireland Agricultural Consultants Association (NIACA) was set up in 2006 primarily to complete Single Farm Payment forms for farmers rather than to provide advice.

*Funding.* Limited data was available on the costs of advisory services. A recent DEFRA report found that in England £20 million per year is spent on administering and delivering government advice schemes and initiatives (DEFRA, 2013b). The Scottish Government funding of the Veterinary and Advisory Services (VAS) programme was £6.84 million in 2012/13. The cost for the Public Good Advisory Services for Scotland is estimated at £2.8 million per year. The service has 2 elements, the generic advice on a wide range of public good issues and a remote area allowance. The Scottish Government also funds the Whole Farm Review Scheme, up to £5.50 per annum.

### **4.3. Methods and human resources**

This sub-chapter contains description of human resources in surveyed institutions and organisations as well as topics of advisory work, method used and focus groups of clients. The description is build similarly to previous chapters – according to individual EU countries, and in the end there are summary findings.

#### **Austria**

**Human resources.** There are no statistics as regards agriculture advisors in Austria. Their number can only be roughly estimated and accounts for around 700 for the purpose of this survey. The majority of advisors (642 full-time equivalents in 2012) is employed with the 9 Chambers of Agriculture. In addition, there is a vast number of organisations, who represent farmers interests, provide valuable support and advice to their members in various issues, or take over coordinating and marketing functions. Occasionally also teachers of vocational schools assist farmers in issues related to breeding and pasture management. The definition and identification of advisory organisations and advisors respectively is therefore difficult.



The number of extension staff has been shrinking continuously over the years, which is most probably linked to decreasing public support. Globally, women make up a little less than half of all advisory staff. The attraction and formation of new extension staff is generally a challenge and a precondition for the functioning of the AKIS.

General degree of experience and level of education among advisors in Austria is high. Many advisors run a farm themselves. A large part of all advisors have graduated from university and participated in trainings at least once per year. Some have also attended an adult education or agricultural teacher training at the University of Agro and Environmental Pedagogy which offers courses for basic education for agriculture advisors as well as agricultural teacher training. As a result many advisors are certified in a specific field, i.e. cross-compliance and other agri-environment topics, or quality manager. Training courses organised by public research institute, universities and the LFI are most popular. Programmes of private training institutions are demanded to a minor extent. NGOs or agricultural input providers or output processors are barely seen as relevant training providers.

**Topics of advisory.** As regards the topics and subjects of consultation two trends are visible: on one hand trainings on technical and factual issues are frequently attended (i.e. fruit and vegetable production, rare species, organic farming, renewable energies, plant and animal production, pasture management, IT). On the other hand, “soft” skills and social and methodological issues are increasingly demanded (i.e. methodology and didactics, coaching, time management, personal skill development, management of difficult situations in advisory work, general advisory techniques, communication, project management).

**Work organising – conditions, tasks.** Advisors generally work for a very long time with their organisation. More than half of all extension staff stays for more than 10 years with their organisation. Around 1/3 of all extension staff has more than 12 years of professional experience. This rather low staff turnover rate can be regarded as conducive for knowledge management within an organisation.

Cooperation between different organisations and their staff is good. Advisors and specialists are frequently invited to attend and speak at trainings and thematic working group. Extension staff has also formed various networks and meets regularly for the purpose of exchange and strategic orientation.

Most of the available time in advisory organisations is spent for advisory services, which ranges from consultations on production, technical and business related matters to the provision of guidance and assistance on aspects of participation in public support schemes. Drafting publications, articles and other material, organising trainings events, attending seminars for personal training purposes and lobbying are further activities. Administration accounts for a considerable share of the day-to-day activities. To a minor extent organisations are involved in research activities.

**Methods and clients.** Individual contact accounts for the largest share of all interactions with clients. Advice is primarily provided through telephone conversation and electronic reply to requests, followed by direct contact with the farmer outside the farm. Visits to the farm with a view to provide special advice, carrying out on-the-spot checks or help the development of a new

strategy or the diversification of income and products are less frequent due to the limitation of resources and high costs associated. Group advice is a very popular method (mainly outside the farm) to reach out to a large number of clients with an emphasis on the process of generating learning and innovation through interactions between the involved actors. Professional journal and specialist literature are other very relevant sources of information for farmers.

Additionally advisors function as transmitters for innovation and for formulating and conveying knowledge demands and problems from the field to advisors and researchers. They also act as translators of legislative and administrative rules and spend considerable time in assisting farmers meeting administrative requirements.

Various forms of approaches are used in extension work in Austria. Next to the widely applied standard methods the following approaches deserve a closer look, because of their important role in knowledge generation and dissemination.

Thematically-focused learning networks and circles (“Arbeitskreise”) are made up of different actors, within and outside the formal, institutionalised AKIS. They are a very powerful format to discuss practical issues, allow mutual learning and the exchange and dissemination of know-how and best-practises. “Arbeitskreise” are crucial for knowledge generation and innovation within the Austrian AKIS. The assessment and discussion of the various branches (“Betriebszweigauswertung”) of holdings is a central topic. “Betriebszweigauswertung” provide a nationwide overview of a sector/branch and thereby immediate insights and serve as benchmarks for farmers. On-site visits checking potential and identifying opportunities (“Betriebscheck”) help farmers to develop their holding. With regard to cross-compliance the “Betriebscheck” did not pass the test, since it was conceived strongly as a check-and-control measure.

Experienced farmers function as multipliers and disseminate information and good-practises themselves in learning circles or direct contacts with colleagues (e.g. in dairy farming “Arbeitskreise” this is already practised). Female farmers tend to focus on organic farming and rural development and interact with consumers to increase awareness, understanding and interest for agricultural concerns. Thematic working groups and stable schools (structured group advice) are other innovative methods which have to be mentioned in this context.

Participation in fairs and events (“Bauerntage”) and excursions to model and demonstration farms are further rather new methods for learning and knowledge exchange. Publications increasingly bring best-practise examples and portraits of farms.

There is a strong trend towards providing specific and tailor-made advice using electronic means in extension, but the application of advisory tools and IT-applications in order to facilitate advisory work and manage knowledge could be intensified. Also the development of niche products and projects should be promoted, new test farms established and the area for field research increased.

## **Belgium**

**Methods.** It is very hard to produce a systemic appraisal of the methods of advisory services given the very high diversity of actors in both regions. Nevertheless, there are some general features that emerged from the interviews with experts. It seems that associations (centres pilotes, filières in Wallonia, experimental stations in Flanders) and provincial public services

implements more collective methods of advice (group or mass-media), whereas independent consultants and bookkeeping companies are more based on individual advice. If such a view is consistent with the literature on private advisory services, it is not really validated by the 25 answers to our online survey, which show no clear pattern of relation between the types of suppliers and the types of advisory methods and of the activities implemented (distribution between front- and back-office activities), apart from confirming the fact that consultancy cabinets (such as bookkeeping) often dedicate most of their activity to front-office.

The picture is fuzzier for associations. For instance, some associations are clearly focused on back-office activities (they play a central role in laboratory sample measurement and field experiments) and diffuse through mass media and meetings the results of these activities, while other associations dedicate much more of their human resources to front-office. Again, beyond the strong limitation of our survey and the multiple selection bias possibly associated, this statement might be the expression of the diversity of aims, histories, and functions of the advisory associations in Wallonia and Flanders.

### **Bulgaria**

**Human resources.** The total number of the extension staff in the public organization NAAS for 2012 is 87 with average age between 31 and 50. The staff with university degree is 99% and 62% of them are female. In NAAS, the number of certified advisors for cross-compliance is 82, while for land evaluation is only 40 advisors. The average number of years for advisors working in the NAAS is 8, and the share of advisors with less than 3 years is 11% and with more than 12 years is 15% (until 30 April 2013).

**Time allocation.** Distribution of staff activities in NAAS is 77% advisory work, 18% administration and management and 5% work in the analytical laboratory. NAAS staff received their salary based on advisory packages funded by RDP measure 143 and their free-of-charge advice to farmers financially supported by state budget. Time allocation of the advisory staff is as follow: management activity – 12.5%, information activities – 12.5%, education activities for clients – 10%, advisory services – 60% and improving of own knowledge and skills – 5%.

**Methods.** The percentage of dominant working methods used by NAAS extension staff for farmers is 70% individual extension (one to one on the farm - 5%, one to one outside the farm – 50%, telephone helpdesk – 15%), 12% group extension (small group advice on the farm – 3% and small group advice outside the farm – 9%) and 18% mass media extension (internet - 1%, advice via website tools – 5% and publications, radio and TV – 12%). The experts of the NAAS participate in media events (in radio, TV and local cableTV) in order to provide information to farmers regarding the RDP measures, cross-compliance and other issues. At the end of 2012, NAAS published 76 articles in national and local press, produced 77 radio presentations and interviews and 53 TV presentations.

In 2012, the NAAS experts attended 14 courses organized by other organizations and 5 courses organized by their structure. The most strongly attended training courses organized for the NAAS's staff are cross-compliance, implementation of RDP measure 141, dairying breeding, agri-environmental topics and direct payments. These training courses for the staff were provided by universities, research institutes, public authorities and agricultural suppliers. Also,

NAAS experts participated in various working groups, roundtable and other events of the MAF and other institutions. In November 2012, NAAS started a project for improving the administrative capacity of their staff. The project is supported by operational programme “Administrative Capacity” and lasts for a period of one year. The main objectives of the project are improving the staff competence in the performance of their duties and increase their knowledge and skills to provide better public services; creating the effective teamwork and synchronizing work among the staff; and improving the qualifications of employees through their involvement in training and educating the staff consistent with the functions that they performed and their individual needs.

In the *private sector*, extension staff is small (often not more than 5 full-time employees) and when they need special advisory consultations. They employ a person or persons part-time for providing such special services. Private advisory companies provide individual consultations on farm and telephone) and rarely use other methods. At the *Universities and Agricultural Academy*, the staff involved in extension services provide consultations mostly in large number of farmers (over 10-15 persons) through courses and individual consultations to clients who have specific needs.

## Cyprus

**Human resources.** The Extension Section of Department of Agriculture currently employs 120 officers (42% women); 63% of the staff are university graduates. The in-service training team of the Section takes care of the officers’ training; thus around 80% of the staff is trained in a wide variety of topics, such as plant protection, animal nutrition, viticulture and oenology, plant production, and agricultural extension methodology. Additionally, many among the staff are certified for a number of topics, such as cross-compliance, agri-environmental measures, agrochemicals and plant protection, livestock production, soil and water uses, and horticulture and viticulture. Furthermore, the staff has a long working experience in extension (estimated average: 30 years). However, 28% have been recently recruited (i.e. have less than three-year experience), a fact which some of the interviewees took notice of, mainly due to the fact that such a big influx of new, inexperienced staff was not taken care of, in the sense that no effort for the transfer of experience of the retirees to the new staff was undertaken.

The shops’/companies’ owners are agronomists (university graduates) and employ agronomists (average 10, ranging from 3 to 15) as well as other staff (average company staff – including agronomists – 42 persons, ranging from 4 to 65).

**Methods.** The major method used by the extension staff concerns individual (face-to-face) contacts with farmers (60%): one-to-one farm contacts account for 42% of all individual contacts, one-to-one outside the farm for 42% and telephone helpdesk for 16%. Group extension accounts for 20% of extension work (on farm: 50% and outside the farm: 50%); finally, mass media account for the rest 20% (website tools: 25%; and, publications, radio, TV: 75%).

## Czech Republic

**Human resources.** Accredited advisors are an important constituent in AKIS. Theirs professional quality is done by accreditation. The aim of accreditation is to make qualification background for functional agriculture advisory system and guarantee professional competence of

agricultural advisor registered in public database Registry of Advisors MoA. Generally efforts are pointed to maintain of wide area of FAS, but with rules respected as basic minimal frame. Advisors in FAS are educated as universal, broadly oriented professionals qualified to help farmers with their problems. Accredited advisors are mostly private natural bodies; there is no one female advisor on the Registry of Advisors. More females work at corporate bodies on administrative positions. There were in Registry, in total, 260 active accredited advisors. The most included groups of advisors in the Registry are advisors for Plant production, then for animal production, soil care, forestry, organic agriculture, optimisation of holdings, plant protection, agriculture/environment and energy used for agri-products. Some advisory bodies are accredited for two or three advisory subareas.

Advisors can be members of the Chamber of Agriculture Advisors, corporate body associating private advisors with the aim to exchange experiences and promote Advisors interests. Membership in Chamber is optional.

**Methods.** Advisors mostly use individual model of advisory work on farm, sometimes in the case of a similar problem, they use group (two or three) consultation.

### **Denmark**

**Human resources.** About 28% of all employees at DAAS including the Knowledge Centre for Agriculture have a university degree (MSc or PhD). Unfortunately it has not been possible to separate the figure for the DAAS-centres respectively the Knowledge Centre for Agriculture, but the number of employees with a university degree is much higher at the Knowledge Centre for Agriculture and most of the PhDs – rather few in numbers, but not an insignificant number – are employed at the Knowledge Centre for Agriculture.

In the agricultural schools about one third of the teachers have a university degree. Some of the teachers have educational background from the agricultural schools themselves, supplemented with in-service training and experience. Other teachers mostly have an educational background, and this is very traditional, as a primary school teacher.

The distribution of men and women in the DAAS, i.e. the Knowledge Centre for Agriculture and the 30 DAAS advisory companies, is as follows: Among senior management staff: One third are women and two thirds are men. Among Subject Matter Specialists the distribution is about fifty-fifty, and among Field Extension Staff about one third are men and two thirds are women. But many women working with or associated with field extension are in fact working with secretarial duties or accounting task. Women make up the overwhelming number of employees with secondary school diplomas, about 1,300 women out of a total number of employees of 3,300. Looking at the educational background and gender, men with a university degree are twice as many as women. This situation is the same when looking at employees with a 2-3 years' Agricultural Diploma.

Gender is not much of an issue concerning the daily business in the DAAS. The trend over the past decades has been an increasing number of women employed within agricultural advisory services and an increasing number of these women are reaching the level of top management. It is generally said – often humorously – that in the future and already today the farmer receiving advice will still be a man but the advisor is or will be a woman. But this scenario does not seem

to be a problem for the farmers. The farmers are not concerned with the sex of their advisor and gender generally does not play a role for the delivery of advisory services. The farmers just want good qualified advice.

At the agricultural schools about one fourth of the pupils are girls. The proportion of girls among the pupils has increased from about 20% ten years ago.

**Time distribution.** A typical advisor at a DAAS-centre spends around 60% of his or her time on educational and advisory service activities directed towards the customer: the farmer 35% of the working hours are spent with planning and support activities. It was not possible to detect any general data or answers across the companies on the number of farms per advisor. The figure seems to vary a lot depending on the type of company – whether it is an advisory company offering a variety of advisory services as compared to companies specialised in only one or few areas of advisory services to large input/up-streams companies advising about/selling their products.

**Advisory methods.** The semi-structured interviews and a previously conducted survey show that a large variety of advisory methods are being used by the advisors. These include 40% face to face meetings and visits at the farm, 10% meetings with groups of farmers, and 30% - conducting demonstrations, workshops and field days for farmers and meeting with farmers at the office.

The internet as a knowledge source has been in use for many years now. The Knowledge Centre for Agriculture is running several websites either on its own behalf or on behalf of others, where knowledge and information are distributed. There are three categories of websites: (1) A news site regarding all kinds of news within or with relevance to the agricultural sector. This site is open for everybody and contains commercials; (2) The Knowledge Centre for Agriculture is running a number of sites, where knowledge from projects funded by public or partly public funds is distributed. These sites are also open to everybody; (3) The Knowledge Centre for Agriculture is running a website where all agricultural knowledge and every type of relevant knowledge for the sector is gathered, e.g. legal questions, latest news of the local need for the use of pesticides etc. This site is restricted and only accessible through subscription.

The newest trend in the use of information and communication technologies is the use of technologies such as a mobile phone, use of tablets, apps and social media.

## **Estonia**

**Human resources.** On 1<sup>st</sup> May 2013, there were 109 advisors with a valid professional certificate in fields related to agriculture, some of whom were given a profession in two or more fields. In the field of forestry there were 67 and in the field of community development 8 advisors with a valid professional certificate. Most of the advisors in fields related to agriculture had a profession in the fields of rural entrepreneurship and finance (54). There were 24 advisors in the field of plant production, and 21 in livestock farming and its subfields. The number of advisors in specific fields is low: there are only two advisors in environmental protection and nature conservation, one advisor in land improvement and none in handling of food. The vast majority of advisors work with a part-time load: only 30% of advisors fulfil their professional duties mostly with advising. If all agricultural advisors were employed as full-time advisors, the

estimated number of applicants for single area payment per advisor would be approximately 160, but according to actual working load, the estimate number in Estonia is 450 farms per advisor.

An advisor can be (1) a person who has a professional or agricultural university diploma and at least three years of work experience within the last five years or (2) a person with vocational/secondary professional or agricultural education and five years of work experience within the last seven years. In the case of specific and new subjects, a certificate proving relevant training can be required. Although the advisors of advisory centres participate in trainings in the average volume of 70 hour per year, practical and comprehensive trainings are needed, including at an international level. Trainings provided for advisors have mostly been one or two-day trainings, there is a lack of study cycles that last several days that raise a person's qualification.

**Advisory methods.** Various working methods are being used by extension staff to provide an advice for particular groups of clients. Agricultural advisors give advice to single clients, as well as groups, organizations and interest groups. Individual extension (especially one to one on the farm or outside the farm) is the most frequently applied and appreciated form of receiving advice from clients. Also telephone helpdesks, small group advice outside the farm are used quite often. Although there is an increasing tendency nowadays to use internet and web-tools for various purposes more and more, it is still among less frequently applied working methods in provision of farm advisory services.

## **Finland**

**Human resources.** Advisory services in the ProAgria Group cover the whole Finland. There are 17 organisations involved in the Advisory sector working under the ProAgria Group. All of the organisations use “ProAgria” in their name, with an exception of Valio extractive industry. The head office of the ProAgria group is located in Vantaa and there are 11 different Rural Advisory centres in different parts of Finland. Altogether there are 670 advisors working for the ProAgria Group (2013) and the number of advisors vary among various rural advisory centres.

Besides the ProAgria advisors there are about 100 independent private rural advisors. The list of the private rural advisors is not available, because the Association of Private Rural Advisors is undergoing reconstruction. Management of ProAgria is certified by DNV standards. Actions are based on controlled management system including CRM. Competencies of the advisors are developed systematically by “a career path” programme.

**Organising the activity.** The “Group Agreement” and the “Group Operative rules” are made in an annual general meeting by the board of the ProAgria Group. The board of the ProAgria Group consists of members from the ProAgria Association of Rural Swedish advising centers and local centers, farmers, members from Faba Breeding Co-operative, one Member of Parliament, CEO and marketing manager from the Association of ProAgria Centers, a farmer and a manager from Valio Ltd. Dairy Farm Services.

Group- and member related “Balance Scorecards” are drawn yearly in the Annual General Meeting by the board and the management group. Besides Balance Scorecards member-related “Action Plans” are also fixed. The Quality Management System (QMS) of the ProAgria Group consists of two concepts; TQ Management and TQ Leadership. In the Total Quality Management main focus is vision making, strategy as a vision: goals and action (balanced scorecard), human

resources (HR), knowledge management (based on DataWarehouses), key process definition and management and customer relationship. In the Total Quality Leadership, the main points are: strategy and actions; strategic leadership, human resources; education, career aspects, employer outplacement, self-leadership and evaluation, team leadership and working models and communications.

The issue of gender is not important in the Finnish agricultural and rural advising. The share and distribution of women is over half of the total personnel. Although the majority of the board and management team are men, the Rural Women's Advisory Organisation is a powerful development agent in the women's rural network area.

## France

**Advisory methods and human resources.** It was unfortunately not possible to use data from the online survey to feel this section. French researchers didn't get enough answers to do so, and the sample was biased: they got many answers from private advisors or farmers' organisations such as FCEL, but really few responses from Chambers of Agriculture or from farmers' cooperatives. Even though the generic value of this information should be regarded cautiously, the qualitative interviews with experts tend nevertheless to indicate that two major historical tendencies are still co-existing:

- the dynamics of some networks historically built with the idea to promote *participatory approaches based on farmers' groups* (for instance, within ONVAR, part of the chambers of agriculture), but working with a rather small number of farmers;
- the development of an individualisation and personalisation of services for advice on agronomic and economic performance of farms (CERFrance, FCEL, Farmers' cooperatives), reaching a bigger number of farmers;
- it should also be noted that since the mid of 2000s, there has been a renewal of research on advisory services in France, mainly in sociology;

Many of these academic works have dealt with the questions of the evolution of advisors' competences and methods, often relying on empirical researches based on partnership with advisory organisations and/or action-research methods. They made it possible to identify new questions raised by the transformation of advisory service activities:

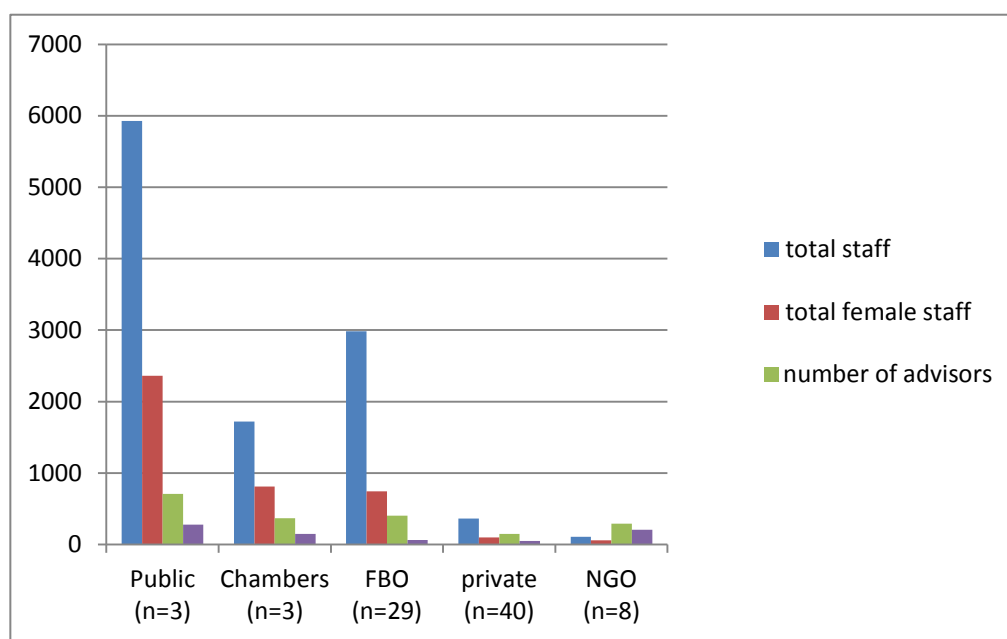
- the question of the new competences needed by advisors in order to integrate environmental issues in their services;
- the question of the new profile, such as "facilitator", needed for the renewal of collective forms of advice (groups, circles, networks) for farmers characterized by higher levels of qualification and education;
- the growing importance of the territorial dimension of advisory activity in a context of decentralisation, which obliges advisors to take functions of mediation or coordination within (political) networks of actors;

More globally, there are many debates about the most efficient advisory methods to support transitions of farmers' practices and production systems towards more sustainability.



## Germany

**Human resources.** In the survey, participants were asked to provide the total staff number, the number of advisors plus the share of women of each. The results of these questions are compiled in the figure 25. It can be see, that public advisory services, chambers and FBO have the highest absolute numbers of staff and advisors. The impressive amount of total staff of public institutions however stems from one institution only, which creates a bias in fig. 25 (e.g. another public advisory institution possesses only 8 staff members). Less than half of both public advisory institutions and chamber provided data for this question at all. It can be seen that the number of staff is completely detached from the numbers of responding organisations (indicated as n). Additionally, this diagram is not representative for the diverse landscape of advisory organisations in Germany. In (the 3 considered) public organisations, only 12% of the staff are advisors, in chambers it is 21% and in private advisory organisations 41%. The quota of female advisors ranges from 70% in NGO's over 40% in chambers and public organisations to 15% for FBO. The fact that the number of advisors in NGOs is higher than the staff number is likely to be linked to the honorary engagement of counsellors as it was confirmed in one case.



**Figure 25.** Staff numbers and distribution of advisors and women

*Source: Country report for Germany, 2013*

No clear trends can be observed concerning the staff number development in the past couple of years. The number of advisors in advisory organisations stayed the same in 61% of the responses, increased in 26% and decreased in 13% of answers. The numbers for the general staff of the organisations are 60% for no changes, 23% for increase and 17% for decrease in staff numbers accordingly. 78% of respondents confirmed that 100% of their staff had an academic degree.

When asked about training of advisors, 70% of the organisation stated that 100% of their advisors received training in 2012, while in 8% of the cases none of the advisors went to training in 2012. The training topics included a basket of issues, among them e.g. funding measures,

agro-environmental topics, taxes, CC, livestock husbandry, coaching or soft skills just to name a few. The majority of advisors receive training from FBO and public authorities while upstream and downstream industries, NGO and universities are addressed less frequently by the respondents for training. When asked about types of certification (apart from CC-certification), CECRA (Certificate for European Consultants in Rural Areas, offered by IALB) and systemic coaching were mentioned several times.

**Advisory methods.** Concerning *advisory methods*, some trends could be identified, at which methods tend to be more or less frequently used by the respondents. The distribution of individual advice, group advice and mass media shows a strong leaning towards individual methods. In particular on-farm and telephone advisory methods are proportionately 4 to 5 times more frequently used than group methods and mass media tools. Here, group advisory services outside the farm tends to be slightly more common than on farm group advice, while internet and specialist press are more commonly utilized than advice via website tools.

## Greece

**Human resources.** Local consultants are agronomists (university graduates with further training and certifications). Their professional experience varies between 3 and 10 years. Their income comes from the fees paid by farmers mainly relating to the preparation of applications for access into EU programmes (Young Farmers, early retirement, modernization schemes, nitrate pollution, etc.); payment is per application. They usually operate on extra-Prefectural level. Their main goal is to inform farmers on running programmes and to prepare their applications. They employ other (full or part-time) agronomists as well (very few women involved).

**Time distribution.** Most of the working time of local agronomist (70%) is devoted to direct contacts with farmers and the rest concerns administration tasks (re: preparation of the application forms). As far as their extension work is concerned, the distribution is as follows: advisory services (35%), own improvement (27.5%), management (22.5%) and information (15%). On the other hand, for retail companies the working time is allocated as follows: for 25% of the shops' overall working time; R&D accounts for 5% for two of the shops and 20% for the one working with hippophaes. Around 50% of the working time involves administrative tasks. Marketing concerns rather smaller fractions of the total shops' working time (5- 20%).

**Methods.** The main method of advisory work is individual contact (90%) followed by group extension and mass media (5% each). One-to-one meetings outside the farm and telephone contacts are the main techniques used (65% and 32.5% respectively).

## Hungary

**Human resources.** Admission for the Registry of Agricultural Advisors can be gained through application. The Register of Agricultural Advisors contains the essential data of the agricultural advisors who possess the necessary – higher education – qualifications, experience, a police clearance certificate, and who do not conduct agro-commercial and/or agricultural agent activities. In compliance with the appendix to the aforementioned regulation, agricultural advisors can be acknowledged in maximum three specializations out of the 24 depending on their qualifications and experience. Main requirements to be an advisor are: University (MSc) or

college (BSc) degree in agricultural sciences; 3 years of practice; Exemption from commercial interest; Basic exam and annual participation in further training.

The number of professional and technical extension personnel in 2012 was 679 in total, including 419 women. The majority of them have a bachelor's degree (500), then engineer's (98), master's (48), PhD (24), and secondary vocational school degree (8). All of them have experience in extension services (mostly more than 5 years). They also have experience in other subjects of agri-production or food-processing (and administration).

*Preparing advisors for extension services.* Students trained to be engineers in agricultural higher education can study advisory services as an optional subject for two years (4 terms). After gaining their bachelor's or master's degree, graduates may continue to broaden their scope of knowledge in the framework of specialised engineer training.

*Continuous education.* Regulations on further training and performance assessment of agricultural advisors are presented in an annual announcement issued by the ministerial department in charge of managing agricultural advisory activities. Obligatory further training is realised in the form of a basic examination – to be taken within 1 year ensuing the commencement of agricultural advisory activities – followed by annual further trainings. The obligatory further training – including its course material – is free of charge for agricultural advisors.

*Basic training and examination.* Compulsory within 1 year after receiving advisory licence (except for those completing university course on extension). Subjects of training are as follows: agricultural public administration, ICT, methodology for advisors. *Compulsory yearly further training and examination* consists of subjects: cross compliance, agricultural subsidies. *Optional training* – not regularly; subjects concern, e.g. electronic submission of area payment applications; no organized training on professional issues.

*Conditions of being enrolled and staying in the Registry of Advisors.* Enrolment in the Registration of the advisors follows application. The registry includes main data of advisors who have had the required degree in higher education as well as practice and have not been involved in agricultural broking at all. Last year the National Extension Committee elaborated a recommendation about the modification of the yearly compulsory training for the registered advisors. This compulsory training is conducted in a credit system (table 5).

**Table 5.** Credit points, 2013

Type of event	Level	Credits
Conferences	national	6
	regional	4
Technical and technological demonstrations	national	6
	regional	4
Variety shows		4
Forums		3
Introduction of innovations		5
Trainings related to actual tasks (e.g. filling in GN, e-application, SZTIR)		4
Software shows		5
Vocational and special engineer training		10

Agricultural journal subscription		3/pcs
Special exhibitions and fairs	national	6
	regional	3
Farmer days	national	6
	regional	3

Source: Country report for Hungary, 2013

## Ireland

**Human resources.** In 2013, there were over 250 Teagasc advisors (down from 600 in 1980). During the same period, the number of agricultural consultants increased from 100 to 250. These consultancies have an average of 1.6 advisors (all respondents to the survey had between 1-3 advisors). Although private consultants have grown in numbers, they remain dependent on public funding (via environmental or other schemes). Because the number of farms has declined over the same period, the net effect is that an advisor today covers fewer farms, i.e. the advisors/farmers ratio has improved. At the same time, there are fewer farm visits; which decreased from 60,000 in 2000 to 20,000 in 2012.

**Methods.** Teagasc client services are organised around club packages (office), advice on technology (visits), facilitation of business and technology discussion groups and REPS/AEOS (Rural Environment Protection Scheme/ Agri-Environment Options Scheme). While technology advice and discussion group services increased from 2011 to 2012, REPS/AEOS advice declined. There is a reduced potential for private consultants to develop businesses and clients due to the cessation of some of the environmental schemes, and these consultants are looking for increase their role in providing advice on public goods (environment).

In terms of educating young farmers and supporting them in the period after takeover of the farm, Teagasc and Teagasc advisors are crucial. In theory, this training could also be delivered privately, however, private advisors in small units do not have the tradition of providing training. There is an overlap of advising/interpreting and teaching (e.g. interpretation of Irish Cattle Breeding Federation reports, soil sample results, e-Profit Monitor). These are also compulsory parts of young farmer training and essential advisory tools.

The extension approach “has evolved hugely over recent years from an exclusive emphasis on the imparting of knowledge to farmers to a focus on implementation support”. The primary vehicle for this shift in emphasis has been the establishment of Discussion Groups (DGs). These groups have been supported by policy measures such as the Dairy Efficiency Programme (DEP) and the Beef Technology Adoption Programme (BTAP). Over 12,000 farmers are now involved in Discussion Groups that are being facilitated by Teagasc, and an additional 2,500 are being facilitated by private consultants.

According to Teagasc BETTER farms are: “*Well managed commercial farms where research recommendations are applied to the main farming system and the results are measured and demonstrated at local level. The outcome and benefits of the research are evaluated in terms of practicality, impact on efficiency and improvement in profitability. The results are benchmarked against the research demonstration farms, other BETTER Farms and farms in the National Farm Survey. The results from these farms are published and demonstrated at regular farm walks and demonstrations*”, The BETTER Farm programme is seen as “*a critical part of the knowledge*

*transfer process in the dry stock advisory programmes and is being expanded into all the major enterprises”; while discussion groups are: “where like-minded farmers who wish to develop or expand their enterprises, come together on a regular basis on the farms of the members of the groups. The members share critical performance information on all of their farms and the performance of the farm being visited is discussed and evaluated by the members attending. This has been shown to be the best method of encouraging and facilitating the adoption of new technology and practices and is a vital component in the BETTER Farm programme”.*

### **Italy**

**Methods.** The methods and instruments used to deliver advisory services are numerous and different for typology. A study of INEA classifies them into four groups: information activities, advice for small groups, individual advice, multimedia and high technology. In 2007 the most commonly used communication channels proved very traditional: informative materials (13.3%), technical meeting (11.9%), and field visits (11.1%). However, there are also methods considered more innovative, such laboratory tests (8.1%) and web communications (6.7%).

In the past the advisory services adopted a top down approach aiming at improving farming methods and techniques specially to increase production efficiency. In recent years, the vision of services for rural development is put more into practice. In addition there are several attempts to introduce innovative and more participative methodologies in delivery of advisory services, likes use of ICT (the Veneto experience is very interesting) or communities of practice (such as the communities promoted by the *Agritransfer-In-Sud* project).

### **Latvia**

**Human resources.** Efficiency of advisory services depends strongly on their human resources. Staffs vary significantly among various advisory service organisations: they employ from a couple to several hundreds of advisors. A vast majority (up to 94% in some organisations) of advisors are women which may reflect the general trend that less paid occupations are mainly performed by women. In general, the number of advisors is stable or increasing, which reflects the current demand for agricultural advice. Considerable part of advisors have university or college degrees and they are rather experienced than newcomers. The qualification of advisors is not always satisfactory, though. Especially the representatives of commercial farmers express their discontent with the quality of public and local advisors who can inform rather than provide professional advice. Meanwhile, farmer representatives as well as researchers and public advisors warn also about information and knowledge coming from private consultancies and input providers because often it is not verified in Latvian conditions and may be ambiguous. The quality of advisors is difficult to estimate also due to the fact that very few of them have specific certificates. This poses also the problem of accountability: as farmer representatives point out, advisors do not assume responsibility in the case of erroneous advice and farmers are penalized in such cases. Some advisors use the possibility to improve their qualification in training courses. The need to improve advisors qualification has been discussed during elaboration process of Rural Development Plan for the period of 2014-2020. The head of a large association in his interview stated that most commercial consultants as well as LRATC consultants are not competent to advise modern and specialized farmers. He explained that this is the reason why

some associations gathering modern, specialised commercial farmers tend to educate and employ their own experts.

The range and quality of local experts vary by sectors, though. In traditional branches of agricultural production there is good availability of local expertise. For example, in crop production knowledge demand is met by researchers, input providers and consultants – agronomists. Expertise is mostly lacking in agricultural production sectors which undergo rapid restructuring, are new or demand capital-intensive investment and highly specialised advice, like for instance, dairy farming where knowledge demand remains unsatisfied despite the fact that it is one of main and historical Latvian agricultural sectors and in recently expanding cattle breeding where knowledge demand is also not fully covered.

It should be mentioned here that also the sectoral internal organisation and governance have a considerable impact on building qualitative knowledge supply as it is shown in the cases of vegetable and fruit sectors. In both sectors the knowledge demand is high and there are experts to serve them at LRATC, fruit research institutes and farmer organisations' informal knowledge networks. Although fruit sector is fragmented among a great number of associations and cooperatives, these organisations manage to collaborate in order to ensure them the needed knowledge and advice. The vegetable sector is split between two major players who consider themselves as competitors. This prevents them from information and knowledge exchange. The sector's representatives suggest that this difference between the two sectors is the main reason why vegetable sector often lacks knowledge and why it is less developed than the fruit sector.

**Methods.** Advisory organisations combine various methods in order to provide advice to their clients. The main ones are conventional individual consultations on or outside farm. Also telephone helpdesks, small group advice and traditional media of publications, radio and TV are quite popular. More modern ICT tools like the internet and website tools are comparatively less often applied, which may reveal the situation of comparatively lower internet access in rural areas and also lack of computer skills among farmers. In formal learning methods little attention is given to farmers' interactive mutual learning (however, LRATC organises farmer interest groups for farmers working in the same sector and which are aimed to facilitate their knowledge exchange and cooperation); training is mainly understood as linear transfer of scientifically created knowledge to farmers.

LRATC representatives observe that since competition increases in agricultural advice market, the centre tries to respond to farmers needs and organise its educational activities on demand. The main forms of knowledge provision that it proposes are demonstrations, training seminars, exchange visits and individual consultations. There is a certain difference among those various activities. Education and training mostly concerns the public interests, and they are policy driven and publicly funded. For example, environmental advice is FAS related, publicly funded and project based. LRATC experts interestingly mentioned that “environmental advice on farmers' part is much fear-driven”. Consultations are more market demand-driven and oriented towards farmers' problem solution.

## **Lithuania**

**Human resources.** The biggest consulting organisation, the Lithuanian Agricultural Advisory

Service, has 257 accredited consultants (according to the data of 4<sup>th</sup> May 2013). Second in size by the number of accredited consultants is the Chamber of Agriculture of the Republic of Lithuania – 49 accredited consultants, the third – Aleksandras Stulginskis University – 39 consultants. Consultants are accredited in the Lithuania Ministry of Agriculture (more precisely, the Centre for „Leader“ programme and agricultural training and methodology). The average number of consultants from other accredited organisations is 2-3 consultants. However, not all training and consulting services (for example: creation of business plan) require accreditation. Private organizations and individual consultants operate in the market without accreditation.

**Methods.** One of the more advanced consulting methods are discussion groups, created in various regions of the country. One such group usually consists of 15-20 farmers. Group meetings are being held 8-10 times a year. Each time meetings take place in a different farm, therefore farmers have a chance to receive useful advice not only from the consultant but from his or her colleagues as well. One of the best discussion groups' result during such discussions is that farmers begin sharing their experiences and consult each other. Discussions are organised and led by a consultant who has to not only be able to maintain a discussion, but also to have excellent knowledge of his field – if, for example, a group of farmers specializes in dairying and, at that moment, they are interested in the issue of preparing animal feeds, the consultant has to be able to answer all questions related to this field and to provide all necessary consultations.

## **Luxembourg**

**Human resources.** In Luxembourg, the total staff number ranges from 1 to 82 with a median of 9 staff members per organisation. 27% of the total staff of advisory organisations is made up by women. The total number of advisors employed at the advisory organisations amounts to 30. Of these 30 advisors, 20% are female. According to one expert interview, a total of 30-40 people were estimated to be active in advisory services either deriving from the three public advisory services or from public funded advisory projects in Luxembourg. The number of advisors per organisation ranges from 1 to 10, the median being 1 advisor per advisory organisation. Staff numbers of advisors in the recent past have stagnated in 6 advisory organisations and have increased in 2 advisory organisations.

Regarding qualification of advisors the survey revealed that in 5 organisations (n=8) all advisors possessed an academic degree. In 6 advisory organisations all advisors received professional training in 2012; in 2 organisations none of the advisors received training. A slight emphasis on training topics concerning cattle production, feeding, grassland management as well as plant production could be identified. Individual mentions in form of open entries further specified meat processing, soft skills, nature and water conservation as well as organic farming as relevant advisory topics in the opinion of the respondents. More than half of the respondents confirmed that public authorities provided training to advisors. According to 44% of the answers, training was conducted by FBO and public research institutes.

**Methods.** A qualitative indication of the amount of time spent on different advisory methods showed an emphasis of direct contact to farmers either on farm, outside the farm or via telephone. The latter was mentioned by more than half of the responding organisations. Internet sources, agricultural press releases or group advice are used less often in advisory services for

farmers. In addition, the public advisory body SER started to offer group advice (so called farmers' field service) besides classical individual advice with farmers.

## Malta

**Human resources.** With regard to human resources, the FASC includes a total number of 10 part-time officers: 2 technical experts, one related to land and one to health and safety, 3 veterinarian experts, 4 field inspectors, 1 manager. These professionals mostly conduct one-to-one support to the farmers who face difficulties in observing the EU cross-compliance requirements. Basically, FAS' services consist in inspections in farms aimed at supporting the entrepreneurs to better understand the rules, through reporting the findings and providing recommendations on how to overcome the problems they have and not to be penalized again in case of new inspection.

Besides, the number and qualification of the extension staffs of private providers vary depending on the organisation of the entity and the number and dimension of clients. The number, in general, is between 1 and 5; in some cases, the provider employs a full-time specialist and subcontracts others, in order to carry out farm visits and provide advice to clients. Similarly, the percentage of extension staff with university or college degree varies a lot, depending on the entity: some employ only graduates, others encounter personnel with the only experience on the field; female staff engaged is practically null.

**Methods.** In Malta, the approach to the delivery of farm advisory services is changing in line with the increasing involvement of associative and other private bodies. Basically, at the moment, it can be observed that public bodies deliver services mainly through wide-open information campaigns on common issues, which means maintaining a certain level of standardisation of the services; while the semi-public and private entities are increasing their capacities to be more responsive to farmers' needs and provide more targeted services. Also, the tools put in use for the purpose of providing services vary.

Indeed, the Departments within the MSDEC, provide information through mass media and organize meetings and information seminars for stakeholders, as part of awareness and information campaigns, as well as participation in a number of local television and radio programmes. Although, the use of the telephone, emails and investigations on site are very common. In the case of the NRDN, more participative methods (focus groups) are in use as well as brochures, internet site, manuals and technical documents, and even documentary films both in English and in Maltese language. With respect to FAS, the Guidelines for the submission of Applications for Registration of Farm Advisory Service list a number of methods for the provision of advisory services under measure 114. Even so, at this moment, methods such the telephone assistance, one-to-one meetings and visits on farm are widely used. Indeed, the study showed very few cases of provision of services in group and by the use of ICT (mobiles, computer).

In all cases, the approach to advisory services is one-to-one, often on farm. Off-farm groups are also implemented mainly through training courses, technical seminars and other events.

## The Netherlands

**Human resources.** In 2012 the number of staff of WUR was 6,495 employed (that is 5,653 *full-time equivalent employees-FTE*). A large part of the WUR total budget (more than 50%) is



provided by the Ministry of Agriculture (MEZ). In 2012, the budget of WUR was 304 million EUR. The so called first flow, consisting in direct Government funding including research and education (based on the number of students), represented 55% of the total. The contract research was 35% of the total, including the so-called second and third money flow. The second flow consists of government subsidies which universities (individual researchers and research projects) must apply and co-finance. The third money flow is financial input from the industry and from public sector to perform contract research. Tuition and course fees constituted 7% of total University funds. The DLO Institutes, in 2012, received 40% of their total funding by the MEZ and 45% by contract research from private and public donors.

**Advisory services.** The features of advisory service (methods, human resources, topics, etc.) greatly differ depending on the actors. However, the available documents on the subject, together with the interviews show some trends common for the most important actors. Before privatisation the matter of services was mainly related to government policy, all the services were free of charge, with a great emphasis on group activities. Every extension officer guided several study groups, while individual advice was not very important. After privatization the DLV's scope was also gradually broadening in terms of clients, activities and expertise. The services started to be addressed to all the agribusiness actors, including suppliers, producers, wholesalers, processors, retailers. The very Government became a client. Recently, all the agricultural advisory providers are experiencing increasing specialisation of technical extension service, as well as a growing offer and demand of not strictly technical advice such as construction, nature management, rural recreational activities, real state, etc. It is also possible to observe an increasing role of economic advice, including tactic and strategic planning. The focus of advisors is on the entire production chain and it is more and more market-oriented, reflecting the growth of chain integration and food retailers' power.

**Advisory clients.** Advisory clients are private companies, public institutions and NGOs. The importance of *one-to-one* and *tailor made* advisory services is increasing, however their role depends on the nature of the provider (for instance in DLV individual contacts accounts for 50% of all business). The advisors have a strong orientation on the farmers needs, balancing the growing specialization with the expertise in new areas by working in a group including several practitioners with different backgrounds.

Advisory organisations adopt several method of accountability, monitoring individual and group performance of advisory work in terms of quality, turn over, loss and acquisition of client. Consequently there is a strong pressure, also in terms of incentives, to orient the staff and the entire organisation towards quality, customer satisfaction, efficiency and effectiveness. As mentioned above, in DLV, for example, management by objectives is implemented, with individual financial task and productivity bonus, but there is also room for individual initiatives and actions. The DLV advisors create and manage *their own client portfolio*; they heavily use ITC and work from home, with flexible place in the office.

Advisory organisation need to be flexible in culture and structure to easily adapt to the changes and follow the market's needs. DLV, for instance, puts much emphasis on providing training for extension staff to improve communication, problem solving, client orientation and other commercial skills. Until 1990 DLV had free access to information provided by research

institutes and agricultural research stations, with continuous and strong exchange of information between research and extension service. These preferential relations were possible because all these actors were public and funded by the Dutch Government. Since 1990, more and more research is paid by the industry (plant protection, fertilisation, etc.) and its results are not always freely available or are even inaccessible in any case, also because sometimes research institutes are competitors on the farm services market.

## Poland

**Human resources.** In the period of 2005-2012 the number of advisory staff at Provincial ODRs successively declined (table 6). At present, the number of advisors employed in ODRs is 3454, of which 31.9% are women. Since 2006, the number of full-time posts in provincial ODRs has declined (reduction by 18%). The reason for declining the number of advisors can be found in very tight budget, limited year by year by the government, but also many advisors decided to open their own advisory practices.

**Table 6.** Employment of Agricultural Extension Advisors in Provincial ODRs, 2005–2012

Year (on Jan.1st)	2005-2012					
	Total	Including			Administrative and technical assistance	Total
	Advisors	Management	Subject matter specialists	Field advisors		
2005	3,791	440	974	2,377	1,010	4,801
2006	4,212	500	1,045	2,667	1,135	5,347
2007	4,158	492	1,046	2,620	1,130	5,288
2008	3,967	486	992	2,489	1,108	5,075
2009	3,803	463	979	2,361	1,092	4,895
2010	3,571	447	739	2,385	1,018	4,589
2011	3,491	454	686	2,351	987	4,478
2012	3,454	453	678	2,323	966	4,420

Source: Country report for Poland, 2013 and [www.cdr.gov.pl](http://www.cdr.gov.pl)

The most important factor for the advisory system to be efficient is advisory staff – good professionals, with wide and deep professional knowledge and good communication skills, knowing farmers’ needs, being market-orientated and having abilities to work with all stakeholders. Most of them (90.1%) have university degree, (advisors with only secondary education are older employees, but with very good experience and many certificates).

The advisory work as a profession is recognised by farmers and other stakeholders as very important, trustworthy and responsible. It is a motivation for advisors to improve their knowledge and skills. In recent years (2005-2012), in Poland, it was possible to observe a tendency to specialise in particular domain, i.e. environmental programmes, preparation the application forms for subsidies coming from different instrument of CAP, sources of renewable energy, economics and technologies of plant and animal production, diversification of

production, accounting and taxes. Such an approach was a response to farmer needs, and signalled necessity to meet the challenges of market and fulfil EU directives.

**Tasks and methods.** As it was mentioned in the previous chapter, the main advisory organisations in Poland are Provincial Advisory Centres (ODR). The structure of the advisory system is decentralised – 16 independent self-governed provincial organisations working under rights formulated in the Act on Agricultural Advisory Bodies, established by Polish Parliament on October 22, 2004. Provincial ODRs are part of the public sector.

Provincial ODRs focus on the execution of objectives that can be classified into four types: extension tasks, which consist in helping farmers in decision-making; information tasks, i.e., delivering information on new technologies and innovations to agricultural manufacturers without their assessment; educational tasks consisting in conveying knowledge and teaching adults (farmers and members of their families); popularising tasks consisting in dissemination of new technical and technological solutions in rural areas.

Individual extension is the most common method applied (this form constitutes 56.2% of working time extension agents. Most often, this form is implemented by direct contact with agricultural producers, i.e., by meetings with farmers in advisory centres (district or county office) or at the farms. One fourth of working time (26.0%) constitutes group extension services, implemented most often in the form of shows, seminars, demonstrations, workshops, etc. With respect to mass extension service (17.8%), the most commonly applied extension method is mass media, i.e., TV, radio, website.

Agricultural extension agents spend almost half of their working time on educational, informational and extension activities (75.8%). Other non-educational activities such as improvement of work organisation, data collection, forecasting product and means of production prices, filling in subsidy applications, credit applications, building business plans or agri-environmental plans, occupy more than 12.3% of the working time of agricultural extension agents. Planning extension programmes and supporting activities and education to improve own knowledge and skills occupy 11.9% of their working time.

## **Portugal**

**Human resources.** Some Regional Directorates, like the ones in Alentejo and Madeira, organize field demonstrations. It is impossible to provide a reliable accountability of human resources, given the high number and fragmentation of this field. AJAP alone has a staff of 45 in its different offices, all with access to a car a mobile phone. CAP, CONFRAGRI and CAN certainly represent a much higher number of human resources. CNA alone has a body of 21 people specialized in the training area. The local development associations linked to LEADER have an average number of 16 people, mostly women.

**Methods.** Training is the main extension activity developed in Portugal. The major organisations, CAP, CONFAGRI and CNA, have training plans developed at the top level and implemented by the affiliated ones. Besides training, individual advisory methods tend to dominate, usually through office visits. Farmer meetings, seminars, workshops, and other group activities are promoted by most organisations, as well as by public services, including the Ministry offices, education and research institutions. Organizations like CAP, CONFAGRI, CNA and AJAP also

publish magazines with technical and policy-related articles, and keep web pages with general information.

## Romania

**Human Resources.** In the year 2012, the staff of the public agricultural consultancy service was in total 850 persons, about half of the staff that this organization had when it was established. Out of these, 500 were employees of LACCs and 350 of CACs. Thus, compared to the great number of localities (about 3000 communes) and the volume of activities, the number of consultants active at a commune level is inefficient. On average, the consultant/beneficiary ratio is about 1/5000. From the strictly quantitative point of view, it is obvious that the number of staff is far from covering the consultancy need even for a small proportion of farmers from Romania. Historically, not even in the years when the hired personnel had maximum values, the clients – consultant ratio was not satisfactory.

The interviewed experts' opinion is that *“for the Ministry, the consultancy activity has never been an important activity”*. Thus, the staff hired in the consultancy sector was often used for other activities: *“the existing agricultural chambers do not provide advisory services at the county councils, they are virtually non-existent. They (the consultants) work where the county council sends them – they perform other tasks”*. The financial constraints in recent years determined a strong pressure that led to staff rationalization, and the staff in the field was mostly affected. The existing situation – lack of mobility, lack of equipment and extremely low wages (even the absence of remuneration) – determines the consultants' downheartedness. For many consultants, attraction of additional income sources became a problem of survival. While the working conditions of the extension staff deteriorated, the expectations with regard to their role increased; the extension worker is not only a technical expert, he must also know participatory methods, to recognize and respect gender issues, to serve as a connecting belt to the rural world, etc.

Performance in the advisory activity is constrained by the low qualification level of consultants and by the lack of possibilities to advance in the conditions of the system instability. In fact, *“there is no faculty where the consultants are trained – if you are an agronomist this does not mean that you are also a consultant. You must acquire skills that you do not learn in the faculty”*. The labour force *“is like a heterogeneous picture: some people are competent and have expertise in the field, some people are not. But the best people migrated to the private system.”*

**Methods.** In their activity, the agricultural consultants use a wide range of advisory methods. *The communication from person to person* is one of the information transfer methods appreciated by both consultants and beneficiaries. As the Romanian consultancy system is in charge of a great number of farmers, the most usual method is *group consultancy*. In this way, a greater number of farmers are involved, even though the technical endowment and the staff are limited. The main constraint of this method is related to the consultant's methodical and organizational skills. *Demonstration* is another method used in the public consultancy service. *Working technologies* (new technologies and techniques) and *production results* are presented following the implementation of new varieties, pesticides, fertilizers, etc. *Special courses* for farmers are provided in the training centres – rural education centres. By these courses, mostly basic knowledge and information are transmitted for solving the farmers' specific problems. In order to disseminate simultaneously useful information to a great number of beneficiaries, *mass*

*consultancy* is used. In the case when the information of the entire population is desired, *campaigns* are used. In order to develop the beneficiary groups' interest in campaigns, influential persons and organizations from the rural area are attracted, such as farmers' organizations, credit societies, etc. The consultancy service also organizes *exhibitions* where different organizations set up presentation and information stands. These exhibitions are national or regional. *Mass media* – newspapers, radio and television are methods that are sometimes used by the consultancy service. *The internet* also connects beneficiaries (mainly young), with the information suppliers.

## **Slovakia**

**Human Resources.** One of the most important prerequisites of a well-functioning agricultural extension system is that advisors are good professionals; they are competent in communicating with their clients and have a positive approach towards them. These two pre-conditions are essential requirements for the establishment of a market-oriented extension system. The concept of extension stemming from demand is based on tasks, direction of the service and quality of communication. Applied research requires impetus from farmers and other stakeholders in order to know which fields should be explored. On the other hand, for extension it is important to know what kind of information and knowledge are needed for its clients. Alongside this, both consultants and researchers should know that they should use clear and understandable communication language. Receipt of the advice provided by the consultant depends, to a great extent, on his/her communication skills. Furthermore, extension services have to take into consideration the fact that different groups of clients would require diverse types of information and agricultural and food technologies.

From the beginning of the 1990s, professionals have shown considerable interest in being active in agricultural extension. This was linked with the expectation that the Government would support this activity in a meaningful way, and that extension would belong among state priorities following EU accession. Moreover, extension was seen as the profession where capable experts could initiate business in the various disciplines of the agricultural sector. During this period, such experts were employed in universities, research institutions, or worked for the state administration. In 2000, 300 experts and 100 extension agencies, of a private nature, were registered in the database of advisors with an agricultural background. Surprisingly, with the accession of Slovakia to the EU, the number of advisors declined, as a consequence of the requirements stemming from Cross Compliance related to extension services. The certification of advisors became, in substance, a more demanding process. In 2012, 131 advisors were registered, of these 77 are qualified as generalists and 54 are listed as specialists. In this respect, there is an essential distinction between Slovakia and other EU countries. Furthermore, out of 75 non-certified advisors, 30 are generalists and 45 are specialists. This situation is obviously irrelevant to the requirement to ensure a more effective and high quality agricultural and food processing sector. Moreover, it is not ensuring a sufficient absorption capacity for utilization of EU funds which are assigned for agricultural extension, rural development and for other fields.

In this regard, it should be pointed out that the Slovak Republic is significantly understaffed with regard to the numbers of advisors. A single advisor covers 9,370.38 hectares of agricultural land and 44 entrepreneurial units. Another problem affecting extension services in the Slovak Republic is the high average age of advisors. About 60% advisors are older than 51 years. This

fact is a further confirmation that insufficient attention is being paid to agricultural extension; moreover that there are evidently missing functional links with regard to the coordination of the state administration, clients and extension services. From 131 of certified advisors are 38 of them specialized in forestry extension service and 93 in agriculture. From all certified advisors are 33 women.

**Methods.** The methods used in cooperation with targeted groups are as follows: face-to-face meeting; phone help-line; helpdesk for individual questions through website; Agro portal – web page information about legislation, new projects/ programme calls, professional information, new varieties of seeds, fertilizers and other chemicals, feeds, animal genetic resources, quantitative measures, information about seminars, conferences trainings, new technologies etc.; field/farm days; workshops; publication (leaflets, etc.); field schools; vocational trainings; info-terminals.

## **Slovenia**

**Human resources.** Advisors working inside FAS are divided into two groups: agriculture advisors specialists and advisors that operate in the field. Agriculture advisors specialists are operating in agriculture sectors or on expert fields and give advice to the farmers from the whole territory of each institute (region), exceptionally also in a wider territory. One advisor specialist per institute is also qualified for FADN issues. There are 78 of such specialists in 8 institutes' departments for agricultural advisory. Agriculture advisors that operate in the field are located at local units which are dislocated units of institutes of Department for agriculture advisory services. The number of advisors in local unit depends on different criteria – number of farms, size and development of the area. At local units there are 180 field advisors and 44 advisors for farm family and gainful activities. In total in Slovenia, there are 330 advisors, of whom 4 with PhD, 12 with master's degree, 180 with university degree, 55 with higher education, 78 with college degree and 1 with secondary school degree.

## **Spain**

### **Human resources**

Human resources in two major national research centres (CSIC and INIA) are governed by similar guidelines. Both organizations have a senior staff scientist (senior researcher, although with different categories) supported by a more numerous group of technical support staff.

CSIC has a great size, with about 13,000 employees among scientific staff, support and management personnel. 10.8 % of the total corresponds to staff in the area of agricultural sciences. This staff is distributed in the different units and CSIC centres located in the regions, although the regions that have a greater number of workers are Madrid (with 5807 workers), Andalusia (2187), Catalonia (1804) and Valencia (945).

The INIA carries out R+D+I activities in the agro-food sector in the General Sub-Directorate of Research and Technology (SGIT), through its centres of Forestry Research (CIFOR), Research in Animal Health (CISA) and Plant Genetic Resources (CRF), as well as departments of Biotechnology, Environment, Animal Genetic Improvement, Plant Protection, Animal Reproduction and Food Technology. To carry out its activities the SGIT had, in 2011 a staff of

950 people, including 230 researchers and technologists, 385 staff of support to research, 271 contracted researchers and 64 fellows in training –temporal – stage.

With respect to the gender aspect, it should be noted that in Spain, as in many other EU countries of the EU-27, the proportion of women working as a researches is less than 40 percent on average. Moreover, women tend to remain mostly stagnant in the lower categories. Also it has been proven that there is a negative correlation between the invested budget and the presence of women, i.e., in organizations with more funding the presence of women tends to be lower.

However those general tendencies, there are some exceptions, for example regarding the gender of INIA staff. It should be noted that of 950 employees in 2011, almost 60% are women. In this regard, in all existing types of contract, there are more women than men, but especially as support staff and contracted personnel (being the last non-permanent position and conditioning their contracts on the specific needs or projects), namely, the presence of women increases with the decrease of the quality and category of jobs.

## **Sweden**

**Human resources.** The advisors in Sweden are in general experienced and have worked as advisors for several years. According to the enquiry the majority of the employees have worked for more than 12 years at the organisation, and many organisations state that the mean work experience of their advisors is 10-20 years. Many respondents also state that there is a general problem with finding and keeping young advisory professionals and to make advisory service an attractive job. There are many female advisors as well as numerous female staff, and the gender issue is not considered to be a concern among the advisory organisations. The percentage of the respondents female staff and advisors is 50 percent, which is a higher number than the share of female farmers in Sweden (20% in 2010).

Advisory organisations consider education and in-service training to be important, and in the survey almost all the respondents answered that all of their advisors had taken part in some kind of training in 2012. It were public institutions, university or the advisory organisation itself that provided the training. In many cases the training was in-service, for deeper knowledge in the advisors area of expertise, but the training was also about leadership, pedagogic, sales management and training to become a better advisor in general.

**Methods.** For the advisory organisations a large share of the time is spent on advisory work, about 60% according to the respondents of the survey, 20 percent is spent on administrative work and management, and about 10 percent of the time is spent on research and development. When it comes to the advisors the situation does not differ that much. Most of the time is spent on advisory work. The mean is 60 percent, but this differs a lot between the organisations. The share of work time spent on administrative work and management is 20%, where advisors in smaller organisations seem to spend more time on administration than in larger ones. About 10 percent of the advisors time is spent on in-service training, and this is quite the same for both larger and smaller organisations.

## **United Kingdom**

**Human resources.** It is not possible to comment on the total number of advisors in advisory organisations due to the specific structure of how advice is provided in the UK. For small

consultancies, 1-3 advisors will all carry out advisory activities (more than half of the respondents in the survey fell into this category). For larger organisations, a number of staff have mainly advisory functions but others will also carry the title of ‘advisor’ (e.g. policy advisor), making it difficult to determine the share of advisors (of the total staff in an organisation) exactly and correctly. There are no strong gender issues in UK farming, with female leaders and participants in most sectors, be it production, advice, training and research.

A rough idea on recent developments with regard to advisors and staffing in organisations offering agricultural advice can be gained from the online survey. For the majority of respondents (about 60%), the number of staff and the number of advisors has stayed the same in recent years. In few organisations (about 10%) has the number of staff and/or advisors has decreased. The remainder of the responding organisations have seen an increase either in staff or in advisors, or both.

**Methods.** Advisory methods used range from one-to-one or group advice both on and off farm to on-line portals and newsletters. Farm walks/ visits, demonstration farms and monitor farms are continuing to be popular advisory methods. A review by DEFRA (2013b) compiled a wide variety of formats through which advice is delivered: individual farm visits by government and independent advisors, at organised events, clinics, workshops and ‘drop ins’ (such as those organised by the Farming Advice Service, for example), website information, guideline documents, information sheets, on-line forum, e-mail and telephone help-lines.

#### **4.4. Clients and topics / contents**

The sub-chapter presents the main topics of advisory services, which are frequently provided by surveyed organisations. Also the description of main clients is done. Like in above sub-chapters also the structure of this one is similar and all data and information are given in relation to an individual country.

##### **Austria**

Compared with EU average, the level of education of Austrian farmers remains low. 75% of all farmers have pursued primary or secondary education only. As regards training and advice they are very active, though. Nearly one out of two farmers either attended a training in the past year or was in contact with an advisory organisation.

Medium and small commercial farms are the prime target group of most advisory organisations. Young farmers and start-up farms and women in agriculture followed by large holdings and subsistence farms are further important clients. Producer organisations and cooperatives are rarely advised. Farm employees are not served at all and are represented by the chamber of agricultural workers (“Landarbeiterkammer”).

Extension services financed with public funds cover a very wide range of topics, from production-related and business development and management, through environmental and safety issues to personal skill development. The Chamber of Agriculture, as the biggest service provider, covers most of these topics to various extents. Other organisations, such as the federal colleges and research institutes, Bio-Austria and producer associations, assist farmers in issues specific to their specialisation and working field. However, all organisations provide advice to



varying extents and depth. As specialisation of farms and complexity of problems increase, other actors (non-profit and private businesses) may step in and offer the advice needed, often for market rates. In few cases, output processors advice and support farmers with regard to EurepGAP and GlobalGAP.

This survey shows that plant and animal production are the most relevant topics for famers when seeking advice. A focus is on the optimisation of the operation, efficiency gains and reduction of inputs. Due to the economic situation, smaller and part-time farmers show particular interest in the diversification of business and alternative ways of income generation, innovation, marketing and processing. With regard to rural development issues, such as local and rural production cycles, supply chains and methods to collaborate with other regional actors as well as to involve the public shall be discussed. Stable design, environment, agri-environmental programmes and sustainability issues including the management of natural resources are also often subjects of consultations. The demand for specific advice with regards to cross-compliance and machinery is, however, poor. The last topic is increasingly covered by suppliers. Advice on stable construction is also often provided by respective companies. Trainings and advice on management, entrepreneurship, organisational development, and personal skill development are generally far more often requested than in the past. Increased emphasis is put on gender issues too.

Financial resources, in particular in smaller holdings, which constitute the majority of Austrian farms, are limited. Therefore they risk of falling out of support mechanisms and not receiving the attention and support they need. Small holdings and farmers find it hard to comply with rules and standards (i.e. cross-compliance or food and market quality systems) and are dependent on several sources of income which puts them at a disadvantage compared to bigger competitors and further increases the gap. Extension should therefore need specially tailored advisory services.

In addition, a change of focus in more general discussions is observed, influencing advisory services. Following an emphasis on environment-related issues in the recent years, new subjects seem to attract attention now: climate change, food security and consumer protection, rural development and the social dimension of agriculture. The latter comprises themes such as living quality in rural areas, burn-out of farmers, farm succession, conflicts between generations, aging in rural areas, unemployment of youth and also ethical issues. A telephone hotline (“Bäuerliche Sorgentelefon”), a subdivision for women in agriculture, and a Rural Youth division operated by the Chamber of Agriculture are some measures in this context. Agriculture is very important for successful and sustainable rural and regional development. As a driver for rural development agriculture should be considered as a part of local and regional supply chains. Farmers thus need to collaborate with other actors; the links and interfaces between them often give room for innovations. All of these topics will become a challenge for all actors in the future; covering them requires the development of new products by advisory organisations and the collaboration with other service providers, organisations and facilitators.

The reform of the CAP 2014-2020 involves challenges for the Austrian AKIS and creates a specific demand for information in several fields, i.e. diversification of and non-agricultural activities, climate change, biodiversity, rural development, renewable energies and energy

efficiency, risk management, knowledge management and managing conversion of payment regimes.

### **Belgium**

There is hardly any monitoring of the beneficiaries of services in the two regions, apart from data available from FAS. There is thus a clear lack of information about which farms benefit (or not) from what service. Moreover, there seem to be very few political discussions about the targeted public of advisory services, neither in terms of farm structure (small farms) or social characteristics (genders, employees), beyond a few specific operations for young farmers (when starting new business), or for farmers facing difficulties. When we look (cautiously, given the lack of robustness of the sample) at the results of the survey, it is striking to observe that specific social groups who are the subject of discussion within EU development and cohesion policies, such as small farms, part-time farms, women or farm employees, are almost not targeted by any advisory organisations, be it public, private or third-sector organisations.

### **Bulgaria**

The total number of farms covered by *public advisory body* is 37 200, where the average number of farmers receiving annual extension services is 20 000. The major clients for NAAS are small-commercial farms, semi-subsistence farms (1-5 ha) and young farmers. They provide the following types of services to its clients: (1) vocational training, (2) extension activities focused on the providing and updating information for farmers, knowledge and experience exchange and others; (3) preparation of farmers' applications for the RDP and (4) technical assistance in crop and livestock production. One of the main target group for NAAS are also medium-commercial farms, subsistence farms, part-time farmers and female farmers and not targeted ones are large-commercial farms and farm-employees. Often delivered advisory topics by NAAS are rural development measure 121 and measure 141, cross-compliance and state schemes for financing and crediting the farmers, followed by topics such as plant production, animal production, stable design, bookkeeping, environmental and contract agreement for farmland. Topics regarding machinery, business diversification, processing and new products, and renewable energies are seldom provided. The main target groups of the NAAS look for advice for all agricultural topics except machinery.

The main clients of the *private advisory companies* are large and medium-commercial farms, but they also work with small-commercial farms, subsistence farms and female farmers. However, they do not work with semi-subsistence farmers, part-time farmers and young farmers. The topics delivered to their clients are plant and animal production, stable design, some of rural development measures and agri-environment programmes. They do not provide advice for cross-compliance, bookkeeping and business diversifications. The *universities and agricultural academy* provide technical assistance to farmers for crop and animal productions, machinery use and agri-environment issues and organize many specialized training courses for farmers. *International companies and regional trade organizations* provide specific advice to their clients on the topics related their specific products that farmers use in their crop and animal productions.

## **Cyprus**

In terms of the clients of the service, it is worth noting that, in principle, all farmers are eligible to request for advice/information. However, large commercial farmers as well as producer groups having their own advisors are groups of rather minor importance for the service. Main target groups are thus medium and small commercial farms, young and part-time farmers.

It is important, in this respect, to note that although farmers, in general, in the first place address a private shop (depending on the trust they have towards the agronomists working in the shop), they usually also ask for the opinion of extension officers given that the latter are impartial (not related to or paid by companies/ not-for-profit mode of operation of extension; advisors may also be more updated and are willing, in any case, to further search for a solution if for example a treatment fails – then they send samples to the Departments' laboratories and so on).

The topics often delivered relate to plant (vegetables, grapes, potatoes, fruits) and animal (sheep and goats, pigs, poultry, cattle) production, rural development and cross-compliance. Of less importance (averagely delivered) are topics on diversification and environment. On the other hand, the topics demanded from almost all types of farmers concern all kinds of topics plant production, animal production, rural development, cross-compliance, environment and renewable energies. Additionally, small and young farmers (including female farmers) are interested in stable design, machinery and diversification.

## **Czech Republic**

The CSI agriculture register registered more than 47 thousands of agriculture subjects on the end 2011. Most of them (36%) are small growers or breeders without agriculture not registered in LPIS. These small growers mostly do not use advisory systems, sometimes only public advisory services from the 1<sup>st</sup> and the 4<sup>th</sup> AKIS level.

Generally, advisory services use mostly holdings in LPIS, it means about 26 thousands clients. Results from questionnaires specify that professional advisory services (3<sup>rd</sup> level) are used by large farms (above 100 ha) mostly, smaller farms (5-50 ha) use advisors less frequently. Next to agriculture enterprises there are other users of the 1<sup>st</sup>, 2<sup>nd</sup> and 4<sup>th</sup> AKIS level, mostly from education system, government and non-governmental organisations.

Most commonly asked questions concern gaining subsidies and other means, the second sphere of interest is cross-compliance rules and GAEC. As to professional themes farmers need advices in plant production and plant protection areas.

## **Denmark**

The Danish advisory system – both the DAAS-centres and the private advisors – is capable of delivering the services including all topics within organic farming demanded by the Danish farmers, including large, small, full-time and part-time farmers. This includes young farmers (less than 40 years old), who are perceived as one of the most important groups. However, in recent years attention among the Knowledge Centre for Agriculture and the DAAS-centres has been directed towards the challenges of offering services to a sector undergoing a continued structural development where large farms have been growing in size, while the number of smaller farms – where the overwhelming majority are part-time farmers with a job outside the

agricultural sector – remained the same. This development meant that traditional customers (medium-sized farms) were those most rapidly leaving the sector. This led DAAS to focus on developing advisory services targeted the very large farms who are increasingly looking and working like ordinary private companies.

At the other end of the spectrum more attention has been directed towards part-time farmers who will not or cannot pay the same for advisory services as full-time farmers and who have other needs, e.g. an interest in nature preservation or farm shop. In recent years the Knowledge Centre for Agriculture has furthermore drawn attention to those farmers who would like to change their traditional farm into a more diversified enterprise with increased variety of products, e.g. tourism or farm shop with own or local products.

Other new areas of advisory services are services related to how the farmers are to deal with laws and regulations related to the issue of the environment. Advisory services related to the subject of the environment have increased since the 1980s when environment as a political issue came on the political agenda. The newest type of farmers' demanded services is advisory services related to bio-energy, resource efficiency and the use of financial products.

Danish farmers are not asking for much advisory service regarding rural development. The reason for this is twofold: (1) There are not many new possibilities for new earnings or income seen in the farmer's perspective, (2) the public implementation of the rural development programme done through the regions has not included the agricultural sector. The farms in the country side are simply seen as farms and not as SMEs and furthermore it is difficult to see the farms as companies that could create new types of business for the local communities. This situation may also be an unintended effect of the Danish advisory system and of the organisation of the entire Danish agricultural sector, whereby most activities are under the control and in the hands of farmers themselves through their extensive network of associations with long historical roots. This excludes the areas of environment, spatial planning of the territory and the veterinarian control- and regulatory system which are in the hands of the government.

Beside these new trends Danish farmers, as always, demand advisory services within the classical topics of animal, crop and pig production.

The DAAS-centres have cultivated and managed to get 8,000 new customers outside the agricultural sector. Local knowledge and a long tradition and knowledge of advising SMEs have helped the DAAS-centres to attract these new customers. Attracting new customers who are not farmers has been a deliberate strategy in the face of the structural development with still fewer farmers (but we have to remember that the number of advisors has not decreased equivalently to the fall in farms).

### **Estonia**

Advisory support may be applied for by: (a) agricultural producer active in the territory of a village, a town or a small town, owning or using on a legal basis at least 0.3 ha of profit yielding land; (b) private forest holder, owning or using on legal basis at least 0.3 ha of profit yielding land on the territory of a village, town or small town. The advisory subsidy is mostly applied for by self-employed persons and private limited companies.

According to the data provided by the Ministry of Agriculture a total of 2281 farmers used advisory support in the period the 2008–2012. According to the data of Agricultural Census about total number of agricultural holdings in Estonia (19,613), it means that there are about 12% of agricultural holdings or 31% of the so-called Farm Accountancy Data Network (FADN) holdings which have used advisory support. This indicates that only up to 1/3 of professional farmers are active clients of advisory service. According to the information of Rural Development Foundation in Estonia, the number of agricultural companies, which could potentially be interested in using the advisory system is approximately 6000. However, the survey results show that only 60% of potential clients are familiar with advisory services. The client survey revealed that only 8% of those farmers who replied did not know what the Advisory Centre was, about 66% had used advisory service at least once. The largest part of farmers used the advisory services 1-2 times in a year, but also a significant number of farmers (29%) used advisory services more than 3 times in a year. 61% of the farmers surveyed had had positive experience with the service. Farmers generally have knowledge about the advisory system. According to the data knowledge of specific services is not very good.

The clients of advisory centres vary to a considerable extent. Out of the range of services offered, the most popular service concerns the types of available subsidies – both, general information and specific advice. The second and third most common inquiries concern production and market, and accounting, taxation and legislation, respectively. Advisory service in the field of crop production and cross compliance is also quite popular. Although farmers use advice coming from different sources, there is a growing need among the farmers for professional and up-to-date advice. On the one hand, this is caused by the diversification of agricultural production, on the other hand, the enlargement of farms that brings about the need for well organised management, marketing, logistics and waste management. Therefore, the task of the advisory system is to promote, in addition to the distribution of know-how and information, also a suitable way of thinking among agricultural entrepreneurs that fits with market trends. Agricultural producers mostly need advice in preparing support applications and business plans related to them. Estonian University of Life Sciences – the permanent assessor of the ERDP – concluded that the advice the agricultural producers use most is the one that helps them quickly solve problems of finance and plant production. There is also a need for more strategic and specific advice, such as developments in the agricultural product market, product quality requirements, environmental requirements, development of information technology, etc. Taking into account that certain knowledge is more necessary to the society than to enterprises for performing their direct economic activities, the availability of advisory services for such topics should be fostered.

There are several factors that impede making use of advisory services more widespread and effective. Interviewed experts revealed that one of the reasons for lack of usage of advisory services is the lack of specialists in specific fields and the lack of previous experience in using the service. Studies done by the Rural Development Foundation indicate poor awareness of the availability of various advisory services. About 20% of agricultural entrepreneurs who had not used the advisory service before admitted that they did not know where and how advice could be obtained. Also it should be noted that a big obstacle for a wider use of the advisory service is the price of the service. Personal consultation methods are based on specific needs of customers and

are therefore more expensive. One more impeding factor for using the service is the payment procedure mechanism, according to which the customer has to pay for 100% of the service before receiving support.

### **Finland**

ProAgria is a private organisation which is owned by its 93,000 members (mostly farmers). The company has annually about 30,000 customers. 72 percent of Finnish farms utilize ProAgria services. Through this organizational structure the interests of the Finnish farmers are controlled and maintained by the farmers acting both the owner and the customer. ProAgria operates mainly in Finland, but it is also active in Baltic countries, Russia and new EU member states.

The ProAgria advisory services are primarily based on face-to-face advice at the farm. However the number of e-services is increasing rapidly. ProAgria has an online advisor registry where the client can search for an advisor and make an appointment. The advisor charges the client for services. The prices of the advisory services vary between the services. For example a business plan for a farm costs 80 €/hour, cropping plan 165 €+ 69 €extra hour and consumer guidance - 450€/day.

Types of clients and farms vary a lot. ProAgria offers services for farmers on milk, crop, pig, poultry, environment, business, management and leadership sectors, but also for entrepreneurs working in the rural areas. Services to entrepreneurs are based on decision making and increasing goals, concentrating and focusing on better results, recognizing new opportunities and using them, as well as controlling the whole business.

### **France**

As for the precedent topic, the collection of data from the online questionnaire was not successful enough to provide sound data about farmers' access to advisory services. It should nevertheless be noticed that in France there is a clear lack of monitoring and evidence about farmers' access to advisory services. To researchers' knowledge, there is no strong data base or survey as to what people in agriculture have access (or not) to which kind of services. The only systematic one dates back to 2000 when a specific question on the access to advice was added within the agricultural census questionnaire, but only for one region (Rhône-Alpes). Even though such data might thus be outdated and not be extendable to the national context, there were two major findings that should be noticed regarding these results:

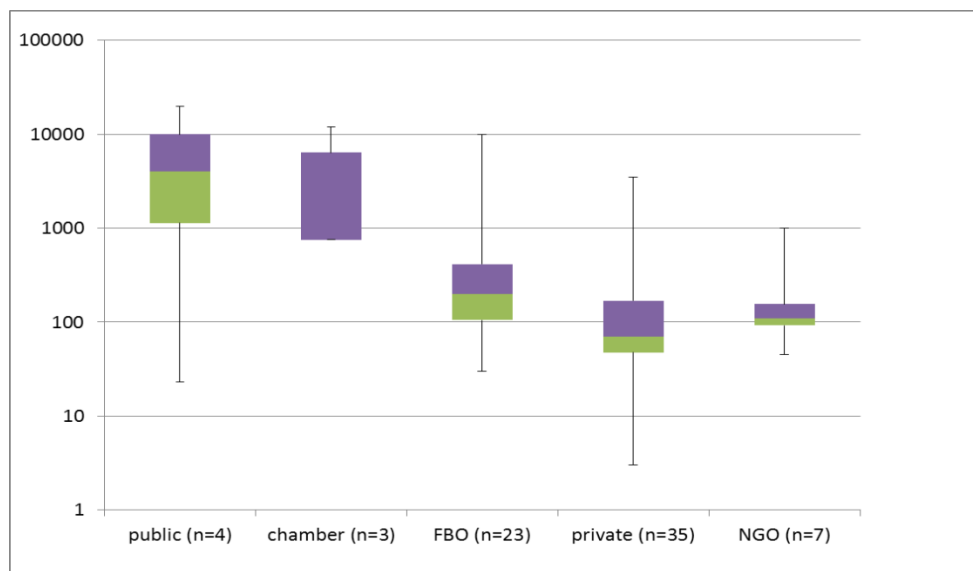
- (a) many farmers were not related to any advisory services, even though there were some important differences across sectors of agriculture. Moreover, it should be noted that the advisory services best connected to farmers were those closer to market (advice from farmers' organisations about bookkeeping and management: CER France) and advice from farmers' cooperatives and traders associated to inputs or output trades;
- (b) some farmers were almost completely disconnected from advisory services, such as part-time farmers or small farms.

Even though we should avoid any generalisation, these results are in the line of other observations at different periods and scales. Nevertheless, it should be emphasized again that there is clearly a knowledge and data gap about the characterisation of the relations between

farmers and advisory services. This problem is even higher for population of farm employees, and especially for migrant and seasonal workers.

### Germany

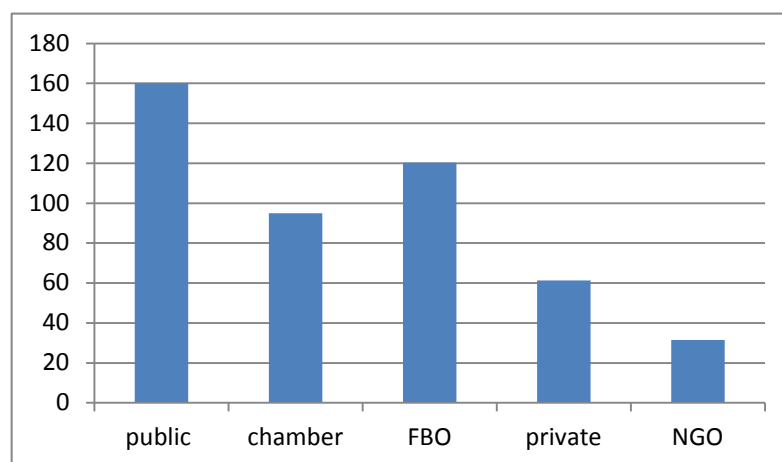
The total number of clients according to the five main organisational types of advisory services of our survey is shown in figure 26. The box-plot provides minimum and maximum numbers of clients as specified by line endings above and beneath the boxes. The 25 and 75-percentiles are indicated by the green and purple columns. The median of client numbers separates those two columns. In the case of chambers, only 3 datasets were available for plotting. Here, the median, minimum value and the 25% percentile overlap at a number of 750 clients, which results in a lack of the 25% percentile in this specific case. The maximum client number of one of the three chambers which provided numbers for this questions lies at 12,000 clients (cf. ending of the narrow line above purple box). Almost all organisational types feature a broad range of client numbers reaching from less than 20 up to more than 10,000 clients, which can also be seen in the logarithmic ordinate. The box-plot therefore shows the diversity of client structures of the German advisory organisations.



**Figure 26.** Number of clients per advisory organisation

*Source: Country report for Germany, 2013*

The average amount of clients of one advisor in each of the five organisational categories is shown in figure 27. The overall mean of how many clients one advisor provides advice to all respondents amounts to 87 clients per advisor (n=63). The average farm size of the clients altogether amounts to 326 ha in the survey (n=56 respondents; excluding 2 entries which indicated their clients specialised in crops such as wine and horticultural crops). Thus, it can be seen, that the average farm size per client of our survey respondents is significantly higher than the average of 58ha farm size in Germany.



**Figure 27.** Number of clients per one advisor

Source: Country report for Germany, 2013

The total number of mentions according to each query of target group shows table 7. *N* indicated the total number of mentions in each query (the remaining gap up to the number of 95 respondents is made up of missing values). It can be seen, that among all organisations, there is a tendency towards providing advisory services particularly to large and medium type farmers. This applies particularly to private advisory companies and FBO. In contrast, subsistence farmers and farm staff play a minor role as a target group.

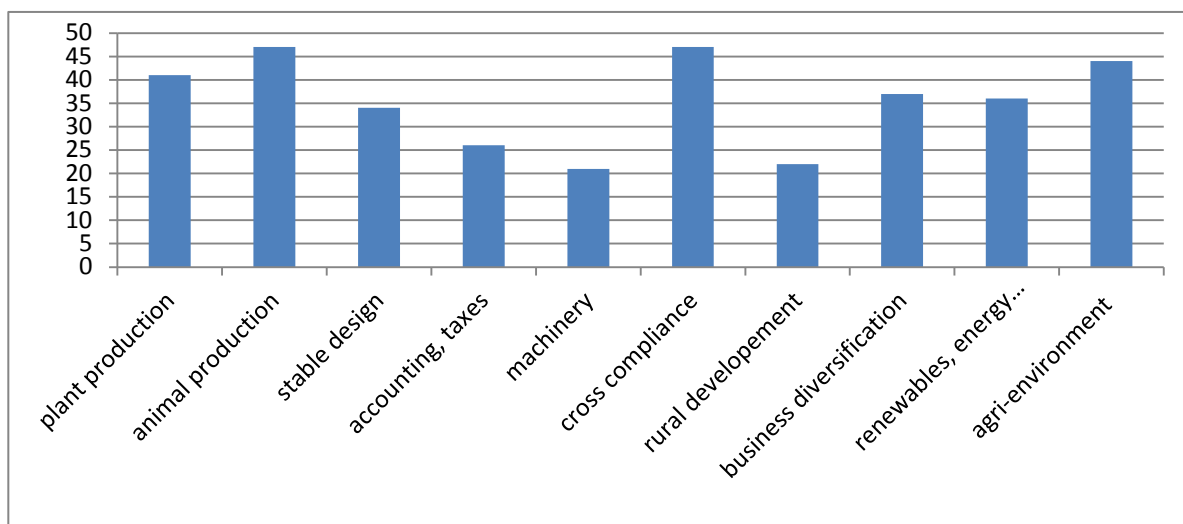
**Table 7.** Number of nomination of primary target groups according to organisation

Type of companies	Large-size farms (n=69)	Medium size farms (n=67)	Small farms (n=62)	Sub-sistence farms (n=52)	Producer groups (n=57)	Young farmers (n=57)	Female farmers (n=55)	Part-time farmers (n=58)	Farm staff member (n=56)
Frequency	50	50	24	4	12	20	9	12	6
Public	2	5	4	1	1	2	2	2	1
Chamber	1	2	1	0	0	1	0	0	0
FBO	16	15	7	2	5	7	2	4	1
Private	28	26	10	0	6	9	3	5	4
NGO	2	2	2	1	0	1	2	1	0

Source: Country report for Germany, 2013

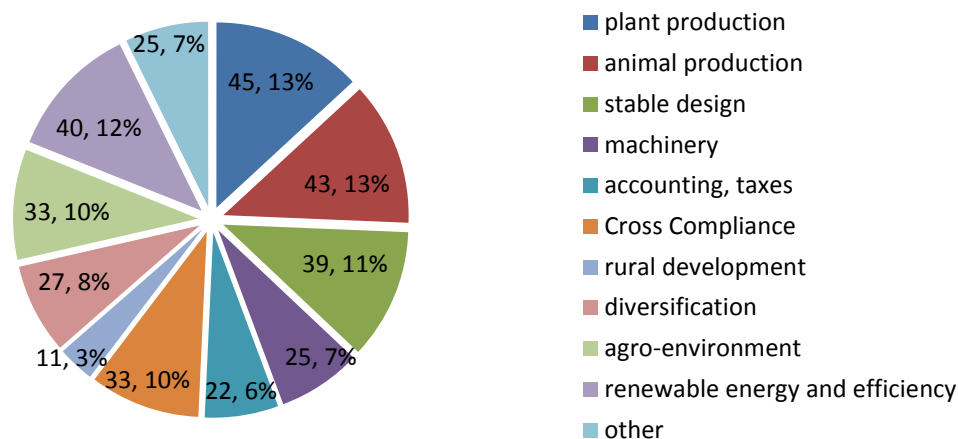
With regard to the advisory contents, no clear trends can be seen when comparing the indicated topics of all advisory organisations. The number of mentions on the frequency of advisory topics “often” and “very often” delivered to clients is shown in fig. 28.





**Figure 28.** Contents of advisory services  
 Source: Country report for Germany, 2013

A similar heterogeneous picture can be seen with regards to the trends of advisory topics, as shown in figure 29. When asked about topics that are increasingly being demanded by clients, no clear trend can be derived from respondents' answers.



**Figure 29.** Trends of advisory topics  
 Source: Country report for Germany, 2013

## Hungary

Producers paid attention to the changes in yield expenditure and their business plans and requested the help of their consultants to a greater extent (table 8).

**Table 8.** Typical areas of activities carried out by contracted consultants for producers

Activity	%
Making applications	11.85
Plant protection	11.25
Crop production	10.30
Animal breeding	8.76
Enterprise improving consultations	8.76
Technological consultations	7.21
Making business plans	5.67
Horticulture	5.67
Supporting market information	5.15
Financial consultation	4.63
Taxation consultation	4.12
Organising training	3.60
Strategic planning	3.60
Public accountancy consultation	3.09
Forestry	2.57
Animal hygiene consultations	2.14
Aid in material supply	1.63

Source: *Country report for Hungary, 2013*

It can also be seen in the table that the most demanded topics in order of popularity were: enterprise improving consultations, making business plans, supporting market information, financial consultations, taxation consultations, strategic planning, and public accountancy consultations.

## **Ireland**

Agricultural advice can serve two functions; a development function and a service function. While the former supports public goods and covers advice on farm occupational health and safety, biodiversity, EU schemes, climate change mitigation and water quality, the latter focuses on private goods and includes accountancy services, veterinary and agro-chemical advice, legal advocacy and cross-compliance advice. Advice is provided on the following themes and topics: herd and flock management; business and financial planning; farm management; grassland management; breeding; nutrition and ration formulation service; advice on farm buildings and paddock layout; department of agriculture schemes/ rural environment protection scheme; options planning for the future; alternative enterprise development; environment; soil and grass analysis.

The main farms covered are dairy and cattle farms. Young farmers and new entrants are specifically targeted in order to ensure that an adequate number of well-trained young people will take up careers in farming and possess the right skill set. With an average farm size of 32 ha, farms in Ireland are small, compared to other European countries. Advice is available to ‘small-scale’ farmers through the same channels as to larger commercial farms. The main differences are the nature of the contact with the advisor and the kind of advice delivered. For the larger, more intensive and commercially oriented dairy farms, advice focuses on production, processing

or marketing. Beef farms tend to be smaller than the average farm, and are often not commercially viable. Those farms with lower stocking densities tend to focus more on agri-environmental schemes (REPS) and to receive advice on completing their application. In order to be eligible, they need to prepare a whole farm plan with an approved advisor. At the level of the REPS, there were up to 40,000 farmers enrolled in this scheme. It is not uncommon that a farmer would seek advice from two advisors, one from Teagasc, the other from a private consultant.

### **Latvia**

Depending on advisory organisations' profile, specialisation and capacity, they serve from ten to several thousands of clients. Various types of farmers are targeted, but, according to the survey results, most often they are small commercial and young farmers, also producer groups – commercially-oriented farmers in knowledge needs. The minority of bigger commercial farms as well as semi-subsistence and subsistence farms are less often perceived as clients. Whereas big farmers can buy knowledge easily, subsistence farmers with limited financial resources form a risk group which is excluded from professional advice. Another group which is most often out of advisory services' scope are farm employees. This is probably due to the minor size of this group, as few farms employ non-family members.

Farmers' knowledge needs are diverse, covering a wide range of topics of production, legislation, regulations, farm and project management, book-keeping, marketing. Similar conclusion was given by respondents during the interviews. The main topics about which farmers are seeking advice are related to plant and animal production. They are equally interested (or rather obliged) to update their knowledge about new regulations, legislations and support measures – these topics are crucial for farmers as direct payments depend on farms' compliance with various regulations. In this regard, farmer representative's point out that bureaucracy has become a central subject of farmers' training. Also farm management, like book-keeping and taxes and farm diversification are reported as topics of farmers' interest.

In the context of knowledge intensive rural development, innovation support becomes forefront. Advice for agricultural innovations is somewhat limited, though. Although new products and production branches are developing, innovations occur rather at farm level and usually start with informal exchange and learning among farmers, especially when they share knowledge across borders and learn new ideas from abroad. The advisory system is less flexible to absorb and deliver this new knowledge and satisfy new knowledge needs rapidly. Although there are many ideas for innovations at hands of producers, there are also many limiting factors to make them true: lack of resources, time constraints, and poor cooperation. An important element missing is innovation management which would stimulate innovators to cooperate. Targeted innovation advice is limited, and the role of experts-advisors is not always clear as many of them merge with traders. There is hope among professionals in European innovation partnerships as an instrument for structural support to agricultural innovations.

### **Lithuania**

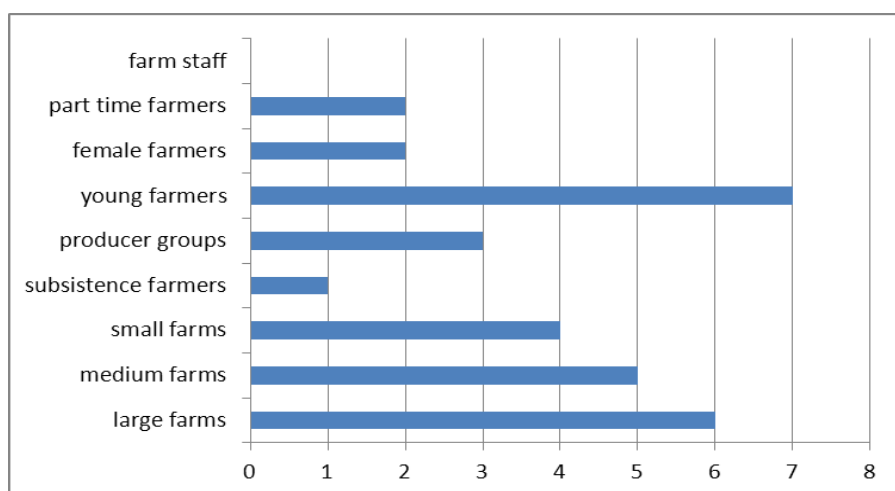
Main clients for consultations are large and medium commercial farms (10 -100 ha), as well as small commercial farms (1-5 ha, semi-subsistence farms), agricultural producers groups (cooperatives and agricultural companies).

Consulting topics are: Questions related to agrarian environment protection and farming in protected areas; Training of plant protection consultants; Basics in ecological farming; Planning of economic activity and financial opportunities; Usage of fumigation products; Assurance of livestock health and milk quality; Settlement of the new farmers; Stimulation of rural tourism; Reduction of cows' morbidity of mastitis and milk quality improvement; Development of requirements for complex support and competences of environmental protection; Cooperatives in farming; Issues related to implementation of the LEADER project; Forestry; Support to rural communities; Quality expert of fresh fruits and vegetables; Basics in farming; Issues related to bookkeeping of agricultural activities; Questions related to the management, requirements of good agrarian and environmental condition and work safety requirements; Questions related to business plans and other documentation necessary to receive ES support; Perspectives and current state of informing, training and consulting of farmers within the period of 2014-2020; Accounting of the farming and foods sales by using cash registers; Development of competences in accounting taxes for agricultural activity and declaration of income; Analysis of the agricultural area subject's (farmer, agricultural company) activity.

### Luxembourg

The average number of farmers making use of advisory services of the respective advisory organisations per year is 55 (n=6). One FBO was reported to provide advice to more than 500 clients (not included in the calculation of the average). The average holding size of farms participating in agricultural advisory ranges from 7 to 110 ha (n=6), while 7 ha refer to holding sizes of winegrowers only. Thus, the average farm holding features an area of 77ha for agricultural production in our survey.

Respondents were asked about the primary target group to which their agricultural advisors provide advice to. All of the respondents (n=7) provide advice to young farmers, followed by large farms (corresponding to gross margins larger than 48,000€<sup>4</sup>) with 6 mentions, medium farms (gross margins between 19,200 and 48,000€) with 5 mentions and so on (figure 30).

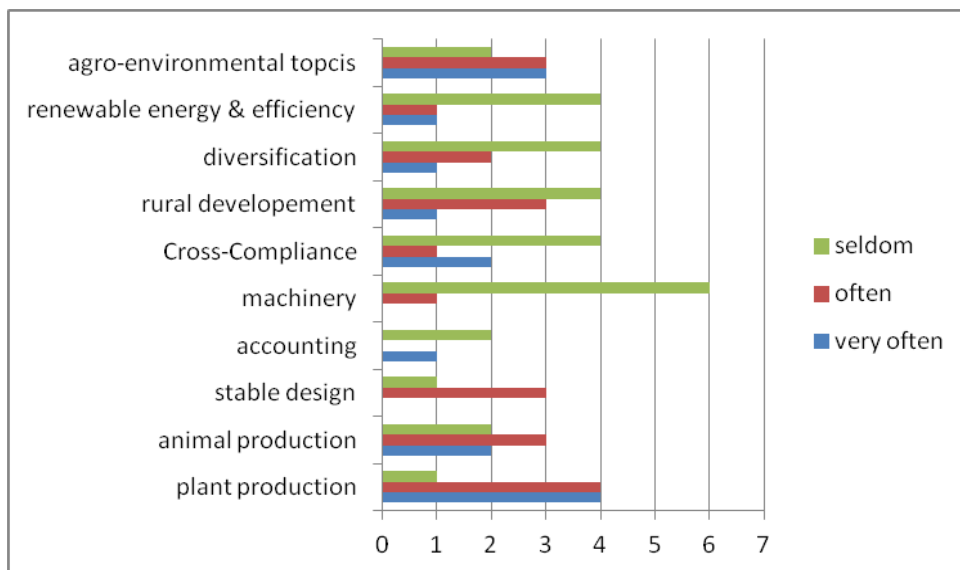


**Figure 30.** Primary target groups of advisory organisations

Source: Country report for Luxembourg, 2013

<sup>4</sup> Farm size categories are based upon European Size Units (ESU) of gross margins according to EUROSTAT 2012a.

In the following, respondents were asked about the frequency of certain advisory topics. Figure 31 shows an emphasis on plant and animal production, stable design and agro-environmental topics. In contrast, topics of machinery issues, renewable energies and energy efficiency, rural development and Cross-Compliance play a smaller role.



**Figure 31.** Frequency of advisory topics  
 Source: Country report for Luxembourg, 2013

Additional mentions (open entries) not fitting into the predetermined categories of advisory topics were: administrative support on farms, advisory on water protection/nature conservation (mentioned twice), mediation between farms and administration, marketing of regional product and conversion to organic farming.

### Malta

The clients and topics of advisory services vary greatly depending on the type of service providers, topics/contents of advice, costs of service, agricultural sector in which the provider operates. In this regard, this study revealed that, given the previous public free provision of extension services, farmers in Malta are far from being willing to pay for the provision of advisory services and the holdings are lacking of both innovation and entrepreneurship. This is mainly because of the protectionist economy which characterized Malta until the accession to the EU and of the structural deficits of the agricultural sector which, across the years, brought a very low pressure on farmers to invest in their own human capital as well as to improve the agricultural practices though the help of advisors. In reality, the farmers have only practical experience gathered in the field during their work and very limited formal education (high level of school early-leaving). In such a situation the survey showed that Maltese farmers face a near-total lack of informational materials in the Maltese language, and since most do not speak or read in English, this leaves them with very restricted access to information, limiting the effectiveness of the mechanisms and dynamics set up in view of transferring knowledge across the supply chains.

In recent years, and thanks to the work of entities such as the NRDN and the associative bodies, the farmers have been increasingly expressing specific needs for training/advice to support

modernization and increase of competitiveness of agro-food sector, as well as for sharing methods and tools such as centralized farm and support premises. Also, they have focused on young people, through asking for apprenticeship schemes and establishing specific links between farmers and early learners.

Indeed, on the basis of their demand for topics and types of extension and advisory services, the clients can be basically categorised into: the users of the formal FAS and other clients, who are mainly represented by the members of associative bodies and the beneficiaries of RDP measures on capital investments and innovation.

The first are the ones incurred or being incurrent in penalties regarding non-compliance with European and national GAEC and SMR requirements. They are intercepted by the FASC through its collaboration with the Control Unit of Paying Agency. Besides, the beneficiaries of measure 114 of the RDP belong to this category.

In the cases of the members of cooperatives and PO/PGs, the groups addressed and the number of clients vary depending on the sector and dimension of the holdings, through covering all categories of farmers. Also, the contents of advisory range from basic/institutional services, such as the support for selling the products, to the support for implementing innovations in farm and for the connection with international entities, in view of sharing practices and knowledge which are not available in the island. While, the main target groups of private advisory companies are represented by the few of large-medium-small commercial farms who can afford paying for such services. In these cases, the topics covered are highly variable, ranging from cross-compliance, renewable energies, waste and water management, rural development and economic efficiency.

### **The Netherlands**

In the Netherlands the topics of advisory services depend on the client and the organisation, which provides particular services. For example Private professional advisors (DLV Advisory Group) provide technical, economic and management advice to farmers and other agri-food business as well as consultancy services to private and public institutions. DLV also provides thematic trainings and study group meetings for producers, organisations and extension officers. DLV's experts also work outside Holland, coordinating and carrying out agricultural development projects financed by national and international donors. In addition to DLV, in the Netherlands there are also individual professional advisors and several other private consultancy companies, mainly smaller and specialized in different sector (such as dairy farming, construction) and/or target groups (such as organic farming). Moreover, LTO has its own consultants and specialists who provide tailored advice for individual farmers, especially on business succession, changing to different products and production methods, expansion, specialisation, new business opportunities and business discontinuation. Other organisations - Product boards supports their companies and also work as a centre of knowledge with wide range of information and specific extension service for their members (mainly pig producers). There are also innovation and knowledge networks and brokers delivering advisory services for individual farmers, or collectives of farmers; and boundary organisations working in policy, research and education fields.

## Poland

The most important group of clients for Polish advisors are small and medium farms. It is related to the specific characteristics of Polish agriculture (fragmentation of farms, agrarian overpopulation, weak soil, poor use of production means). Statistically, the number of farms per advisor is generally very high in Poland (approximately 436), and there is quite a variation from provincial ODR to provincial ODR in the number of advisors per farm (from 187 in West Pomerania till 590 in Lublin). However, advisors often co-operate with semi-subsistence farms (2-4 ESU), so the nominal number of farms per advisor is 201. The specific nature of Polish agriculture has impact on the main clients for ODRs advisory service, which are small and medium commercial farms and farms maintained by young farmers (table 9).

**Table 9.** Main clients of ODRs (in number of regions)

Groups of clients	Main clients	Rare clients	No advisory delivered
Large commercial farms (gross margin > 48 000 €)	3	12	1
Medium commercial farms (gross margin <48 000 >19 200 €)	13	3	-
Small commercial farms (gross margin < 19 200 €)	16	-	-
Semi-subsistence farm (producing a little bit over their own needs)	7	9	-
Part-time farmers	4	11	-
Semi-subsistence farm (producing for own needs)	1	9	5
Group producers	5	10	-
Young farmers	14	1	-
Women farmers	3	12	-
Farm workers	-	4	11
Other (e.g. rural entrepreneurs)	1	3	-

*Source: Country report for Poland, 2013*

Looking at the main topics of advisory it can be noticed that there is no big difference between groups of clients. The main topics of advices for medium commercial farms are: plant production, animal production, book-keeping, taxes, cross-compliance and environment protection. For small commercial farms the topics are similar, excluding environment protection, but including rural development. For young farmers these are four first topics and renewable energy.

Advisors provide advice and information, as well as trainings. The priority for the ODRs is to assist farmers and their families in making decisions that will help them achieve their goals. This is done by: actions taken to improve the level of qualifications of farmers and rural inhabitants, implementing the instruments of the European Union's Common Agricultural Policy, promotion of multifunctional development of rural areas, promotion of environmentally-friendly management methods and environmental protection, assistance in implementing new requirements relating to agricultural production, the so-called mutual conformity principle (cross-compliance), implementation of new production technologies, protection and cultivation of cultural heritage at the village level, assistance in the creation of production groups. With respect to market products and special services, the largest percentage of advisors deals with preparing agri-environmental plans and writing business plans. Many extension agents provide advises in the field of animal production, mostly swine and dairy cattle (table 10). Additionally,

more than 40% of agricultural extension advisors can submit applications for direct subsidies. Applications for other funds within the Common Agricultural Policy are prepared by nearly 24% of the employed advisors.

**Table 10.** Frequency of types of advisory delivered for clients (in %)

Topics of advisory services	Very frequent	Frequent	Rare
Plant production	15.0	1.0	-
Cross-Compliance	15.0	1.0	-
Environment (water, climate, bio-diversity)	12.0	4.0	-
Rural development	12.0	3.0	-
Animal production	10.0	6.0	-
Renewable energy (bio-energy, wind-energy, solar energy)	5.0	10.0	1.0
Book-keeping / taxes	4.0	7.0	5.0
Diversity of production / new entrepreneurship	2.0	12.0	1.0
Other (e.g. regional products)	2.0	2.0	2.0
Mechanisation of production	-	10.0	5.0
Design of animal buildings	-	3.0	8.0

Source: *Country report for Poland, 2013*

## Portugal

Each organisation has a more or less defined target clients. CNA, for instance, tends to work more closely with small, medium, subsistence, part-time and female farmers. CAP directs more attention to medium and large commercial farmers indirectly through their affiliates, and CONFAGRI to very heterogeneous clients, representing the associates of the Portuguese agricultural cooperatives, who generally tend to be small and medium farmers. None of the concerned organizations pay particular attention to farm employees, who tend to be an underestimated group. AJAP gives special attention to farmers aged between 18 and 40. The LEADER associations also work with a diverse clientele, including farmers, rural entrepreneurs, public institutions like local governments, other associations and cooperatives.

Farmers' needs cover a wide range of subjects, from production to farm facilities and equipment, bookkeeping, cross compliance and business diversification. Environment and energy issues tend to attract less attention. The use of phyto-pharmaceuticals, taxes and new production areas (berries, mushrooms, honey) represent, according to CNA, some of the new knowledge demands.

## Romania

The main *beneficiaries/clients* of the consultancy service are various categories of farmers and rural inhabitants: (a) small farmers, who receive support in order to surmount the subsistence stage and set up a commercial family farm; (b) medium-sized farmers with development potential, who are supported to develop their holdings, for production adaptation and



diversification in order to increase profit; (c) agricultural associations, mainly supported in the development of marketing strategies; (d) rural population involved in different gainful activities.

The public advisory service provides the following types of services to its clients:

(a) *vocational training* in connection with the agricultural sector's restructuring and modernization. It is addressed to a wide range of beneficiaries differentiated by age and educational level and involved in different activity fields – agriculture, forestry, food industry, pisciculture and rural development. The CACs are authorized by the Ministry of Labour, through the Labour Employment Agencies at a county level, as vocational training suppliers in agriculture. These offer a wide range of courses: *qualification, initiation, training, refresher courses in agriculture, training of trainers*.

(b) *extension actions*. These actions focus on the information activity optimization, with the theoretical activity correlation with practical demonstrations and applications, depending on the field's specificity. In this category, the following are frequently used: demonstration plots, practical demonstrations, fairs, exhibitions, workshops, symposiums, debates, round tables, visits and experience exchange, films and other audio-visual means (cassettes, CDs, pictures), radio and TV shows at national and local level, etc.

(c) *elaboration of projects for accessing EU funds*. The public advisory service is an important player in the elaboration of the necessary documentation for accessing EU funds under the EAFRD programme, in monitoring during the project implementation period and in providing specialized consultancy for potential beneficiaries of these funds.

(d) *specialised technical assistance*. Advisory service employees provide guidance to farmers in choosing the holding type and system, optimum and environmentally-friendly technologies, machinery and implements, high-quality genetic stock, etc. At the same time, these also provide advice in the following fields: crop production, horticultural production, livestock production, etc.

(e) *specialized consultancy for the establishment of the association forms in agriculture* was mainly provided at county level. This targeted the establishment of agricultural cooperatives, of agricultural associations and of other legal entities.

Between 2005 and 2012 the public agricultural consultancy service undertook the activities shown in table 11.

**Table 11.** Areas of activities and number of participants

No	Activities (2005 – 2012)	Number of participants
Training courses for farmers		
1	Qualification courses	158 079
2	Initiation courses	501 994
3	Improvement courses	6 778
4	Training of trainers	1 714
Dissemination events		

1	Demonstration lots	9 418
2	Practical demonstrations	69 505
3	Symposia	105 149
4	Seminars	294 959
5	Meetings	724 550
6	Roundtables	200 643
7	Debates	264 850
8	Fairs	719 771
9	Exhibitions	346 457
10	Competitions	26 305
11	Festivals	197 525
Advice and assistance in preparing the necessary documentation to access funds through:		
1	SAPARD	1 046
2	EAFRD	22 165
Advice and technical assistance in establishment of associative forms		
1	Cooperatives	340
2	Producers' groups	2 190
3	Producers' associations	1 002

Source: Country report for Romania (data processed by Lacatusu), 2013

## **Slovakia**

Clients are represented by individual farmers, managers of cooperative farms, shareholding companies, food processing enterprises, rural leaders and other stakeholders operating in the field of primary production, food processing and in the countryside. Farmer's needs are like moving targets, changing from one year to another according to market development or weather impacts. More stable are needs connected to the CAP or national agricultural, food and rural development policies which cover the period of 4-7 years. Recently the farmer's needs are focused on the requirements of upcoming CAP 2014-2020, enhancement of organic production and renewable sources of energy, mitigation of negative impact of climate changes, information about development of commodity prices and the market requirements.

The extension agencies present in Slovakia are usually providing advice and consultancy in the following fields: financial, taxation and accounting consultancy; development of human resources; organic farming; education, training, skills courses in agriculture, food processing and rural development; rural development; development of farm and rural tourism; crop nutrition; livestock nutrition; inputs and outputs quality standards; horticultural production; fruit production; animal breeding and livestock registry; information technology; the development of agribusiness activities; EU project design; quality standards and finalization of products; formulation of marketing strategies and others.

## **Slovenia**

FAS provides advices to all types of farmers and forest owners. As far as methods used by FAS are concerned, all typical/classic types are used: one-to-one on the farm, one-to-one outside the

farm, small group advise on the farm (study tours for a specific group of interest), and small group advice outside the farms, printed handbooks and brochures (Manual for meeting cross-compliance requirements, Catalogue of calculations for management planning on farms in Slovenia, Fourth Edition, August 2011). Farmers can call an advisor or a specialist also via telephone and e-mail. Internet option as a source of information is just basically developed – there is little information on services and some brochures. FAS in Slovenia provide wide scope of service to farmers and forest owners. They are presented in table 12.

**Table 12.** FAS priority tasks and share of work for its implementation in year 2013

Priority task	No. of work hours	Share (in %)
1. Technological and environmental advisory and protection of production sources (e.g. improvement of competitiveness, education on environmental topics, information and education of farmers - CC, implementation of RDP)	183 362	62
2. Farm management consultations and business cooperation (e.g. gainful activities on the farm, producers cooperation, establishment of social entrepreneurship, quality schemes, economic issues including FADN)	34 900	12
3. Implementation of CAP (e.g. information campaign on CAP, subsidy campaign and support to farmers in filling forms)	65 200	22
4. Fostering development potential of agriculture and rural areas (e.g. support to societies on the field of agriculture, organisation of national competitions, natural disasters and risk reduction system)	14 000	5

*Source: Country report for Slovenia, 2013 (basis: Negotiation baseline between MAE and CAFS on work plan for 2013; data presented on XXVII. Conference of Public Farm Advisory service).*

One of special tasks of FAS is Project “Traditional Slovene breakfast”; the key goal of this free breakfast for 84,692 children on 707 locations (data for year 2011) is promotion of quality local food and increase in consumption of local products in public institutions; all employees of CAFS are involved in the organisation and delivery of free apples and milk to children in kindergartens and primary schools.

FAS is also involved in the preparation of national strategies and supporting documents to its implementation. One of them is Catalogue of calculations for management planning on farms in Slovenia that is a key document for farm business plan.

As indicated before the scope of work of FAS has changed dramatically in the last couple of years. Data presented in table 13 show a 5-time increase in commercial service which is due to gradual reduction of available funds for FAS and, on the other hand, reduction in advisory support to farm management and restructuring (OGA) by more than a half, which is alarming in current economy situation, as well as decrease in technical support to different agricultural societies (societies of producers, young farmers organisations). Reduction in support for CAP implementation is, to a certain extent, also the result of concluding the programming period.

**Table 13.** Comparison of scope of work divided by tasks in years 2010 to 2013 (in working hours)

Year	Implementation of technical issues	Support to increase farm income	Implement. of CAP	Networking and cooperation	Commercial services
2010	109,374.00	33,500.00	254,302.00	27,868.00	23,397.00
2011	251,194.00	40,515.00	89,133.00	24,309.00	45,017.00
2012	247,559.00	39,929.00	87,844.00	23,957.00	44,365.00
2013	220,964.00	14,741.00	71,193.00	17,908.00	122,634.00
Index 13/10	2.02	0.44	0.28	0.64	5.24

Source: Country report for Slovenia (basis: Negotiation baseline MAE and CAFS on work plan for 2013; data presented on XXVII. Conference of Public Farm Advisory service).

## Spain

**Clients and topics – main orientations.** When analysing the orientation and/or contents of the research and clients, it can be noticed that there are two major trends. On the one hand, the regional research centres, which tend to focus more on applied research, due to their greater proximity to end users and therefore are more focused on their demands and needs (farmers, stockbreeders, cooperatives, etc.). In these cases centres try to solve daily problems affecting a product or a sector (wine, cereals, fruits, etc.), and to bring improvements to better handle those problems and/or to improve their competitiveness. On the other hand, there is the research from INIA, which could be described as fundamental or basic research and therefore with a lesser degree of direct application or, at least, research less depending on the demands of end users. Obviously one and the other are necessary, and their complementarity provides a greater strength to the research system. Despite this, the more or less commonly applied component of the agro-food research is discussed in broad sectors, but in any way these are decisions in the scope of scientific and research policies of the central and regional governments and various organizations depending of them.

The activity of INIA, through the Subdirectorate-General for Research and Technology (SGIT) orients its activities towards implementation of priority research topics within the National Programme for R+D+I, focused on the “Society Challenges” (managed by the Ministry of Economy and Competitiveness). However, the INIA, through its SGIT and its different research centres, provides scientific and technical advice to public or private organisations that request them.

## Sweden

Individual extension is the most common method of advisory work, often on-farm, but also off-farm and by phone. Group advice is arranged in some organisations, more often off the farm than on the farm. Social media and new technology are still not a very well used tool for Swedish advisors, but traditional media like journals are still quite a common way of spreading knowledge to farmers. The Rural and Economic Agricultural Societies and Växa have magazines for their members, as well as Lantmännen and Svenska Foder. There are also some specialized agricultural magazines where advisors write in order to spread information and knowledge, e.g.

the Arvensis journal that is owned by The Rural and Economic Agricultural Societies, produced by advisors and entirely focused on the latest knowledge within crop production.

According to the survey, the average number of farmers per advisor is 40-50, and an average farmer has 100-200 ha. A full-time farmer is the major target group in Swedish advisory service, whereas part-time farmers are the target group of some organisations but is generally considered a minor target group. Employees are quite rarely considered to be a target group, although some regard them as a major target group. Female and young farmers are not considered to be specific target groups in Sweden, as they are integrated in other target groups.

When it comes to full-time farmers, crop production and economy, and to some extent environment and renewable energy, are the most common topics of advisory service. When it comes to part-time farmers, primarily crop production and economy are delivered most often. It is less common to deliver specific advisory topics like stable design, machinery and environment to part-time farmers. For young farmers the focus is not so much on knowledge of production, but the advisory topic is often focused on economy, environment, renewable energy and how to develop the enterprise.

University, public research institutes and public authorities are considered to be the most valuable source of knowledge. Some of the respondents of the survey say that foreign research and knowledge is getting more important, as the applied research is decreasing in Sweden.

### **United Kingdom**

The demand for agricultural knowledge is constrained by farmer demand, much of which is interested in income and profit, rather than in the environment or social objectives. However, it was found that large farmers and landowners, with more, and more varied, land under their management are likely to be more interested in the latter aspects, and some small-scale “lifestyle” farmers with other income and capital sources have strong landscape and biodiversity interests. Nevertheless, funding for agri-environmental knowledge is often short-term, and impermanence is a problem. Also there are a number of farmers that are 'hard to reach' because they fall outside the established organisations of unions and levy boards. Advice to small-scale farmers is available, although organised differently in each UK-country. In Scotland, for example, the government funds SAC Consulting to deliver services to all areas and farmers, including crofters and farmers in remote areas. SAC have 27 offices across the whole of Scotland. They operate a subscriber system by which farmers can sign up for various packages that cost the same across the country with public good advice being provided for free. In England, advice might be somewhat harder to access and afford for small-scale farmers due to the fully privatised nature of the extension system.

Broadly speaking, two kinds of advice can be distinguished: market-oriented advice concerning increased production (and to some extent improved marketing for higher prices and value added) and greater efficiency (cost savings), and environment-oriented advice concerning public goods, such as anti-pollution methods, landscape and wildlife (biodiversity). The diverse advisory community which has emerged to fill the gap left by the retreat of public advisory organisations contains an expanding number of advisors within NGOs involved in conservation and environmentally responsible farming (e.g. LEAF, Wildlife Trust).

Within the environment-oriented advice, topics cover all four areas of environmental priority for the (English) Government, namely soil/land use, water, biodiversity and air (as well as animal health). The most comprehensively covered areas are soil/land, water and biodiversity. Government schemes cover all three ‘drivers’ of advice (legal/financial incentives/best practice) with most activity being on financial incentives and best practice. The majority of schemes and initiatives are led either by government or farming industry organisations.

According to the DEFRA National Statistics report (2013a), 95% of commercial farm businesses access business management advice. Smaller farms and older farmers are less likely to access business management advice. The most common sources of advice on business management and technical issues are farming media, advice supplied freely and talking to other farmers.

In the results of the online survey of advisory organisations it was notable that advice on agri-environmental programmes and on environmental issues ranked highest (around 80% of respondents stated that they routinely or very frequently delivered advice on these topics). More than 70% of respondent routinely or very frequently delivered advice on cross compliance. Advice on renewable energy and machinery was a less common topic (specified below). This does not, however, indicate how much of this particular advice is delivered overall because the survey counts a one-man consultancy in the same way as a public organisation with between 80-150 advisory staff. Indeed, the figures seem to indicate that agricultural consultancies have specialised to deliver the advisory topics listed at the top whereas few have the topics at the bottom in their portfolio. Among the respondents were also a number of (environmental) NGOs which would place their focus on environmental and conservation issues.

Advisory topics in order of delivery among survey respondents: agri-environmental programmes, environment (water, biodiversity, climate change, soil), cross-compliance, livestock production, rural development, crop production, bookkeeping, taxes etc., business diversification / processing / new products, agricultural building design (stable, silo, etc.), renewable energies (bio-energy production, energy efficiency, wind, solar), machinery.

#### **4.5. Linkages with other AKIS actors / knowledge flows**

Although this sub-chapter includes the description of linkages of surveyed organisations with other AKIS actors, it strongly corresponds and is referenced to chapter 2, where analysis of Agricultural Knowledge and Information System in individual countries is done. The surveyed organisations are the main providers of advisory services and are significant actors within other areas in AKIS.

##### **In Austria**

Since the AKIS in Austria is clear and the number of actors is small, relations between different actors are (historically) tight and close, making it easy to reach each other. Secondly, cooperation and learning are also well developed in the Austrian agricultural sector. Interaction and cooperation among all players is quite intensive and works along formal and informal routes. Resources are therefore used in an efficient manner, overlaps are rare. Competition is scarce and limited to those areas where both private companies and advisory organisations are active.

There is cooperation during formulation of programmes and strategies, conduct of surveys, preparation of public reports, statistics and analysis, and subsequent sharing with trainers, students and practitioners. Research and education are in some cases united under one roof which eases the dissemination of scientific results in those cases. Organisations devise and organise programmes and courses jointly. Individual experts frequently speak at trainings and attend thematic working circles.

The Chambers of Agriculture which have a broad basis and network, play an important role in the coordination of actors and balancing different interests. The cooperation between agricultural chambers and some farmer organisations is close and in many cases facilitated due to the fact that directors and chairmen of organisations also assume functions within chambers. This creates synergies and helps in marketing of products.

Austria has been intensifying collaboration between the different players in agricultural extension and research. Farmers and farmer organisations seem to be effective in formulating knowledge demand to advisors and researchers. Agricultural advisory mechanisms are comparatively more receptive to farmers' needs than research and education institutes. Advisory service facilitates the transfer of innovations to the user, the farmer, which seems to work quite well. The uptake of innovations into formal education takes however longer.

Cooperation can still be intensified. In particular, alignment of activities to strategic guidelines and information exchange and knowhow transfer can be improved. For these purposes AKIS actors should intensify cooperation in education and advice between and among them through: (a) exchange of good practices, approaches and material, (b) establishment of (regional) centres / offices of competence / specialization of experts on specific topics and problems, (c) sharing advisors, and (d) joint organisation of events. Research must be more open and base its work more on practical problems, and be better linked with education to make use of scientific results in vocational and adult education. Cooperation should already start when drawing up research projects. An instrument or platform in charge for the dissemination of R&D results and other tasks does not exist yet, but is required. One actor of the AKIS could be entrusted with the role of a coordination or platform manager to ensure better alignment of strategic guidelines, to coordinate and steer activities, to increase practice orientation of research and to improve information flow and dissemination within AKIS.

The European Innovation Partnership (EIP) for agricultural productivity and sustainability may be an instrument which can help bridging the gap between research and the field, and fostering innovation by promoting know-how transfer in both directions.

### **In Belgium**

The AKIS of Flanders and Wallonia are characterised by strong formal and informal interactions between advisory and applied research organizations. These interactions are partly due to the social and geographical proximity among the actors, which were often trained in the same universities. It is not possible here to describe all the interactions within the system, and, as for other dimensions of the questionnaire, the online survey did not indicate clear patterns of interactions (beyond the fact that it highlights the existence of some competition between associations, private advisory services and upstream and downstream industries). But we can

present here some examples of these interactions in specific sub-sectors of Belgium agriculture emphasized during the qualitative interviews with different experts of AKIS and advisory services.

In Wallonia, we chose to highlight the interactions in the sector of arable crops. In this sector, there are some strong, old and formalized interactions between the University of Gembloux, the applied research institute CRA-W and different associations and farmers' unions. A first concrete operation is annual edition of the White Book of cereals. The University of Gembloux, CRA-W, and the Plant clinic centre of the University of Liege implement many experiments concerning effectiveness of seeds, fertilizers, pesticides in different soil and climatic conditions. The results of these trials (more than 8000 experimental plots) are published in the White Book, and presented during an open day with more than a thousand participants. Another operation consists in a warning information system aimed at facilitating the implementation of Integrated Pest Management (IPM) practices by farmers. This information system is managed by the Centre Agricole pour le Développement des Cultures Céréalières et Oleo-Protéagineuses (CADCO), an association with participants from the University of Gembloux, the University of Liège, CRA-W, the provincial agronomic centres of Namur, Brabant, Hainaut, Liège (the advisory service of four provinces), and the farmers' association FWA. This association is financed by the DGARNE and it implements many activities for farmers (including demonstrations, open days, experiments, reviews). More globally, many associations funded by DGARNE (centres pilotes) play a key role in collaboration between advisors and researchers. Some of them are managed by researchers from universities, others by engineers from CRA-W or by advisors.

In Flanders, analysis is focused on the horticultural sector. There are many connexions between farmers, experimental stations, applied research institutes, and universities in this sector. Some of these interactions are institutionalised in the funding schemes and in the steering committees of the experimental stations, the cornerstone of this sub-sectoral AKIS. These stations, such as the PCS (the experimental station for ornamental production), are co-financed by the region (25%), the province of West Flanders (25%) and farmers. This steering committee is composed of farmers (including farmers elected in farmers' unions) in a majority, and by various founders. PCS (the experimental station for ornamental plants) collaborates in projects both with universities and ILVO. There are for instance PhD university students who implement experiments at PCS. But experimental stations also collaborate with private actors (farmers and/or private advisors) through IWT project. This collaboration is strongly supported by the fact the IWT makes it compulsory to integrate a share of private investment in every project that it finances. Such investments may come from private advisory companies, such as a small independent advisory company (3 consultants, proposing service about azalea production) that we interviewed.

In the horticultural sector, the fact that about 40% of public support comes from competitive calls did not end in more competition between AKIS actors, and collaborative projects have emerged within the AKIS. A first example is the project of Technopool shared by four of the main actors of AKIS for ornamental plants: the University of Gembloux, the agricultural college of Gembloux, ILVO and the experimental station PCS. Beyond communication (such as a unique logo on leaflets), the final project aims to emphasize the complementarities between competences of the organisations, and to propose a portal where stakeholders can identify which



organisation owns which competence. This has, for instance, enabled project Sietinet to be created. The project aimed at mitigating a problem faced by ornamental plant producers: accessing, assessing and reviewing the academic literature on ornamental production. This is a task too complicated and costly for SMEs such as farms and companies involved in production and commercialisation of ornamental plants. Sietinet, co-funded by private companies and the region, offered to companies the possibility to formulate demands for reviews of the academic literature on specific technological issues.

### **In Cyprus**

The advisory companies co-operate with variety of other AKIS actors. Public authorities and public research hold a prominent position. Private input and processing companies are also referred to along with universities and the internet, with the Department of Agriculture also taking notice of collectives (rural women club) activated in its target area.

### **In Czech Republic**

Agriculture knowledge and information system has been formed for more than 10 years. The present system is a 4 level cover-all system with many vertical and horizontal linkages.

*National Advisory Council for agriculture and rural development*, the top organization connecting and coordinating activities in AKIS is consultative institution of Deputy Minister of MoA CR. Participants of National Council are responsible sections of MoA, specifying requirements of the advisory system, supervising and accreditation body IAEI, agrarian NGOs defending farmers' interests and research institutes and universities as training and education bodies creating and transferring new knowledge into system. Activities of National Council are directed mostly to the 1<sup>st</sup> and 2<sup>nd</sup> AKIS levels. They evaluate feedback and recommend changes for improving the advisory system.

The second important part of AKIS is IAEI. Accreditation system forms and keeps quality of professional advisors on the 3<sup>rd</sup> level by the *Rules of accreditation and registration of advisors* (MoA Directive 214610/2012-MZE-17013). IAEI workers verify 60-70 advisors every year. In case of violation advisors can be excluded, for example 10 advisors were excluded in the year 2011. On the other hand, new advisors are accredited as well.

The innovation component in AKIS are universities, vocational schools and research institutes. They help to transfer new knowledge to agriculture praxis.

RIC centres together with agrarian NGO comprise the back-office part of AKIS. Thanks to good knowledge of regional conditions they are able to transfer targeted information about CAP, cross-compliance and GAEC to farmers.

More professional direct information is transferred at the 3<sup>rd</sup> level by accredited advisors.

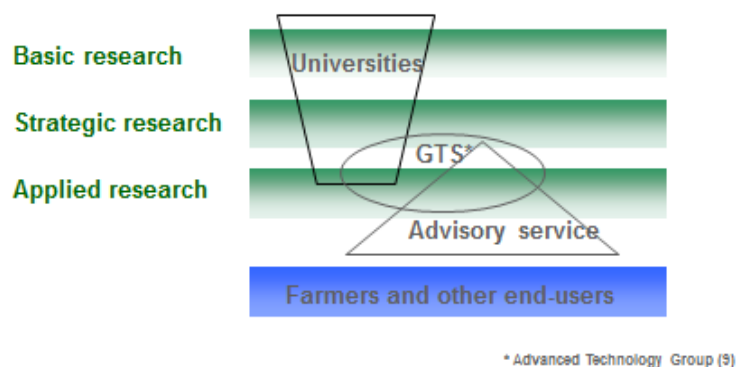
### **In Denmark**

The impacts of the agricultural funds for development have been substantial. As the funds are utilised on the part of research and development that is closest to practise, it has enabled collaboration between universities and KCA. The universities address the needs for basic and strategic research in the areas of agriculture and food, while KCA contributes with practise related trial development, advice and implementation. This division of roles enables

development at a very high level of professionalism and is probably a strong contributing factor to the success of the Danish agricultural sector both in terms of production and environmental sustainability.

The particular set-up of the agricultural funds with majority representation of the farmer organisations ensures ownership by the sector and thereby a strong engagement in order to ensure the maximum added value from the allocated funds. Thereby the funds have enabled independent testing of new technologies as well as development of knowledge that is closely related to the farmers' actual challenges. Independent trials and testing have had crucial outcomes for the farmers' ability to adapt to new policy frameworks which is illustrated by a very low use of pesticides and nitrogen in Denmark.

Farmers exert their influence on priorities and the actual course of the agricultural research through the governance structures. As a general rule for both public and private funded research, there are representatives from both farmer organisations and advisory services in the research councils and also in the steering committees for most research programmes and projects. This ensures the relevance of most research programmes from both the perspective of the agricultural sector and the rest of society. Moreover, the fact that the agricultural sector has control over its own funds for more strategic and practical related research and development projects is another, probably even more important, aspect of the agricultural innovation system and contributing to effectiveness of agricultural knowledge creation and adaptation of new technologies in Denmark. Agricultural research and sharing of knowledge in Denmark is presented in fig. 32.

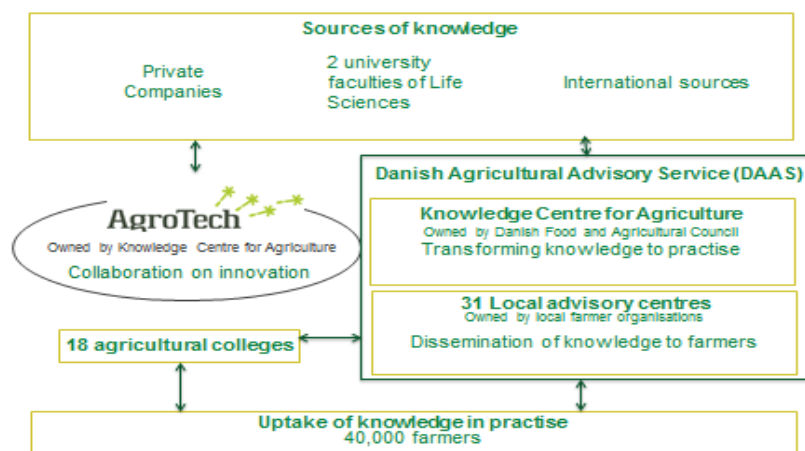


**Figure 32.** An overview of the knowledge links between agricultural research and sharing of knowledge in Denmark

*Source: Country report for Denmark, 2013*

It is characteristic that the innovation and knowledge system involves collaboration between many stakeholders and institutions in Denmark (fig. 33): (1) Research institutes – of which the main agricultural and life science oriented universities are in Aarhus and Copenhagen; (2) Input supply companies such as seed companies, chemical factories developing fertilisers and pesticides, feed factories, livestock breeding associations, manufacturers of farm machinery and equipment etc.; (3) Food industries; (4) AgroTech – a GTS-institute - that establishes collaboration between companies, research institutions and advisory services on different

technology innovations; (5) Danish Agricultural Advisory Service including the Knowledge Centre for Agriculture; (6) Agricultural colleges; (7) Farmers and their organisations.



**Figure 33.** Innovation and knowledge system in Denmark

Source: Country report for Denmark, 2013

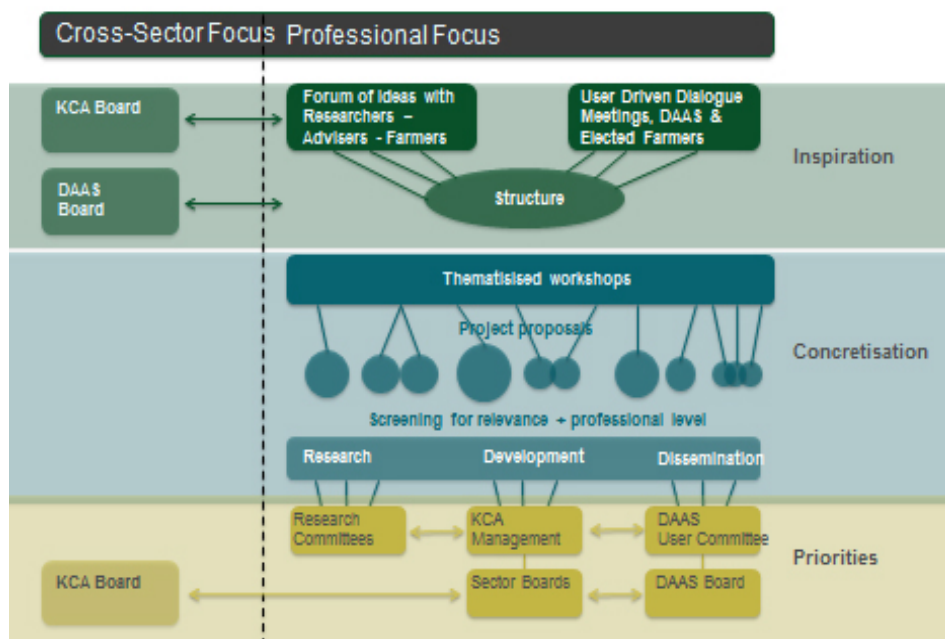
In terms of identification of research topics and issues important and crucial for the Danish agriculture, the KCA has developed a bottom-up approach and practices directly involving outspoken and engaged farmers; representatives of the farmers' unions as well as directors of the local advisory centres. This process goes generally through several stages ending up with prioritised research issues and recommendations (fig. 34).

*Inspiration phase.* Initially the board of KCA and the directors of DAAS decide and outline the priorities and cross sectoral focus for the planning and initiate the first stage which is the inspiration phase. KCA organises an inspiration forum of ideas with relevant researchers from the universities, agricultural advisors and farmers. At the Danish Agricultural Advisory Service (DAAS) level user-driven dialogue meetings are organised with DAAS and the selected farmers from the Farmers' Unions. These two activities generate a number of ideas and project proposals, and direction for the structure of the concretisation phase is decided.

*Concretisation phase.* During this phase the project proposals and ideas from the inspiration phase are subjected to three kinds of different screenings. The *first* screening is a test for research suitability which is done in permanent research committees, which KCA has formed with the universities within animal and crop production. The *second* screening is a test for the potentials for agricultural development performed by the management of KCA with special committees and by the professional board of KCA. The *third* screening of the project proposals and ideas is a test for their business potentials. This screening is performed by a DAAS user committee and by the board of DAAS.

*Priority phase.* The Danish Agriculture & Food Council has elected three different sector committees focusing on subjects related to pig, cattle or arable farming. These specialised committees are responsible for the final priorities of projects focusing on challenge for the three sectors. Based upon these results and the inputs from the three different screenings from the

concretisation phase the board of the Knowledge Centre for Agriculture and the boards of the sector committees will decide the final projects and activities for the next year.



**Figure 34.** Process of identification of research topics and issues important and crucial for the Danish agriculture – KCA procedure

*Source: Country report for Denmark, 2013*

### In Estonia

Before recognised advisory centres were established, advisors worked either individually or through farm associations or private enterprises in order to provide advisory services. Since 2000, the state has contributed to the establishment of advisory services and today advisors providing supported advisory services operate through county advisory centres.

In Estonia the linkages between AKIS actors are quite weak. Various advisory organisations operate rather independently from each other and perceive themselves as competitors. The stakeholders admit that over the years, the activity of advisory centres has demonstrated a chaotic cooperation between the coordinating centre and R&D centres. There are certain expectations from various stakeholders regarding necessity of stronger collaboration and networking among different AKIS organizations. Although there are projects, conferences or other events where stakeholders participate and collaborate, there is still a need for a system especially regarding exchange of information and knowledge.

Analysis of the information chains found two weak elements in the information chains in the Estonian AKIS. These were (a) processing of information and putting it into format most understandable for target group; and (b) collection of feedback information on target group needs and message quality, and the use of feedback for decision-making and programme adjustments. These are challenges many advisory systems deal with constantly and Estonia is no exception.

## **In Finland**

ProAgria practices active cooperation with other actors in the field of agriculture, especially within the food chain such as universities and research institutions. Within the Annual agreement advisory suppliers and the Ministry of Agriculture and Forestry practices active negotiation regularly.

Association of ProAgria Centres and the Agrifood Research centre MTT have started to cooperate more and more together. The aim of this cooperation is to implement research results even faster in practice. So far, it has taken too long, which might have had some negative impact on the development. The aim of the cooperation is also to help to increase the utility of the agricultural research for the sector. When ProAgria and MTT put their knowledge and networks together, it is more efficient to reach the customer needs.

## **In France**

The relations within the AKIS are partly embedded in formal and informal partnerships that have been institutionalised in the long run between applied research institutes and advisory organisations or farmers' associations. This can be illustrated with the functioning of two biggest Technical Research Institutes (ITA): Arvalis (ITA for cereals and fodder crops), and IDELE (Livestock Research Institute), both of which play a central role in AKIS in France. These relations with other actors are AKIS can be described at different stages for ARVALIS:

- *in programming of the applied research activities*: the working plan (themes for R&D) of ARVALIS is determined by the executive board of the institute. Farmers have the majority in the board. This board receives recommendations from two commissions: a scientific commission (with four representative bodies: one for public research and education; one for industries; one for farmers; and one for NGO defending environment, food or water quality); and from regional commissions of farmers that regroup more than 400 farmers. Some of these farmers are chosen locally by other actors of AKIS, such as chambers of agriculture, farmers' cooperatives, farmers' unions of wheat or corn producers);
- *in the implementation of the research*: for instance, ARVALIS implements each year some experiments about relative performance (yield, resistance to pest, adaptation to soil and climate conditions) of the different wheat varieties available on the market. These experiments are financed by farmers' contributions. They are run in 30 experimental stations, where ARVALIS shares facilities and competences with other actors of AKIS (chambers, other ITA). Some of the experiments are carried out directly with farmers;
- *in the dissemination of the results of the experiments*: the results are diffused according to three channels: through the publication of regional reports (called "Choosing"), available for free online; through open days and demonstration in the experimental stations, and through training sessions for advisors. There are specific conventions between ARVALIS and each departmental chamber of agriculture. These conventions give access for the chambers to the different channels of diffusion of the results of experiments, but also to other resources of the institute (such as methods and agronomic tools for advisors).

These formal and informal interactions exist for each ITA, even though they may take specific forms according to the organisations in different sectors. For instance, the livestock institute has

relatively similar procedures for definition of its strategic plan. This plan is determined by an executive board (composed of farmers, but also of representatives of other AKIS organisations such as chambers of agriculture or FCEL) that receives recommendation from a scientific committee and from the committee representing supply chains (dairy, pork, meat). A particularity of the institute is that it may be less active in dissemination of agronomic results from experimental stations, but more in partnerships with advisory service organisations (chambers of agriculture, FCEL, producers' associations) to develop with them new methods for advisory services. In that respect, IDELE plays a role of a facilitator, brokering, and organising many training activities as well.

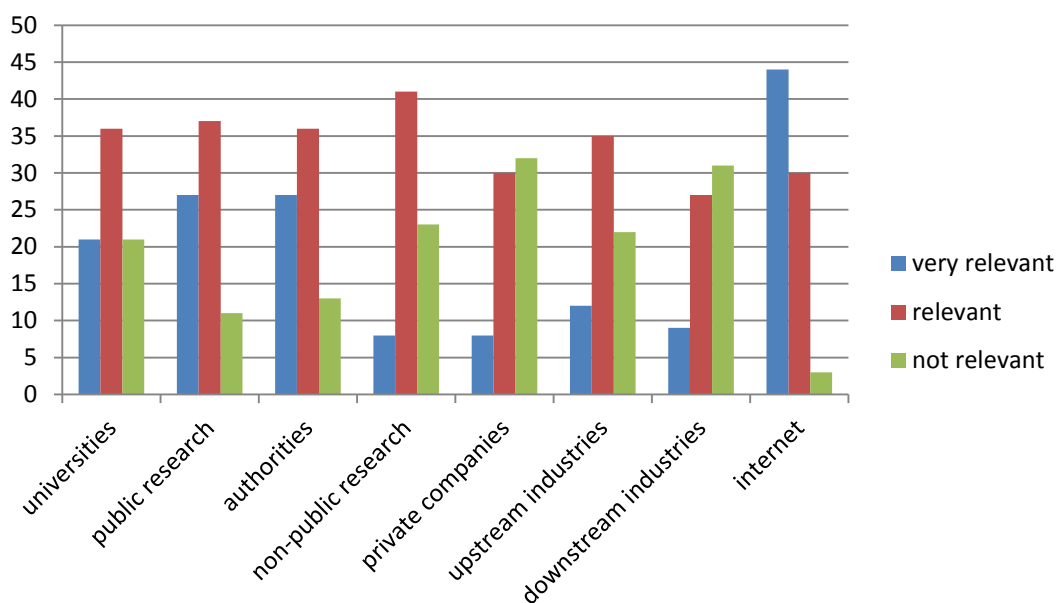
Beyond these historical relations, there have been since the 2000s different institutional innovations aimed at generating partnerships that bridge research and practice, in which advisory services are fully integrated, such as:

- 3 Agro-transfers: there are three of these regional associations (since 1989 in Picardie, 1995 in Bretagne and 2000 in Poitou-Charentes) that merge producers' organisations, applied research institutes, chambers of agriculture, local authorities, INRA). They employ engineers who lead projects (3 to 6 years) so as to propose methods and practices that a farmer can apply (about the reduction of the use of input, soil management);
- 26 Mixed Research Units (Unités Mixtes Technologiques - UMT, created in 2005) that merge researchers from INRA (95 full-time jobs) and from applied research institutes (ITA), with the aim to produce knowledge and innovations on agriculture and agri-food for diverse productions (rapeseeds, vineyards, cattle genetics, cattle welfare, dairy...) or related to diverse topics (water management, emissions);
- 27 Mixed Technological Networks (Réseaux Mixtes Technologiques - RMT, created since 2007). The regulation setting the rules for RMT stipulate that each RMT should integrate at least five partners: three applied research institutes and/or chambers of agriculture, one organisation for technical agricultural education, one organisation for higher agronomic education or a public research institute. Each partner should invest at least 20 days of labour per year. Each RMT is affiliated within an institutional network (ACTA, ACTIA, APCA). The aims are to produce reviews of academic literature, comparative analysis (about tools, data bases, models), but also to help identifying new questions for public research. There are also objectives for knowledge transfer such as handbooks, tools for advisors, training programmes, and communication operations. The themes range from agronomic content (fertilisation, weeds management), to R&D methods (modelling...), or social and economical issues (labour and supply chains in animal production). Since their creation, the state has invested about 8 million Euros in RMTs (total cost: more than 12 million €).
- 15 scientific interest groups (Groupes d'Intérêt Scientifique) where different organisations mutualise resources for long-term conventions. GIS can be thematic (about agronomy, supply chains, soils, green biotechs...), or regional. Regional GIS aim at producing knowledge about and for the different functions that agriculture play at the crossroads of territorial and sectoral issues, for instance in mountainous areas.

Other initiatives also involve exchanges of resources and competences between research institutes such as INRA, and advisory organisations. For instance, INRA welcomed 14 engineers from advisory organisations between 2006 and 2009. INRA also has some agreements for placing some experimental equipment and facilities at the disposal of different actors of development and advisory services.

### **In Germany**

Respondents were asked about the relevance of *knowledge sources* from the public and private sector and media. Most of the respondents consistently agreed as to the internet being a very relevant tool to receive knowledge. It is interesting to note that one group of respondents regards private companies, up- and downstream industries as a (very) relevant source of knowledge, while about the same or a higher number of advisory organisations regard private companies as an irrelevant source of knowledge. A high number of mentions for public research institutions and universities acting as knowledge source stands in contrast to the results of the expert interviews. Here, several interviewees contested the relevance of most public research results for their daily work (fig. 35).



**Figure 35.** Relevance of different knowledge sources

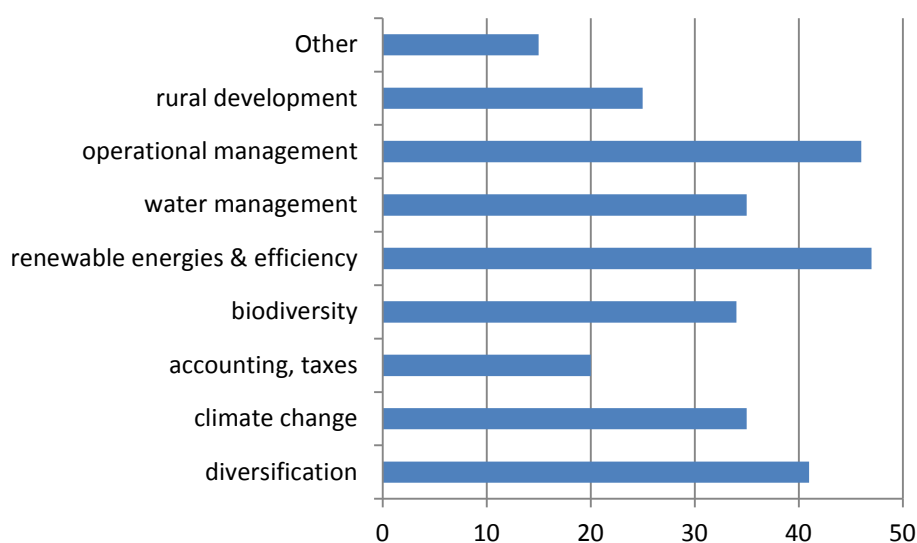
Source: Country report for Germany, 2013

In addition, respondents were allowed to denote other sources of knowledge for their advisory work. In order of frequency, colleagues/ other advisory organisations, specialist literature, own research and experimental facilities, agricultural associations (e.g. DLG) and farmers were mentioned.

*Knowledge needs* with respect to the reformed Common Agricultural Policy are identified in the figure below (n=87, multiple answers allowed). Optional entries in which respondents were asked to mention other knowledge needs relate to funding possibilities by rural development

programmes of the states which are linked to the CAP, environmental protection in agriculture and counselling/ coaching methods (fig. 36).

**Figure 36.** Knowledge needs with respect to the CAP



Source: Country report for Germany, 2013

Furthermore, respondents were asked with whom they cooperate and compete, from a given selection of seven potential co-operators and competitors. The following qualitative trends were observed: intensive cooperation of organisations within the public sector; intensive cooperation between public authorities and private advisors (as confirmed by both organisation types); noteworthy cooperation between private advisory companies and upstream resp. downstream industries; no cooperation between up-/ downstream industries and public authorities and competition among private advisory companies and between FBO and private advisory companies.

The majority (72%) of the respondents used the possibility to specify their *needs to remain efficient and competitive in the AKIS*. Of those open qualitative entries, the following trends could be categorised:

- 15 organisations claimed relevant information, e.g. results from research and experimental stations, insights from practice-oriented research as well as the bundling of this knowledge as necessary.
- 13 times, the need for training of advisors was mentioned. Suggested training topics include communication methods, problems and challenges in agriculture and rural areas in general, supervision of advisors and knowledge of psychosocial issues.
- Networks resp. (more) effective networking and cooperation e.g. among private companies, research centres, clients and public authorities was mentioned 12 times.
- 11 organisations stated the need for sufficient and competent advisory staff.
- Finances in general and substantiated funding programmes, and co-funding of states, sufficient advisory assignments and financial involvement of clients in specific areas were mentioned 9 times.

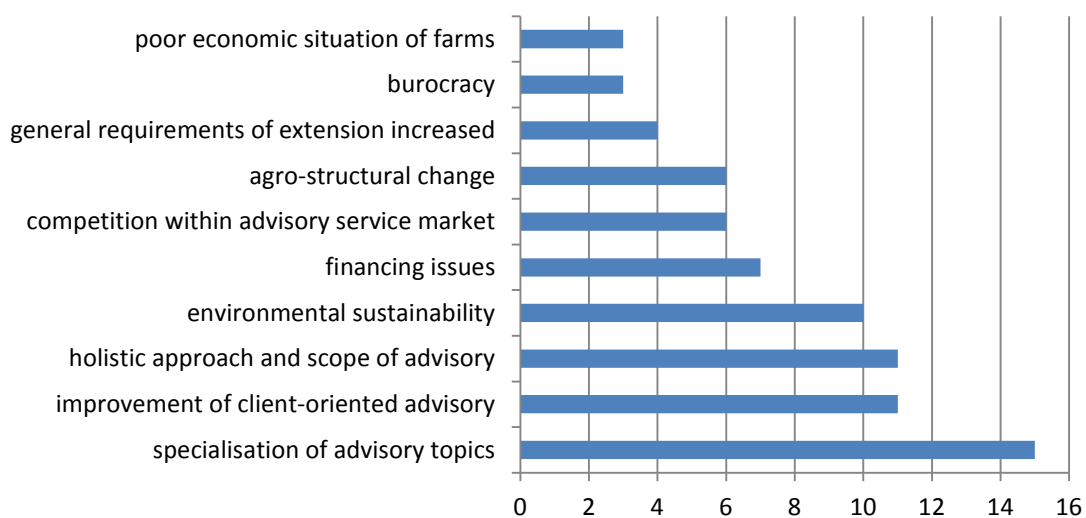


- 2 organisations regarded strengthening the private sector as necessary.

The following citations elucidate the needs and challenges of the advisory organisations in the pluralistic German advisory system in more detail:

- *“Necessary information (e.g. literature, seminars) needs to be retrieved on our own with a high effort. Here, private companies carry a higher burden than chambers or public authorities.”*
- *“a central service which translates knowledge into practice and provides knowledge to advisory organisations, so to speak, to translate knowledge from science to practice. Another important issue would be practice-relevant research, since university-research is not really practice-oriented.”*
- *“Supplemental scientific work on practice-oriented problems, not only based on models. Accompanying research and experimental facilities of the states in order to support farmers with neutral results.”*
- *“Financial means: due to the agro-structural change few large farms have to finance advisory services [...] but they are less inclined to pay for it. Public funding was reduced drastically.”*
- *“3 years ago we were still able to finance one advisor with public support, now it amounts to only 20% of the costs. Thus, an efficient advisory service is disabled. We are considering closing down our advisory circle entirely.”*
- *“a solid financial structure in order to provide a secure job to advisors on the long-term, otherwise they increasingly turn to free economy”.*

From the survey of advisory services, in which respondents were asked about the *challenges of German advisory services* in the future. 79% of the respondents provided individual answers in the form of 68 qualitative entries. This high share, as seen in often detailed entries, indicates the high interest of survey participants to express their opinions. 10 different thematic categories were identified in which at least 3 organisations expressed the same issue, seen in figure 37.



**Figure 37.** Challenges of advisory services in the future

Source: Country report for Germany, 2013

The figure expresses parts of the topical discussion on advisory services in general. E.g., respondents' answers reveal the on-going dispute between specialisation of advisory services (15 mentions) versus the need for a more holistic approach taking into account the entire farm during advisory service (11 mentions). Those survey respondents who see a need for increased specialization often related it to the high educational background of their clients. Fields in which specialized knowledge is particularly needed are legal backgrounds (good agricultural practice, building law, etc.), advisory and communication methods, financing and psychosocial counselling. In contrast to the specialization trend, 11 mentions claiming the holistic and integrated approach of advisory explain that the scope of advisory topics has increased over the past years, which should be reflected in advisory service.

Furthermore, a majority of entries deal with improving client-oriented advisory services qualitatively. Individual mentions in this category specify the goal of (economic) growth of the client, the need for capacitating farm managers to improve their own business management, a continuous improvement of the portfolio of advisory services e.g. in order to attract new client circles (such as farming families).

The third most common mention refers to a group of environmental topics. Among them mentions like a sound application of manure, issues of animal protection, solving conflict between nature conservation and agriculture as well as taking into account world nutrition and the societal demands towards agriculture can be found.

Financing issues includes privatisation tendencies and withdrawal of public advisory services.

The agro-structural change was perceived as disadvantageous by advisory companies as it assumes that less farms (in total numbers) will make use of advisory services.

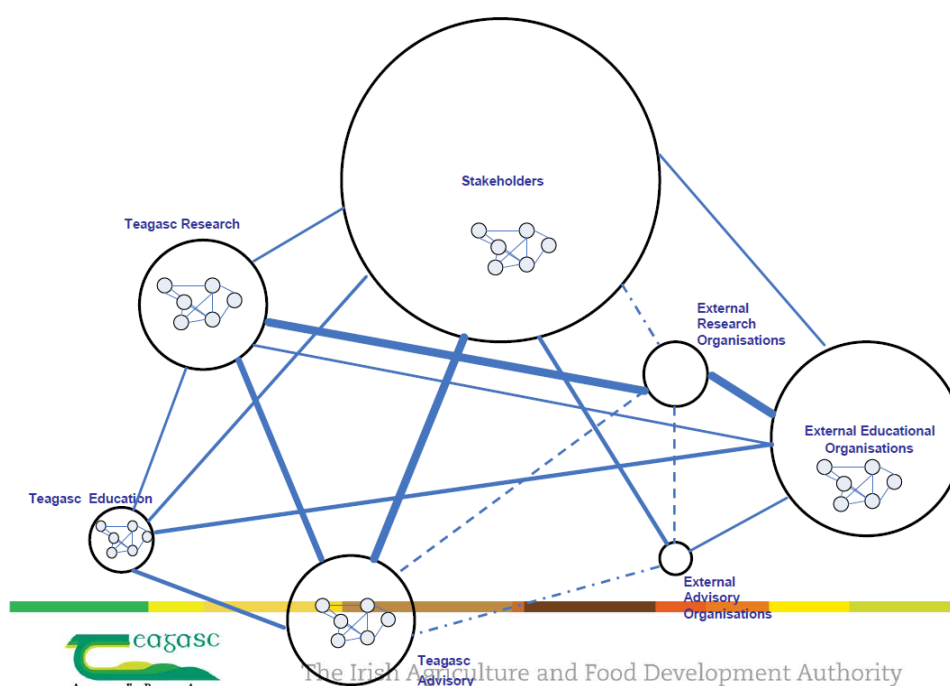
### **In Hungary**

State-funded agricultural research has long traditions and a rather fragmented structure in Hungary. Research institutes are usually specialised in particular topics within agriculture and food science, dealing mainly with theoretical issues and basic research. The six most important ones belong to the Ministry of Rural Development (VM) and five others to the Hungarian Academy of Science (MTA). Some 26 independent smaller research institutes (e.g. the Fruit Research Institute) work on specialised topics and ten agriculture-related universities and faculties also have dedicated research institutes. Commercial companies, mainly large integrators, suppliers and machinery manufacturers also conduct (applied) research. Their research focuses on their business (e.g. marketable products and linked innovations) and is often based outside Hungary, but the results are communicated within the country. The main statutory body for education in agriculture is the National Rural Development Training and Advisory Institute (NAKVI), an agency founded and maintained by the VM, which acts as the main governmental body in the field of training and advice, and also as the implementing agency of the Hungarian National Rural Network (MNVH). It co-ordinates the 124 agricultural secondary schools in Hungary, setting requirements, running training courses for teachers and providing general professional supervision. NAKVI also supervises adult education and lifelong learning within agriculture and rural development via 20 training institutes maintained by the VM. Hungary has 13 universities and/or faculties in agriculture, food science and rural development.

In addition to official, state-funded education, there are many courses, organised by NGOs, Old institutions, new challenges mainly in the field of sustainable agriculture, biological production, renewable resources etc. These are mainly aimed at small producers, financed from public money and are often combined with some sort of financial support to participants.

### **In Ireland**

There are strong linkages between the Teagasc Research section and external research organisations (mainly universities), and between Teagasc Advisory and stakeholders (farmers etc.). There are also substantial linkages between these two Teagasc sections, and between external research and external education organisations (universities and colleges). There are weaker links between stakeholders and external advisory organisations (reflecting the dominance of Teagasc in this respect) and between stakeholders and Teagasc Education, while other linkages are weak or virtually non-existent (figure 38).



**Figure 38.** Impressionistic view of the linkages between the Irish AKIS (Boyle 2012)

*Source: Country report for Ireland, 2013*

### **In Latvia**

In general, advisory organisations operate rather independently from each other, but they consider other knowledge organisations both as potential knowledge sources and competitors. Regarding cooperation, there are various common formal and informal initiatives developed among them: projects, training events, seminars, consultations. For instance, LRATC organises company days together with input providers and joint demonstration activities together with LUA and Lifelong learning centre; individual experts from various organisations are invited to their field days and demonstration events. LACA has long-lasting collaboration with research

institutes to develop and disseminate new local varieties. However, farmer organisations also mention that knowledge costs are rather high and especially for smaller organisations, it is problematic to pay for experts.

Advisory organisations also use each other as knowledge sources to build up their capacity and improve services. Public research centres and internet are the most popular knowledge sources. Knowledge and information provided by universities and public authorities are also of comparatively big relevance. Private companies - consultancies, input providers and processors are less addressed with knowledge needs. Another link of cooperation among advisory organisations is experts: they are a resource shared by all AKIS actors, especially in those fields where is insufficient number of them.

The interviews show that core advisory and educational institutions are well linked. They share both official and unofficial ties and information flow. For example, they may share common projects or they may share premises, outsourced lecturers, their employees may be close friends etc.

Despite those cooperation forms, advisory organisations are also competitors: they are forced to share the same experts and knowledge and compete for clients. In particular, competition is observed among LRATC, private consultancies and also farmer organisations who also tend to doubt the quality of each other's advice.

### **In Lithuania**

Movement of knowledge flows – knowledge from the consultant to the consultation recipient: farmer, company, accumulation of knowledge and its effective usage. Farmers are constantly faced with new requirements and this makes the consultants continuously improve their knowledge by using computational and communication networks. Knowledge flows connect collection and accumulation of data from various sources, their creative evaluation and spread.

Relations among individual AKIS participants exist, however it could be said that they are not always coordinated and/or synchronized. Most of the surveyed consultants stated that institutions constituting the AKIS system in most cases act on their own, compete among each other, act with a pursue for more benefit for themselves than for the benefit of the agricultural subjects.

### **In Luxembourg**

When asking about linkages with other AKIS actors in terms of cooperation, the relevance of public institutions was generally confirmed in the survey. Five out of 8 respondents claimed to have established intensive cooperation with public authorities. Another 5 respondents claimed cooperation with public research centres, while 4 respondents cooperated with companies from downstream industries. In addition, being asked about the challenges of the Luxembourgian AKIS, two respondents suggested to improve cooperation between the public advisory services. 5 out of 8 respondents regard universities, public research institutes and authorities as very important *sources of knowledge*. Moreover, 4 respondents perceive private companies as important sources of knowledge. One respondent added that the national and international exchange with colleagues was perceived as an important source of knowledge.

Several *knowledge needs* were identified by the responding organisations. With 63% (n=8) water management was perceived as the most important knowledge need, followed by climate change, biodiversity management, general (economic) farm management issues and rural development with 4 mentions (corresponding to 50% of all mentions) each.

Being asked about the *trends and challenges* of the Luxembourgian agricultural sector, one interview partner highlighted the necessity to enhance knowledge flows from research to farmers via advisory services. Particular (administrative) challenges were seen in the planning of instruments in a manner that knowledge transfer occurs faster and more efficient. From the online survey qualitative assessments about challenges of the agricultural sector in Luxembourg and the AKIS in general included entries about: stronger collaboration between the advisory organisations (mentioned twice), more focus on practice-relevant research, knowledge transfer to increasingly larger holdings (in terms of holding size) and keeping up with the agrarian structural change in general (mentioned 3 times).

### **In Malta**

The research revealed a low scope of knowledge flows and operational synergies between the advisory service organizations, other actors of the agricultural knowledge system and particularly with farmers. However, since the still on-going reform of the FAS and the entry of new subjects supposedly playing a role in the knowledge transfer sphere, the farm advice domain is characterized by a certain dynamism, which mostly regards the informal linkages. Looking at the latter, it should be taken into account that, still, the MSDEC is the *deus ex machina* of the AKIS approach, even if the different extent of pro-activeness of some actors merits to be further analysed. This is particularly the case of cooperatives and the producers organizations, which are gaining floor through applying to the measures targeted to enhance the human capital (111, 114 and 115), cooperation between farmers (measure 124 and 142) for innovation, and modernization of holdings and improving quality of production/ processing (121 and 123). This particular pro-activeness of associative organizations is also testified by some collaboration run by the Organizazzjoni Produtturi Gheneb għall-Inbid Malta, co-financed under measure 142, with the University of Malta and the Ministry for Resources and Rural Affairs, even outside the RDP framework (OP Italia–Malta 2007-2013).

In this area, researchers and advisory services seem to take part to a minor extent. Indeed, they are contracted by cooperatives and POs. This shows a more individualistic approach through leading to weak linkages, shaped by discontinuity and personal relations, rather than building bridges between the research and the advisory worlds. Even so, in very few cases, associative bodies conduct in-house research, thanks to co-funding of the Ministry (i.e. KIM).

Still, as to cooperatives and POs, some remarks are needed. First, it should be noted that, due to representativeness of the farmers, they have a potential in promoting and assisting the circulation of knowledge and the implementation of innovation at farm level, through ensuring a worthy critical mass. This, in principle, fosters innovation across the agro-food supply chains though leading to a true development of competitiveness of their supply chains. Besides, it must be said that they provide the services only to members, through limiting the scope of the innovations applied at farm level.

Secondly, it can be observed that some of them focus on integrated use of the RDP measures, which ensure a global support to the farmers through facilitating their access to the EU funds as well as the knowledge flows among them. In this respect, an interesting issue is the type of knowledge flows which they can foster across the supply chains. In fact, within the cooperatives/producers organizations the farmers', apart from being the final beneficiaries, are empowered to decide what and how to benefit from training and advisory services, through developing a major attitude to collaborate with each other and show emulative behaviours, by spreading a circular-type knowledge and information flow. This the case for KPH, which supported the farmers in implementation of new and environmentally-friendly agricultural practices through training courses (111), testing the innovation (124) and supporting its effective application by advisory services at farm level. A similar situation is the case of the Maltese dairy producers' organization, which provided livestock breeders with artificial insemination and cattle breeding services within a project aimed at quality improvements and improved cow genetics, by implementing measure 124 and 111.

These cases show that the associative bodies are likely to better target the farmers' specific needs, through tailoring the front office activities in relation to their respective investments. At the same time, these organizations demonstrate a certain capacity to provide reliable and adequate advisory and scientific support. This is possible thanks to, on the one hand, outsourcing of technical expertise, which belongs mostly to private advisory companies, and on the other hand, to the government's facilities, which, for example, still provide veterinary laboratories services and research back-stopping. Indeed, although the University of Malta and the MCAST are not formally involved into the innovation projects run by the cooperatives/POs under measure 124, the Department of rural affairs is ensuring that the firsts provide consistency back-office activities to the seconds. Besides, as for the FAS, according to the guidelines ruling the applications to measure 114 and 115, its experts attend specialized training courses, approved by the Ministry responsible for agriculture, on cross-compliance obligations. Truly, the research proves that numerous informal individual relations shape research and advisory interactions, mostly due to cross-management between the Institutes/Associative bodies/FAS. Moreover, recently, due to the lack of some facilities and expertise in Malta (i.e. veterinary), the FAS and the associative organizations (KIM) run a kind of cooperation at international level, both in terms of back-office activities (training and advisory) and teamwork.

Finally, the only formal linkages that could be observed between the advisory services and the research world are the ones governed by the Ministry of Rural Affairs via Paying Agency which is responsible for running the Farm Advisory Service Registration Board (FASRB) (see figure 5). Here, although the Board just carries out administrative activities, regarding the selection of the advisory organizations and the follow-up of their activities, it should taken into account that the FAS Consortium belongs to the Ministry, which controls the University of Malta and the MCAST, as well as two cooperatives (KIM and KPH). In this context, the formal linkages are likely to facilitate effective knowledge flow among the actors.

### **In Poland**

Although the competition between the main AKIS actors can be observed, the relation between the majority of them is close and easy to reach. It is connected with historical links created

during the long period of advisory activity in Poland. The main sources of knowledge for ODRs are public research institutes, universities and the Internet (table 14). There is a co-operation during the preparation of educational programmes, involving mainly scientists of universities and research institutes (and sometimes workers of government and self-government institutions). The co-operation can be noticed also in the processes of creation the consortium for implementing particular programmes (e.g. cross-compliance), for which i finance support from government institutions necessary. Universities and research institutes are, for ODRs, the main sources of knowledge, information, and know-how (innovations). Their representatives of all actors of AKIS are members of Advisory Councils – bodies present in each Provincial ODR giving proposals and opinions for advisory programmes and evaluate the realisation of these programmes.

**Table 14.** Main sources of knowledge for ODRs (in rank of marks of 16 ODRs)

Organisations / institutions	Very important	Important	Less important	Not important
Public research institutes	13	3	0	0
Internet (website providers)	12	4	0	0
Universities	6	8	2	0
Authorities (government, self-government)	5	6	4	0
Producers and sellers of input for agriculture	3	6	6	1
NGOs – centres of knowledge	2	8	5	1
Buyers of agriculture products for processing	2	8	5	1
Other, e.g. Agricultural magazines and literature	2	2	0	0
Private consulting companies	0	1	8	7

*Source: Country report for Poland, 2013*

In terms of innovation we can observe stronger link between ODRs and research institutes than with universities. The reason is probably the way of funding the research – for institutes the main source of funds for research is the Ministry of Agriculture, which very rarely participates in financing research provided at the universities, for which the main role is education and personal scientific development of teachers (research for practice on the second place). Even the results of university research are not well disseminated, because of lack of budget for it. So, in this field, there is still place for improvement and closer co-operation.

Farmers and their organisations seems to be the main source of knowledge in terms of farmers' needs, which can be addressed to research institutions and to producers of inputs for agricultural production. But they are still not enough efficient in their role – the reason is probably the weak links between farmers and their representatives in Farmers Chamber (the results of research done between farmers showed, that only very small percentage of farmers are taking part in election and do not know their representatives in Farmers Chamber). We can observe that too often the topics of research and their results ignore the needs of farmers. Sometimes, also the transfer of innovations is too long.

Private consulting companies are rather competitors than co-operators for ODRs advisors (table below). It is understandable, because both are looking for clients (bringing money having influence on their revenue). The competition is visible practically in each field of advisory work, but especially in services, whose cost is the highest (table 15).

**Table 15.** ODR’s co-operators and competitors in rank of marks of 16 ODRs

Organisations / institutions	Close co-operation	Co-operation	Lack of co-operation	Competition	N/C
Public research institutes	11	5	0	2	0
Authorities (government, self-government)	9	7	0	0	0
Internet (web-side providers)	7	5	0	0	4
Universities	4	11	0	0	0
NGOs – centres of knowledge	2	11	2	1	1
Producers and sellers of input for agriculture	1	11	2	6	0
Buyers of agricultural products for processing	1	10	3	2	1
Private consulting companies	0	0	3	13	2

Source: *Country report for Poland, 2013*

### **In Portugal**

The central offices of the national farm-based organisations serve as back-offices to the affiliated ones, namely in terms of contract negotiation, programme planning and management. This is the case, for instance but not exclusively, for training programmes that are planned and negotiated by the central offices with the ministries and then implemented in training centres or by local or regional organizations. CNA and AJAP have small back-office teams, and concentrate more resources in member organisations. CONFRAGRI and CAN, having more financial resources, have larger back-office teams. In general, the linkages between these organizations and research and education institutions tend to be poor. If it is true that cooperation with the universities exists, it usually involves sporadic projects with few organisations, and not a continued line of action. However, these national organisations tend to have a more or less intense relation with public authorities, in some instances characterised by cooperation (more often in the case of CAP, ONFAGRI and AJAP) and in other instances by conflict (more often in the case of CNA), depending on the political distance to the government.

### **In Romania**

In the activity it performs, the public advisory service establishes different collaboration linkages with the other AKIS players. Thus, together with the research institutes, demonstration packages were established, mainly for the new varieties and hybrids and the implementation of new technologies. Fairs and exhibitions for displaying the latest results and products were organised together with the input suppliers and the local public administrations. Researchers, teaching staff and input suppliers were frequently invited to seminars, symposiums and round tables that were organized.



Considering the importance of advisory services in agriculture, which should facilitate Romania's conformity with the EU membership obligations, the International Bank for Reconstruction and Development (IBRD) provided financial assistance for organisation of the modern knowledge and information system in agriculture. Project “*Modernization of the Agricultural Knowledge and Information System*” (MAKIS), funded by the World Bank, under its component “Support to the Advisory and Information System” aimed mainly at establishment of four Training and Information Centres (ITC), located in major regions of Romania. These centres operated as resource bases for improving and updating the professional capacity of agricultural consultants, food safety specialists and agricultural researchers. These categories were thus prepared to be able to provide farmers with necessary knowledge and technologies targeting production, quality control, processing, food safety, etc.

In 2007, under MAKIS, the *Integrated Office for Agricultural Consultancy* Tecuci was created, by merging five local agricultural consultancy centres; this office operated in the local main office of APIA. In 2008, by World Bank Mission Agreement, it was agreed that based on the needs identified by NAAC, four such new pilot centres should receive support. The staff serving these Centres was trained in the TICs. The technical activity received support from NAAC, which elaborated a “Set of Rules for the organisation and operation of the Integrated Offices for Agricultural Consultancy” providing for the attributions, organization structure and collaboration relations between them. These Offices were coordinated by a Consultative Council (consisting of representatives of local authorities, Local Agricultural Consultancy Offices, APIA, DARD, farmers' associations/farmers from small, medium and commercial farms, etc.).

In 2011, the Project “*Complementing EU Support for Agricultural Restructuring in Romania (CESAR)*” was initiated, under which socio-economic advisory activities for the rural population were provided in 15 counties. One of the activities provided for the improvement of rural services through the extension and endowment of the Integrated Offices for Agricultural Consultancy. In this respect, establishment and organization of other 10 Offices was proposed, which, together with the four Offices already established in 2008 should cover the development regions of Romania. From the conceptual point of view, for the location of the other ten new Offices, the balanced coverage of the regions of the country was considered, along with representativeness with regard to agriculture specificity in these regions, so that each agricultural sector (crop production, livestock production, agro-tourism, etc.) should be represented. The offices were intended to provide fast, correct and relevant access to information services, an adequate framework to farmers' permanent consulting and information and to contribute to the improvement of interaction between the farmers, the state and the European Union.

### **In Slovakia**

The coordinating bodies for dissemination of information and announcements are Agroinstitut Nitra and IFEE for their respective fields. For this purpose, internet portal [www.agroporadenstvo.sk](http://www.agroporadenstvo.sk) is operated. The basic task of the Agro portal is organisation, processing and distribution of information for the use of agricultural extension and food production. The technical operations and information security are carried out by the operator.

The database provides the following information:

- Information about legislation of agricultural extension – focused on methodological aid to advisors and clients of agricultural extension services,
- EU legislative information,
- List of accredited organizations/certified advisors,
- Database of advisory activities of organisations operating in the sector, as to their extension activities and target groups,
- Professional information which serves advisors and beneficiaries of the advisory services, news on science and research, new technological procedures, crop cultivation and animal rearing trends,
- Information in the form of articles and publications grouped into individual categories: crop production, animal production, machinery and equipment, economics, food processing etc.,
- Simple databases systems (machineries, agrochemicals, feeds, medicines etc. with opportunities to obtain the full versions.
- Weather forecast,
- An important role is played by the *Advisory forum* which is the dialog among the users of the system on the one hand, and on the other hand, with representatives of sector's research institutions, organised during the exhibitions, conferences, field days etc..

Furthermore, an important role is played by *Info-terminals* within the *Central Agricultural Advisory System*. The mission of the Central Agricultural Extension System is to ensure a qualified and high standard of agricultural extension in Slovakia. Info terminals are work places equipped with computers, situated in all regions and some districts of the country. They are accessible to potential users. The info terminals are also furnished with the so-called info desks, equipped with printed materials (leaflets, guidebooks, legislation, information sheets, etc.).

In meeting of the farmers/clients requirements, all research institutions and agricultural institution agencies have an important function. Each of them receives the required services, processes them and provides with advice, formulates projects/programmes, prepares strategies/concepts etc. Public institutions are responsible for their respective field, however there could be potentially and practically overlaps among research institutes and public organisations on one hand and academic institutions on the other hand, since they are managed from two different Ministries. In addition to this, it is possible to note a significant upward trend of the services provided by commercial organizations focused on such activities as inputs of seeds, agrochemicals, new technologies, machineries and equipment, feeds, animal genetic resources, or land reclamation and irrigation.

### **In Slovenia**

As clearly stated by all parties involved – FAS, MKO, and research and education institutions linkages between different AKIS actors on knowledge flow and also on joint research are very poor. All system players also agree that their knowledge on farmers and forest owners need is getting weaker. Cooperation between institutions basically relies on good relations between individuals. On the other hand, information technology allows farmers to find information on the

internet and they often prefer direct contact with producers or organise visits to farms with high technology themselves. One of the reasons for the situation could also be absence of demonstration centres and technology innovation centres at advisory and research institutions in Slovenia.

There are several reasons for lack of cooperation between institutions. One key issue is the research system that promotes basic research. Researchers are not stimulated to do applied research as they do not contribute to indicators that they have to reach to preserve their status. Another obstacle is the fact that the system does not allow persons without researcher status (as most of FAS advisors) to be involved in research projects financed by EU or national funds.

Moreover, it is necessary to point out that institutes and faculties organise seminars for FAS employees each year and that there are several other joint activities such as; publishing handbooks, brochures etc. Hopefully, the next programming period will reinforce cooperation between all AKIS actors within European Innovation Partnership.

Some bilateral written agreements on cooperation between institutions exist but are not fully implemented in practice; at least there is no long-term system tool. In line with obstacles mentioned in previous paragraphs most research cooperation is done between faculties and research institutes. As far as support to FAS advisors in solving farmer's problems is concerned, all faculties and institutes provide support, if they are asked for it. Also it is a common practice that each year, researchers prepare seminars for FAS advisors.

At the national level, a legal ground for change in AKIS are strategic documents that determine Slovenia's vision and goals in agriculture till 2020 – Resolution on strategic guidelines for the Slovenian agriculture and food sectors by 2020 – “Food for Tomorrow” and Research and Innovation Strategy of Slovenia 2011-2020. This is also reflected in the first draft of Rural development programme of the Republic of Slovenia for the period of 2014–2020 (version July 2013). In line with article 36 support to European Innovation Partnership is predicted and key partners (food processing industry, NGO, farmers, consultants and researchers) are clearly stated. The obligation to encourage this process probably rests on research and education institutions.

### **In Sweden**

For a long time there has been little cooperation between the advisory organisations, except for some local linkages, but in 2013 the Swedish agricultural advisory organisations formed a group to improve the cooperation. About 30 companies are members today, but the potential is 60-70 organisations. This confederation of Swedish agricultural advisory organisations is led by a board, and a managing director. The confederation will work on secured access to advisors with right skills, and increased status and attractiveness of advisors in the industry. In addition, the Council shall represent member companies in dialogue with governments, universities and others, to promote the business of advising companies and working to develop advice to the farming business.

According to the survey the organisations consider each other as partners for cooperation and not primarily as competitors. Most common and important was cooperation with public authorities.

There are some networks and organisations where researchers and advisors meet, e.g. Partnership Alnarp and The Royal Swedish Academy of Agriculture and Forestry. These are

considered good platforms to exchange knowledge, but farmers are maybe not as involved in these networks and activities as they could be.

### **In United Kingdom**

Earlier publications on AKIS in England emphasise that privatisation resulted in horizontal fragmentation with proliferation of advisors and development of a diverse and complex advice landscape. This disjuncture and unregulated nature of the AKIS were frustrating for many in the agricultural community. In particular, vertical relationships between the different levels in the English AKS became weak and fragmented after privatisation of the state advisory service ADAS, with inadequate mechanisms for delivery of research outputs (either as new knowledge or new technologies) to farmers through demonstration or via advisors, trainers and educationalists. There is a sense that this fragmentation has detrimentally affected the flow of knowledge in both sustainable agriculture and commercial contexts.

As described above, there are now many “partnerships” between various AKIS actors in the UK. Some of these are “vertical”, i.e. designed to improve the flow of new knowledge to farmers, while others are “horizontal”, i.e. aimed at broadening the scope (geographical, technical, etc.) of the joint effort – often in order to maximise the chances of obtaining state funding but also to achieve scale economies amongst personnel and facilities.

Some commentators assess the link and knowledge flow between research and the private sector as weak. Knowledge is created within the scientific community but not transferred and translated to be applied by farmers or actors in the wider food chain. To some extent, this may be due to the fact that much cutting-edge science is not immediately commercially applicable. Conversely, agribusinesses and food companies are not able to articulate what kind of knowledge they demand in order to adopt an innovation.

A diverse range of linkage mechanisms are used to connect the AKIS vertically. Online portals enable widespread dissemination, for example for national coverage, Defra uses online services, the Whole Farm Approach is an online resource helping farmers access information on regulation and other areas of advice (e.g. SEARS). The farming press is also used by public and private AKIS actors to reach a wide audience. FAS contractors use group events, the private sector offer farm visits from consultants and agronomists which farmers pay for, while charities and trusts offer farm walks, demonstration farms and farm visits with a range of payment options. The levy sectors, each of which has a KT team, use a number of mechanisms including demonstration farms, publications, newsletters, websites and in some cases (e.g. DairyCo), extension officers.

## **4.6. Programming and planning of advisory work**

In any activity, the programmes and plans are important tools for good management. The question is – What is better – long-term or short-term planning? Should all organisations have strategic plans? Or maybe they can work only on the basis of an annual plan? Other questions are: what is the best way or who should build the plan? Managerial staff? Managers with advisors? Or, maybe, managers, advisors and clients, together? Does the plan depend on the type of an organisation? How much the tasks established in plan depend on the organisation? On

clients? On environment? On sources of support? On policy? What is the purpose of planning and programming? Those questions are necessary to pose, before any decision. The analysis of the situation in surveyed countries shows differences in approach to the question of planning and programming advisory activities.

### **Austria**

Monitoring and evaluation of advisory services and strategic planning are important to many advisory organisations. Many organisations record activities and keep books. Timesheets for advisors are the most popular tool. In some cases generated turnover of advisory services or technical indicators, such as the performance of farms, is pulled up to assess the advisor's work. Incentives to stimulate and reward advisors are rare. Nearly all organisations work on the basis of strategic or annual plans. In most cases, they are elaborated in cooperation of members of the organisation (management and staff) and with representatives of the service beneficiaries and / or public. In few cases plans are devised by a board of executives which is mostly composed of advisors and farmers and, to a smaller extent, of scientists and representatives of the public. The Chambers of Agriculture are currently in the process of implementing a quality management system.

### **Bulgaria**

The NAAS keeps a record of advisors work of their staff through timesheets, financial indicators and farm performance evaluation. Since 2011, NAAS has been using an information system that connects all 27 RAAS with the central office under strict rules of access, data sharing and security. There are three system modules – extension, training and administration. The *extension module* of information system supports exchange of extension information among central NAAS office and 27 regional offices and enables daily monitoring of the staff in the regional offices. The *training module* serves the activities of measure 111 for vocational training, information activities and dissemination of scientific knowledge. The *administration module* helps the administrative activities of central NAAS office and regional offices and exchange of administration information among them. Also, the NAAS has an incentive programme for rewarding the performance of their advisors work as additional payments based on actual results and approved project under the RDP. The NAAS is planning its work on the base of annual plan and programme for each RAAS. However, often monthly schedule of RAAS is changed because of e.g. new campaign for assisting applications to certain development measure, for visiting a seminar or a training course, etc. Among private extension providers, there is not so much information of planning of their advisory work. So far, non-governmental organizations have relied on external funding (international donors), and for that reason, they do not have sustainable strategy.

### **Cyprus**

The shops (companies) keep records for their agronomists but only one has an incentive programme. The companies' strategic plan is designed by the owner, mostly in cooperation with agronomists.

All consultancy companies keep records of advisor's work (esp. farm performance evaluation). Only one of the consultancy companies has an incentive programme rewarding performance. All private companies have strategic plans carried out by the management.

### **Czech Republic**

All participants of AKIS have their own function and tasks, which are evaluated on payment of costs and as a whole in evaluation report of National Advisory Council MoA ČR. Each accredited advisor has an obligation to prepare a precise plan of advisory work for agricultural body. Advisors use initially prepared checklists to evaluate the state of agricultural holdings and actual level of accomplishment of obligatory requirements arising from CAP, cross-compliance and GAEC rules.

Planning own direct advisory work is individual matter of each advisor or advisory body. The surveyed advisors (natural entities) do not create any strategic or annual working plan. Only in case of the surveyed major entity, when coordination of advisory work is necessary, members and management of organisation prepare a strategic plan.

### **Denmark**

The information given here is first and foremost derived from the respondents who chose to answer the questionnaire. It is regular across all types of companies to use timesheets as a record of advisors' work. It is rather unusual to use an incentive programme as a management tool. Not surprisingly, most of the respondents report they make use of strategic or annual plans as a tool for the development and delivery of advisory work. Most companies involve employees when working out the strategic or annual plans. If a board or a council is involved in working out the strategic plan, then the respondents report that either it is the farmers and owners, which in all cases are the same or it is the farmers/owners together with the advisors who develop or work out the strategic plan.

When focusing on programming and planning of advisory work, it has to be borne in mind that the Danish advisory system is a demand-driven system, much in the control of farmers and with needs of the farmers as the main factor behind the supply of advisory services.

### **Estonia**

Advisors who provide advisory services for farms operate mostly through county advisory centres, and the activities of advisors and advisory centres are assisted by an advisory service coordination centre. The Coordinating Centre of Rural Development Foundation is the main actor in strategic planning of the advisory system. Responsibilities of the Coordinating Centre are: developing the Advisory System and Service; collecting and analysing feedback; communicating with the research institutions; training and in-service training for advisors; disseminating research information; developing of advisory tools (programmes, risk analyses etc.); updating the portal [www.pikk.ee](http://www.pikk.ee) for agricultural and rural information. The role of the county level advisory centres is to provide individual advisory service and information to the local producers and farmers. They collect feedback from producers and develop the whole system. They also direct farmers to specialized advisors, according to the needs of a producer, and organise informational events and training days. Only those advisory services that are provided by qualified advisors are subsidized.

Planning advisory work differs among organisations. Mainly advisory organisations operate according to annual plans and defined priorities in relation to ERDP. Some advisory service providers apply proactive strategies, others use more reactive strategies to respond to the market demands more accurately as well as use the opportunities of various funding schemes.

### **Finland**

The main task of the Association of ProAgria Centres is to programme and plan the advisory work nationwide. The Rural Advisory Centres put this into practice by taking the region needs into account. The head of each service group (dairy and grass, plant, meat and enterprise) works for the Association of ProAgria Centres. The main task of the head of a service group is to develop own target area and bring the concepts into practice by holding seminars to advisors of the Rural Advisory Centres and other interest groups.

The overall advisor skill development is supported through an integrated knowledge management system and Advisor Academy. The organization offers also many different courses in service training and additionally nationwide expert teams, which form a separate organization within the ProAgria group. ProAgria Group has also about 20 consultants which belong to a “top know-how” team. These consultants are from dairy, plant planning and organic production sectors. The task of these “top know-how” consultants is to search for new information from their own field and bring it to the practice by holding seminars to other advisors and entrepreneurs. The “top know-how” consultants search new information basically from abroad, but also from the target area by networking with the interest groups. They also cooperate with farmers, trying to develop and plan the advisory work.

In 2012 The ProAgria Group started a new operations model to develop the advisory work in the finance sector. The focus of the operations model is to analyze the results of the production cost together with the agricultural entrepreneur. This service is already in use, but still under development.

Customers are major sponsors of\ advisory work. That is why it is very important to listen to the customer needs and develop the work in accordance with their wishes. The ProAgria Group has measured the customer satisfaction regularly from the beginning of this millennium. The feedback from the customers and partners is very important. That is why the ProAgria Group makes a nationwide survey every second year. In addition the advisors collect feedback daily. In the latest survey the customers rated the service with a note of 8.1 (scale 4-10) and as much as 32 percent rated the service with a note of 9-10. The partners (e.g. special advisory organizations) perceive ProAgria as one of the most important top 5 partners.

### **Germany**

Majority (60%) of the respondents stated that they have an *annual plan* for their advisory work (n=86). We further asked who participated in the elaboration of the annual plan. Of those advisory organisations who work with an annual plan, this plan is elaborated with the aid of

- management board, resp. steering committee in 88% of the cases,
- members of the organisation (e.g. staff, advisors) in 69% of the cases,
- clients (resp. recipients of advisory services) in 19% of the cases and

- representatives of the public in 4% of the cases.

None of the organisations identified shareholders as participants in elaboration of annual plans.

21 advisory organisations (of those 13 private advisory companies, 7 FBO and 1 NGO) offer *incentives* for advisory work to their advisors. This corresponds to 28% of the all responses (n=76). 15 organisations further specified the kind of incentive they offer. Among these, turnover-dependent gratuities are most common (4 entries). Premiums, commission and membership in (national) panels resp. associations were each mentioned twice.

### **Ireland**

Framed by the context of the national policy documents outlined in Section 4.2, Teagasc's work is governed by its mission and goals according to the Statement of Strategy 2012–2015, as well as the Foresight 2030, an exercise designed to establish a broadly shared vision for the Irish agri-food and rural economy in 2030 and its knowledge requirements, with a view to strengthening the strategic capabilities of Teagasc and its relevance to its stakeholders. Teagasc compiles an annual Level 1 Business Plan, which communicates the focus and intentions for the year ahead. This plan outlines brief highlights of objectives, activities, targets and performance indicators which, when achieved, will contribute to the objectives outlined in the Teagasc Statement of Strategy 2012–2015, the Teagasc Change Programme 2009-2013, Teagasc 2030, and key national policy documents. The Level 1 business plan is derived from Level 2 plans prepared by Teagasc's Operations, Knowledge Transfer and Research directorates. Level 2 programme plans, in turn, are an amalgamation of 48 Level 3 department / regional business plans.

### **Latvia**

Planning of advisory work differs among organisations. The interviews suggest that advisory organisations adapt their development directions according to accessible public funds, priorities defined in Latvian policy documents and analysis of previous farmers' interest. However, this is different in smaller advisory companies which tend to specialize and work with a closed circle of customers.

Some advisory organisations develop strategic annual plans. The work on them happens in quite a participatory manner as various actors collaborate to produce them - advisory organisations' staff, management, shareholders and the very service beneficiaries. Advisory services of LRATC are planned according to the priorities of the Rural Development Plan. In the meantime farmers' needs are taken into account when planning yearly training activities.

Some problems in planning can be sensed in the comments of the informants during the interviews. Several of them stated that information and knowledge are accessible only about those issues which have been well developed for years. However, other themes have emerged and it would be hard to find experts who would be able to give high quality consultations in these themes. Informants state that this is an issue of planning – nobody is willing to educate experts from scratch. Yet, everybody is willing to attract the existing experts.

### **Lithuania**

Planning of advisory work is done in a coordinated manner and individually. The Ministry of Agriculture of the Republic of Lithuania (MARL) prepares annual strategic planning



documentation and advisory organizations such as Lithuanian Agricultural Advisory Services (LAAS) and the Chamber of Agriculture of the Republic of Lithuania (CARL) also follow annual strategic plans in their programming documents. For example, since 2012 a new map of interactive teaching courses, seminars and other informational events designed for farmers has been launched at the website of CARL. Individual consultants do not have such plans, their activity (advisory services) depend on whether they get funding while participating and winning in the contests for projects.

### **Luxembourg**

In the online survey, advisory organisations were asked to indicate whether they work according to an *annual plan* and whether they provide *incentives* for advisory work. Of the responding organisations, 7 claimed to work on the basis of an annual plan. It was further explained that actors participating in elaboration of the annual plan in 6 cases (of 8) included a management board (steering committee), in 4 cases representatives of the group of recipients of advisory services and in 3 cases staff members of the respective organisation.

### **Malta**

With regard to the formal FAS, programming and planning of advisory work in Malta is pre-defined by the national regulation applied to the matter. In fact, since it was under selection for access to measure 115 of the RDP, the FAS Consortium has a specific work plan which details the types of services to provide, the topics and the number of individual farmer to manage per year (see § 4.2). Unless still not applied to the provision of FAS to the beneficiaries of the measure 114, this approach is likely to standardize the services to be provided.

On the other hand, the majority of the private companies provide technical advice on the basis of a proper work plan as well, but this is elaborated case by case and in collaboration with the clients. Besides, in the cases of associative bodies, there is no evidence of the use of work plan and the provision of services is done upon specific request.

In any case, all the types of advisory providers keep records of the advisors work, through specific reports on the activities conducted and their results.

### **Poland**

Programming and planning is very important for many advisory organisations in terms of management and monitoring and evaluation of advisory work. In Poland all the main advisory organisation ODR (16 independent province organisations) are working under yearly advisory plans, and some of them (5) have also prepared strategic plans. The annual plan of advisory activity is prepared according to a specific procedure, starting from collection of farmers needs and expectations (collected by field advisors in each county). The next step is preparation of the county advisory plans and their presentation at the province level as a source of a province advisory plan for a particular year. Preparation of a provincial advisory plan is done by ODRs managers, advisory specialist and field advisors. When the plan is ready, it is presented to the Province Advisory Council (consisting of representatives of all AKIS actors) for approval. At this stage Advisory Council can give some suggestions and opinions and finally approve it. Of course, usually the needs outweigh the viability (for many reasons, e.g. limited budget, lack of personnel, organisational problems, etc.). Implementation of an annual plan is monitored using

previously established special factors. If it is necessary, some changes in planned activity are possible. The personnel involved in providing advisory services is rewarded using special incentive systems (in 14 ODRs, two ODRs have no incentive systems).

### **Portugal**

Programming and planning is generally focused in the major area of extension work, that is, training activities that are strictly managed and controlled internally and by the funding ministries. In general, there are no incentive programmes to reward the performance of advisors.

### **Romania**

The public advisory service implements a wide range of activities in the field of information supply, vocational training and practical demonstrations and it performs additional tasks. The agricultural consultancy management is ensured at the level of Consultancy, Extension and Vocational Training Department by a head of department who has 10 employees under his/her subordination (at the moment when this report was drawn up, out of the 10 existing jobs only 4 were occupied).

The Agricultural Chambers at a county level are managed by an executive director and a deputy executive director. These coordinate both the administrative-financial department and the technical office, which in most cases consists of three departments: vocational training department; department of extension, consultancy and promotion of associative forms; project elaboration, implementation and evaluation department. These are also in charge of coordination of advisory activity at the level of communes (LACC).

CAC activity is carried out based on an annual plan. Meetings are periodically organized to discuss problems and present the results. Each year, the agricultural advisory service elaborates a report on the activities performed in the previous year, as well as the programme for the present year.

### **Slovakia**

Programming and planning of advisory works strongly depends on the planning period. The most important and frequently used is planning per annum. It is initiated by MOARD and has the upward-downward direction alongside of institutional vertical one. During this process financial resources are allocated to individual AKIS players / suppliers and particular tasks are expressed as the purchase order. The research and agricultural public organizations/institutions deal with budget and tasks allocation preparing their annual plans with concrete activities, methods and communication with target groups.

Second kind of programming and planning involves a 7-year period in connection with CAP for a given time horizon of 2007-2013, the FAS with the aim to use advisory services by farmers, or to establish them and last but not least there is the Concept for Agriculture and Rural Development. This is usually formulated for the period which matching implementation of CAP. Agricultural extension is its organic part.

The above described system is valid for public organizations under the supervision of MOARD. Academic institutions and Commercial organizations are not part of this planning system, despite that their representatives are delegated to the working teams for elaboration of concepts/programmes.

Monitoring and evaluation of the implementation of programming process is realized through the so called Green report which is prepared by MOARD every year following the implementation period. This report is submitted for approval to the National Council of Slovak Republic.

### **Slovenia**

The Annual Programme of Activities and financial plan of CAFS is the main document of this institution and is approved by the council of CAFS. It contains all Chamber activities including the operation of public services within the organisation. The Annual Programme of Activities and financial plan of FAS is also confirmed by government. In the programme for 2013, seven priority tasks are defined:

- Management, planning, monitoring and control of public FAS (programming, development of IT tools)
- Consulting and education on technical, economic and environmental field of agriculture activities (personal and group consultations, seminars and trainings for farmers and consultants, publications, cooperation with different institutions)
- Consulting and support for preparation of development programmes and projects (preparation and coordination of development programmes and projects, implementation of FADN and National Vocational Qualifications)
- Consulting and support for implementation of agriculture measures
- Consulting and support for organisation and management of professional organisations (producer groups, associations)
- Activities on the field of agriculture and agriculture related regulations

Advisors work plan is based on annual programme and is coordinated by the central office in Ljubljana. Procedures for reporting are uniformed and set out in the protocol. Advisors submit a report on special forms in e-version that is archived for their own statistics and is inaccessible to the control system.

### **Spain**

Planning of each national (INIA and CSIC) or regional research centre is carried out not only by Directorate of the Centre but also often involving technical committees of the institutes, external committees from universities, OPAs, representatives of regional governments and/or national government, etc., according to the issues concerned and the scope of the centre (we have to remember that both within the INIA and CSIC there are diverse sections and sub-centres, sometimes with a certain autonomy). Thus, planning of activities is done, in principle and theoretically, with the consent of all involved stakeholders. CSIC has an additional input in their programming since after the design of the strategic planning usually these documents are sent to international committees for verification and asking for suggestions. This way to work brings high prestige to the centre.

### **Sweden**

Almost all of the respondents make a strategic plan for the advisory work, usually together with advisors but sometimes farmers, share-holders and public authorities are also involved. If it is a board or a council that is involved in the strategic plan, farmers and clients are often members.

## **United Kingdom**

State-sponsored advice is driven primarily by policy requirements, i.e. sector competitiveness (and recently renewable energy supplies) and a number of environmental objectives, including landscape, biodiversity and (recently) net GHG emission reductions. However, crisis situations (flooding, animal disease outbreaks, etc.) sometimes lead to new (albeit temporary) efforts.

Each of the Departments of agriculture (DEFRA, DARDNI) and governments (Welsh and Scottish) makes policy and legislation, and works with others to deliver policies in areas concerning natural environment, biodiversity, sustainable development and green economy, food, farming and fisheries, animal health and welfare, environmental protection and pollution control, and rural communities.

Priorities are to support British farming and encourage sustainable food production; to enhance competitiveness and resilience of the whole food chain, with improved standards of animal welfare; to enhance the environment and biodiversity to improve quality of life; to enhance and protect the natural environment by reducing pollution, mitigating greenhouse gas emissions, and preventing habitat loss and degradation; to support strong and sustainable green economy, to help create conditions in which businesses can innovate, invest and grow.

Underpinning rural delivery are two explicit strands in UK government policy, firstly, not to provide support where it is more appropriate for it to come from the private sector and, secondly, to keep regulation to a minimum.

## **Chapter 5. Characteristics of Farm Advisory System**

### **5.1. Introduction**

The Member States had an obligation to establish a system for advising farmers on land and farm management, hereinafter referred to as the Farm Advisory System (FAS). The FAS is a major component of the 2003 Common Agricultural Policy (CAP) reform and had to be introduced by 2007 (Article 13-16 of Council Regulation (EC) No 1782/2003). The objective of the FAS was to help farmers to become more aware of material flows and of on-farm processes relating to the environment, food safety and animal health and welfare. It was introduced at the same time as the cross compliance system, under which CAP support is paid in full only if farmers meet certain requirements relating to the environment, food safety, animal health and animal welfare.

Each Member State was legally obliged to set up a national FAS offering advice to farmers. The FAS had to cover at least the statutory management requirements and the ‘good agricultural and environmental condition’ (GAEC) referred to in Articles 4 to 6 of Council Regulation (EC) No 73/2009. However, the field of advice was not limited to cross-compliance standards: the Member States could decide to include other issues. Each national FAS may be run by one or more designated authorities or by private bodies. Since the 2008 CAP Health Check, each Member State was free to decide (on the basis of objective criteria) which categories of farmers will have priority access to the FAS, without any further criteria being laid down at EU level.

Farmers use the FAS on a voluntary basis and remain responsible for acting on the advice they receive. The FAS as laid down in the first pillar of the CAP may be funded under the second pillar through two measures (Articles 24 and 25 and recitals 18 and 19 of Council Regulation (EC) No 1698/2005).

### **5.2. Evaluation of implementation of FAS**

The most interesting findings contained in the country reports are described below.

#### **Austria**

The proposals for amending the FAS include the following: FAS should be expanded and the range of issues extended to i.e. overall farm advice, technical or business (economic and accounting) farm advice, organic farming, farm diversity, biodiversity, etc. with a view to develop a holistic service for farmers.

There is a risk that the compulsive character of the FAS drives some farmers out of business. In particular small farmers may find understanding and complying with the regulation especially hard. It is important to note that in many cases the application of cross-compliance provisions involve costly investments which farmers may not be able to afford.

Due to the complexity of SMR and GAEC standards and number of topics it is nearly impossible for a single advisor to possess the knowledge to cover all topics. In most cases several advisors (for plant and animal production and other questions) need to be called for. This demand for human resources hampers the application of SMR and GAEC issues and raises costs. The incurred costs have been repeatedly voiced as a major problem of implementing the FAS.

## **Belgium**

There are four issues of better FAS effectiveness:

Flanders: a first issue is a better integration of FAS related advice with economic advice.

Wallonia: A second issue is related to the relations between control and advice. The administration in charge of controlling conformity. A third issue is related to the visibility of the FAS and to a lack of demand of farmers regarding this issue. A fourth issue: many advisory organisations acknowledge the fact that the registration of all the operations implemented for FAS is too costly, especially in a situation when there is no EU money allocated specifically to advisory organisations for the FAS implementation.

## **Bulgaria**

The main suggestion for Bulgaria, according to FAS report in 2009, is to set up a network at the European level among NAAS and other FAS-authorized organizations for sharing experience and information (for instance, on tools and methods). In addition, FAS report suggested using international experience and educational institutions of other EU Member States for additional education of agricultural advisors

## **Cyprus**

The funding procedure (80% of the eligible costs paid to the farmer who then had to pay the full cost to the consultant) should be changed.

## **Czech Republic**

Current FAS in conditions of Czech agriculture' sector is functional. The accreditation system guaranteed by the state is very effective for keeping up the quality of transferred information.

Multisource financing is next advantage of Czech Farm Advisory System. Important means are taken from RDP; other means are from national sources and state budget. The farmer payments (20% from service costs) contribute to feedback for advisors. Good advisors are asked by farmers and analogously, bad advisors are excluded from the system.

## **Denmark**

FAS was formally established but was not in use in the Danish AKIS. One interviewee stated that officially, it would probably be claimed that a Danish FAS exists, since a number of advisers have been trained and certified, but in practice no farmers demanded or had any need for advice according to the formal umbrella of FAS. Practically there was no need for the Farm Advisory System in Denmark, since Denmark already had a well-established system of advisory services which met the intention and requirements of the FAS before the introduction by the European Union of the obligation to set up the FAS. The advisory services provided in Denmark by both farmer-owned and private-owned companies already did this or were able to do so from the introduction of the CAP-reform of 2003, where the cross compliance regime was introduced in order to connect the respect of existing directives and regulations to EU direct payments. Thus national rules and the national implementation of European directives and regulations already covered more than the minimum demand in the FAS about cross compliance.

## **Estonia**

The experience shows that the largest demand in farm advisory services in Estonia is for such type of advice that helps farmers quickly solve problems of finances and plant production. There is also a need for more strategic and specific advice, such as developments in the agricultural product market, product quality requirements, environmental requirements, the development of information technology, etc. Currently, Estonian FAS deal with a challenge on how to make use of advisory services more available for farmers. It encompasses several issues, such as the lack of specialists in specific fields, the prices of the service, the provision of the service, the image of advisory system among the farmers etc. It is clear that in order to increase the provision of specialised (technological) advice, professional organisations and associations, agricultural schools and R&D institutions need to be included in the Estonian FAS. It can be assumed even a few advisers in very specific fields could cover the needs.

## **Finland**

The FAS is not particularly well-known in Finland. It is hard to find a list of the approved advisers if you do not know where to search. According to the European Commission the farm advisory system should at least cover the additional terms and conditions of the statutory management requirements (SMR) and good agricultural and environmental conditions (GAEC). The Finnish agricultural and rural advising at the ProAgria is well advanced covering already itself the SMR and GAEC requirements.

## **France**

The implementation of FAS was not aimed at developing new services but rather at supporting the interactions between organisations.

There are two main characteristics of the implementation of FAS in France:

- Firstly, France decided not to use EU funds of the CAP second pillar (rural development) to co-finance the implementation of FAS, nor to open special funds for this activity. The organisations certified as FAS providers can either decide to charge FAS services to farmers or to use other resources to support this activity;
- Secondly, the state decided not to give accreditations to single organisations, but rather to networks of organisations. When a network is accredited, any of its members is entitled to deliver FAS-related advice, regardless of the status of the organisation (public, non-profit organisation, private advisory firms, or firms supplying services together with the trade of inputs). The only condition is that each FAS network covers all of the different dimensions of cross compliance. Each network has to describe the different types of services offered to farmers (their methods: face-to-face or phone or group advice, their frequency, their prices for farmers), the number of advisers available (and the distribution of their competences according to the different components of cross-compliance), the training sessions attended by these advisers on cross-compliance issues. FAS is thus primarily targeted towards the generalisation and support to networks between organisations.

## **Germany**

Research shows a decline of farm managers using advisory service and/or purchasing FMS within the last years. In addition, CC-advisory services (in connection with FMS), is more or less accepted by farmers without public funding. After the GAP Health Check, some German states used the FAS regulation to publicly support advice, which not only includes CC, but also other topics related to the “new challenges” (e.g. energy, nature protection). One successful example for CC-advice seems to be the group training approach in Bavaria.

The draft regulation for the implementation of the new GAP on the federal level (GAK) indicates that FMS advice clearly decreases in importance and is not explicitly subsidized anymore resp. FMS are not the obligatory instrument to give CC advice to farmers in case of public financial support anymore.

Results from research are generally confirmed in the quantitative survey of advisory organisations in this study. 16 advisory organisations provided qualitative statements about problems encountered during the management of FAS related to their organisation, advisors and farmers. Multiple mentions refer to the following issues:

- decreasing interest in CC-advisory services was mentioned 3 times; this was partly explained by the fact that other (non-certified) advisory services already provide advice on CC-topics as well as low interest in e.g. topics such as climate change;
- lacking motivation by farmers (e.g. to document economic parameters of the holding) and advisors for CC-advisory services;
- bureaucratic obstacles;
- lack of (extensive) FMS material in some states.

Additionally, respondents were asked to provide suggestions about the legislative framework of FAS at EU and national level for the future. This was used by 15 respondents who provided qualitative entries. A decrease of bureaucracy, e.g. through standardised FMS for all German states was mentioned by 7 advisory organisations. Three mentions included concise suggestions about organisational and financial changes of CC-advisory services: one respondent proposed to prolong the maximum funding period up to 5 years, one suggested billing procedures to be resumed by the advisory organisations (instead of farmers) and one comment noted funding rates of CC advisory services to be insufficient – either the rates should be increased substantially or the entire advisory services on CC-topics should be ceased. Another three respondents indicated an improvement respectively prolongation of the deadlines of billing and execution of CC-advisory services.

## **Greece**

The results of the programme in Greece were rather moderate. This is due to a number of factors including advisors’ inadequate training on FAS and thus line of action, farmers’ mentality (indifference and suspiciousness towards a programme which did not bring about any financial gains – obsession with subsidies), short time of the programme’s implementation, the lack of an effective campaign to raise awareness about the programme and so on.

## **Hungary**

The situation is as follows:



- lot of issues came from some artificial administrative criteria created by the need of the Paying Agency to be able to physically control ‘something’;
- for instance they cross-check the commodity list in the advisory payment claim with the area based claim, with the ‘only’ problems of (and criticism to) this method that the 2 claim systems use different – and sometimes unmatchable – code lists for plants, in an area-based claim there is no animal code list, and it is submitted according to farm situation in May, while the advisory claim commodity data (FADN system) should reflect the status at the end of the previous accounting year);
- also the processing speed of the Paying Agency used to be very slow (1-1.5 year), which has improved recently but is still slow. They use a special software for processing the claims that often generate unclear explanations in official documents sent to the farmers. Farmers are given very short time to respond, usually 8 day, including holidays, even Christmas. Farmers tend to neglect letters and documents received from the PA in relation to the advisory measure because they got used to the administrative assistance of the advisor or the TAC in this case, so they tend to miss the deadline of giving answer to the PA that leads to losing the subsidy immediately;
- also, there are unrealistic parts in the regulation, for example that the farmer and the advisor must tell at the beginning of the year in detail (by activity items and hours) exactly what the content of the rendered services will be. As this is requested by the scheme set up by the regulation, it may force farmer and advisor – as life changes and differs from what had been planned – to keep double records, one for the authorities and one between themselves, because confessing any small change is resulted in refusing the claim for subsidy;
- TACs officially receive no information, notification about any interaction that happens between the Paying Agency and the client, so if the client is not reacting, there is no chance the TACs may assist the client in the process;
- in 2013 the biggest problem and question of the Hungarian FAS was the development from 2014 and on. It is not yet clear what the implementation of the Common Agricultural Policy will be like;
- there is a new Chamber of Agriculture in Hungary that aspire to take over the “state advisory system”, as it is mentioned in a current agreement between the Chamber and the Hungarian Government;
- the success of implementing FAS could be strongly improved in Hungary in the future if TACs could claim the fee of the advisory service and pre-finance the activity instead of the farmer, this would hugely increase interest and the number of participating farmers, also because thus they can avoid contact and related administration burdens with the Paying Agency;
- the available budget for contract per farmer per year should be more flexible, and even more contracts per year should be possible so that targeted contracts for even one special needed service item could be made.

## **Italy**

The bureaucratic procedure for the measures management, for the advisors accreditation and even the selection of beneficiaries are extremely complex for all the stakeholders involved.

For the Regional administrations it took additional administrative requirements and human resources, moreover the farmers consider that the access constraints are too rigid and the bureaucracy too costly respect to the modest contribution and they expressed a need for advisory services on global performance of the holding, considering the cross compliance as part of the whole farm strategy.

The Regions express also the need of:

- strengthening advisors capacities and competences with dedicated learning programs especially on the new rural development challenges.
- coordinating the FAS with the activities financed by other funds (such as the ESF training and information);
- better integration of the FAS into the broader AKIS knowledge system.

### **Ireland**

In Ireland the following statements or findings have been formulated [Kelly]:

- *Direct funding to be provided from CAP to private agricultural advisors for each individual farmer (subject to a requirement of provision of this agricultural support). There are a large number of farmers who require this advice and support but who are unable to receive it (monetary issues, lack of availability of resources and also lack of companies approaching them offering a service). Current state organisations (who are receiving funding) are not delivering this service.*
- *Farm Advisory Services have been seriously neglected in Ireland for several years with the result that many advisors are struggling to survive financially. A proper structure needs be put in place with farmers targeted in order to improve Husbandry, Production and Financial Viability of farm units. This deficit has been highlighted in 2013 as poor planning has led to a severe fodder and financial crisis on many farms throughout Ireland.*
- *Provision of one to one agronomy services [is] expensive for a public authority to provide, but once advice is relevant, commercial farmers are willing to fund these services themselves.*
- *Self-employed agricultural consultants are at a major disadvantage compared with state/semi-state advisory services who are subsidised at all levels of their work - equipment, stationery, transport, communications, service training, PR, health and pension benefits etc. For FAS training and briefings, private consultants are the only people in the room not being remunerated for our time - all state and semi-state counterparts are. Sometimes these extra expenses incurred are immediate impediments to recruiting more staff to expand advisory services. Would a level playing field, in this regard, be too much to ask for? i.e. reduced EU taxpayer subsidisation of national/state advisory services.*
- *The farmer Advisory Service in Ireland is unfair to many farmers, as huge State Aid is paid to one Advisor (Teagasc), which means that they have a competitive advantage over the private advisors (...)*
- *The FAS in Ireland is not being utilised properly and any EU funding has been directed towards government advisory agencies exclusively. There is a major concern for the future of the advisory service in the medium to small farm holdings without receiving some support to access advice. Indeed many of Teagasc advisers in the more full time farmer regions feel this*

*concern is even greater due to the very tight margins and very high input costs on these farms.*

– *The Irish FAS advisory model is a joke.*

These comments draw attention to the very different perceptions of the quality of advisory services in general and the FAS in particular. While from Teagasc's point of view, sufficient advice and training is provided to those needing it, private consultants complain about unfair conditions (state aid to Teagasc) and farmers not being able to access certain advice. One Teagasc interviewee stated that the private advisers in small units do not have the tradition of providing training, and it is against the logic of service business models: Why train the farmer on how to do something if you want to make money from providing the service? Without an in-depth study of farmers' perceptions on the type and quality of advice and training they receive, no balanced judgement can be made regarding these competing claims.

### **Latvia**

Since 2011, LRATC within the activity of National Rural Network makes a call for farmers who are willing to evaluate their farm compliance. The farmers are selected in an open competition. In 2013, 260 farms could receive such evaluation together with advice on how to increase farm's production efficiency. This service is not available for every farmer: small farmers seem to be excluded from the participation, as the conditions to qualify for the competition include the requirement to have at least 10 cattle or 20 ha of crops (3 ha for fruit growers) (ibid). The inspection results show that there is an urgent necessity for more intensive farmer training about cross compliance.

Advice on CC within Rural Development Program and National Rural Network frameworks has been partly or fully subsidised. The problem is the limited number of certified advisors whose advice on CC farmers can trust. This situation also provoked farmer NGOs to demand the reestablishment of the accreditation of advisory organisations.

### **Malta**

The whole advisory system is still away from the agricultural scenario and the private companies have hardly a self-acknowledgement on their role and functions in transferring knowledge and facilitating innovation across the primary sector. Besides, the delivery system is affected by an excessive bureaucracy which, together with the administrative costs and the selection criteria, is off-putting the access to the FAS and keeping such services restricted to a few experts, through hampering the increase of skills and capabilities on the matter. The advisory services are unlikely to be demanded, and thus found unattractive, by the Maltese farmers who are not yet accustomed to pay for them.

The delivery system of measures 114 and 115, which are intended to be implemented in combination, is inconsistent with the policy objectives and did not succeed mostly in relation to:

- bad timing of the calls (delays and lack of synchronization),
- complexity (bureaucratic difficulties),
- lack of transparency (appeals against the application of the selection criteria) in the selection procedures,
- limitation of the eligible beneficiaries (cooperatives were excluded),

- costs of the FAS' setting up and use and
- low level of contribution (required for 20% of the consultancy cost).

These measures (114, 115) had a bad performance all over Europe and the reasons are attributable mostly to the restrictedness on the themes of advisory services, which, in relation to the eligible maximum amount of contribution, made the measures unappealing and caused the fear of farmers as to being charged with enforcement/penalties in case of not meeting the performance requirements (GAEC and SMR).

### **The Netherlands**

The accreditation process is realized through open and published tenders for services, with a set of well-defined criteria that the organizations have to meet, regarding experience, equipment, good credentials, qualified education. A governmental body (Dienst Regelingen) has the task to check the compliance with these accreditation criteria. In the first time of FAS application there were 41 operating bodies accredited, but only 11 had effectively been active in supplying advice during the 2006-2008 period. Actually there are 45 operating bodies accredited. In 2006 advice was co-funded through the national budget, since 2007 FAS has become a part of the RDP of 2007-2013 and measure 114 of RDP has been mobilized to co-fund the FAS. The co-funding became 50% farmer, 25% EAFRD and 25% Government.

The main strengths in the Dutch FAS implementation are the existence of a few, well-defined and simple rules and the mobilization of the extension system already in place. They emphasize, however, that it is difficult to get the farmers informed well because of the enormous quantity of obligations, the complexity of the regulation and the continuous changing of both regulation and interpretation.

### **Poland**

According to results of survey FAS is integrated in ODRs extension system and is operating as part of its activity. Looking at the FAS implementation, the surveyed advisory organisation mentioned following barriers:

- too narrow a range of services including financing of measures 114,
- too rapid changes in the legislation on cross-compliance (e.g. requirements for food safety and animal welfare),
- too high a cost to the farmers (20% of own contribution and the cost of VAT), which results in less interest in the operation of the RDP,
- rigid procedure for determining the costs of advisory services under cross-compliance based on the pricing of services, including payment for agricultural adviser remuneration work,
- uneven competition of advisory centres with private companies, which are more flexible and have their own financial resources, for example, to cover a part of the farmer cost (the criterion of ask for advisory service is not its quality, but a lower cost),
- lack of continuity of services provided by private advisors, who work hard at times of calls for proposals for funding (preparing application forms), and then suspend their activity,

- difficulty in obtaining new, talented employees, and young, active workers turning to private consulting firms due to higher wages,
- for advisors, a problem is the increase in bureaucratic requirements related to planning, accounting and documentation activities that consume a large part of their time, to the detriment of substance;
- the problem is determining the impact of FAS on agricultural income in terms of value,
- the lack of funds to buy good equipment for the measurement of various parameters and validation, which could be used by consultants when analyzing farms.

FAS is an important instrument of the Common Agricultural Policy to support farmers to meet cross-compliance requirements and to foster creation of a modern and competitive agriculture. However, it requires organizational and legal changes that will make better use of public funds allocated to subsidize the cost of advisory services to farmers. In Poland the system used for financing such measures for farmers is not functioning.

Surveyed organisations put forward the following suggestions for further legal provisions of FAS at the EU level and at national level:

- Beneficiaries of consulting services should be advisory entities, and not farmers and forest owners, as it is now,
- The method of financing the advisory services should be changed to move away from the contribution of farmers,
- The catalogue of services available to farmers should be expanded to cover all the activities of the RDP or service offers available in the advisory centres and to reduce the complicated process of applying for support,
- The procedures for applying for assistance should be simplified and the administrative burden (including VAT) should be reduced,
- The equality of advisory service providers (public and private) should be respected,
- It would be appropriate to introduce the same requirements for all advisory entities as to qualifications of personnel, material base, the internal service quality control, management control,
- For the proper implementation of the innovation process it is necessary to create a stronger linkage in the system of public advisory services and scientific and research staff,
- It is necessary to develop technological and organizational consulting and strengthen agricultural and environmental consultancy in the services provided by advisory centres.

### **Portugal**

Several implementation problems are identified in the two consulted reports, namely: constraints in the definition of the norms of conditionality; constant changes in the legislation; small size and fragmented structure of farms; and farmers' difficulties in complying with the proposed conditionality measures, particularly if investments are needed. The interviewed member of CNA also stressed the heavy EU bureaucracy, the bias towards medium and large farmers, the short period of intervention (only one year), and the fact that farmers need to advance the necessary funds. Similar aspects were pointed out by AJAP, adding that farmers fear the reimbursement delays. The Confederation of Portuguese Farmers stressed in this regards that the

model is better suited to medium and large farms and that conditionality is quite often difficult to implement. Besides, as it was also mentioned, it represents a lot of work for the field technicians and little benefit for the involved organizations.

Farmers' organizations have been proposing measures to improve the performance of the FAS, as follows:

- to develop linkages between the concerned government bodies (DGADR, GPP and IFAP) and FAS organizations, through seminars and workshops in order to share pertinent information;
- to establish a Department responsible for gathering information relevant for improving the performance, efficiency and effectiveness of the FAS;
- to undertake the standardization of concepts and rules to follow in the implementation (which, at this time, are complex); and
- to improve the coordination between all entities involved in the sphere of conditionality in order to standardize and clarify concepts and rules, in particular between the structures of control and advice.

In general, the implementation of the FAS in Portugal shows that few organizations and farmers have been involved and the impacts of these advisory services are quite small.

### **Romania**

Although the establishment of the Farm Advisory System (FAS) – as a system to get farmers aware of the impact of farm practices on the environment, on the food safety and animal health and welfare – is an important component stipulated in 2003 CAP Reform, this has not been established yet in Romania.

Bearing in mind that the regulation framework leaves the member states with an ample playing margin in setting up their own FAS, at MARD level there are still debates on establishing this system.

### **Slovakia**

The main challenge is to encourage the young generation of advisors to be actively involved into the Farm Advisory Service, otherwise the generation of recent advisors will leave the advisory stage due to old age. Having this in mind, the government has to consider the extension service as the priority, in order to increase the competitiveness of agricultural sector, increase productivity and ensure sustainable management of natural resources, to adapt to the impacts of climate change and to contribute the faster transfer of knowledge from research to practical farming and ensuring feedback on practical needs to science.

### **Slovenia**

The current system of public FAS organised within CAFS with wide network of local offices and advisors specialist for different sectors is stable and established system that is “user friendly” to farmers, especially to small farmers. It is also necessary to stress that consultancy sector in agriculture in Slovenia is a very centralized market. In addition to farmers' conservatism, the key reason for the situation are attributable to strong political and sectorial power of the chamber.

Changes that are already in progress and launching RDP 2014-2020 (option of voucher system for specialised advisory service) will result in establishment of private specialized consultants' pool.

### **Spain**

Firstly, it lacks an effective coordination of FAS both at regional and national scale.

There is still some confusing overlapping (which could be seen as an inefficient explanation of allocation of responsibilities) between the FAServices and the County Agricultural Offices, for example related to the matters related to regulations from the CAP (cross-compliance). Thirdly, transferring knowledge to FAS, national centres does not play a significant role, although regional research centres are more suitable to deal with this task, and some of them are doing it effectively. However, finally, there is a lack of a consistent protocol in all regions for training activities for staff delivering FAServices (although certainly they are usually professionals highly committed to their work).

### **Sweden**

The evaluation concludes that the FAS have been an important complement to the EU rules, and that it has a potential to decrease the violation of the rules. The advisory service also makes the farmers feel more secure and safe when it comes to following the rules, and since one third of the farmers have answered that the cross-compliance system makes their work as a farmer more difficult, it is important to help the farmer to feel safe when the inspectors come. The FAS has also been appreciated for being a support that goes directly to the active farmer.

### **United Kingdom**

Monitoring of farmers with regard to FAS implementation has been carried out in the UK (except for Northern Ireland) by means of feedback surveys by independent parties on a yearly basis. In addition, feedback forms are gathered and reviewed following each event. Monitoring of the Ricardo-AEA contract in England is done via monthly, quarterly and yearly reports direct to Natural England.

The small group approach has been criticised for the lower possibility of addressing the specific concerns of each participant (if groups are larger than 10), problems of accessibility (of individual farmers trying to enter a group), and possible reluctance by some farmers to participate in such events. Used as a stand-alone approach, it may provide insufficient capacity to deal with individual problems at farm level, but it is more cost-effective than one-to-one approach.

Outreach is measured as the percentage of the farm holdings that receive EU direct farm payments. In Scotland, outreach is between less than 1% up to 20% (ADE 2009).

According to the recent DEFRA review (2013b), there is “some concern around the way FAS is delivered in England. The present FAS only supports advice delivered through organised group events and a telephone helpline. Many consider the absence of 1:1 on-farm/in situ advice provision, and its' obvious benefits, to be a weakness”.

## **Chapter 6. Conclusions and recommendations**

### **6.1. Summary and conclusions on sections 1-3 (characteristics of agriculture sector, the AKIS structure and history of advisory system)**

#### **Austria**

Austrian holdings are naturally operating in an arduous context. A tough natural environment, global competition and dependency on the market, increasing and swiftly changing demands and expectations towards agriculture are some of the challenges that farmers face. A high number of small and family-run holdings find it therefore hard to compete and stay in business and depend on public payments to a great extent. Education and advisory work plays an important role in helping coping with these challenges.

In support to the objectives of a multi-functional agriculture, the AKIS in Austria is organised based on the following principles: a country-wide coverage, independent and affordable provision of advice and a large outreach to clients. AKIS consists of several public institutions, the chamber of agriculture and a number of research institutions, farmer associations and NGOs.

The Austrian AKIS is comprised by public organisations, the Chambers of Agriculture, a number of research institutes and NGOs characterized by several outstanding features. The public character of the AKIS involves widespread political support and public funding and enables a wide coverage. Education and advisory are tightly integrated, and applied research and education often closely connected and untied under one roof as in the case of the federal colleges and research centres. The institutes in Raumberg-Gumpenstein, Francisco Josephinum, Klosterneuburg and Schönbrunn focusing on alpine farming, machinery, renewable energy, vinery and horticulture can be regarded as centres of excellence in the German speaking area.

The general feeling is that the Austrian AKIS, which has evolved over a long time and has a predominant public character, is doing quite well in terms of facilities and cooperation. Funding for advisory and agricultural research is limited. Client's needs seem to be well addressed. Actors are few and responsibilities clear, and relations between the different players good. Cooperation and learning are also historically well developed in the Austrian agricultural sector, competition hardly exists. AKIS is characterized by a quite strong integration of education, advisory and research with a reasonable exchange of information and experiences among all actors. Especially ongoing training and adult education are tightly interwoven with advisory. Nevertheless cooperation can be enhanced with a view to improve information flow, to increase the relevance of research to actual practice and to enhance strategic alignment. The reduction of public funding demands new and alternative ways of service provision and sources of finance.

The reform of the CAP requires stakeholders to adapt. New rules and regulations can cause stress for farmers and advisors. Organisations have voiced demand for support on a number of topics, i.e. income diversification and non-agricultural activities, risk and knowledge management, as well as issues related to environment, climate change and rural development. The introduction of a single farm payment scheme can lead to a reallocation of funding. This may cause discontent on the side of farmers which needs to be addressed.



## **Belgium**

Belgium agriculture undergoes important transformations that raise challenges for rural and advisory services. In both Belgian regions, the number of farms continues to decrease sharply, as well as the importance of the sector in the total employment of the country. Nevertheless, the sector remains important for the national economy: agriculture and food industries are very important for the commercial balance of the country. At the same time, Belgian agriculture has to face many challenges to reduce its environmental impact, such as nitrogen or pesticides loss in ground water, and to guarantee that it deliver safe food for domestic consumption and exports.

Belgium is characterised by a long tradition and history of public investments in (and debates on) advisory services. In that respect, it should be noted that there are specific departments about applied research and advisory services within the regional administrations in charge of agriculture in Wallonia and Flanders. Nevertheless there have been some very important changes in the conception and implementation of the role that these administrations should play. The decentralisation is not specific to advisory services or even agricultural and rural policies. But it can be noted that the decentralisation is total in that case: the federal government does not play any role in the support of AKIS. At the regional level, there is a clear tendency towards a delegation of service. There are hardly any employees of regional administrations working in advisory activities at field level. There are some employees of provinces working as advisors with the farmers, with limited resources. The main task of administrations is to ensure the monitoring and follow-up of the contracts established with advisory organisations (private firms and/or non-profit organisations).

Both dimensions of decentralisation and delegation of services are discussed in the Belgian context. In the case of advisory services, the decentralisation has enabled some local administrations to contract with advisory organisations and associations grounded in local contexts. But on another hand, this form of decentralisation could induce high cost of management and transaction costs in the relations between public administrations and associations. This is for instance the case of Wallonia, where the decentralisation resulted in a plurality of contracts and conventions with more than 70 associations. There are debates at the moment about problems of redundancy and overlapping between organisations. The multiplication of organisations also makes it difficult for the administration to gather the data on the implementation of the services that would allow an evaluation of the impact of the public support to AKIS. But it should be noted that such problems are matter of debates within public administrations. This is for instance the case of the implementation of the FAS regulation in Wallonia, where the extreme plurality of actors and associations involved in advisory services, FAS and AKIS, are regarded both as the expression of the diversity of territories and environmental issues associated to Walloon agriculture, but also as a fragmentation that reduce the impact of public policies based on the delegation of services.

A second dimension of the discussion about the effectiveness of AKIS and advisory services in Belgium deals with the effects of the relations and knowledge flows between the actors of AKIS on the transitions of farmers' practices. Both Flemish and Walloon systems are characterized by very strong relations between the actors of AKIS, including relations between applied research, advisory services, and private companies. These relations are supported by formal institutional

arrangements, such as the IWT call for tenders in Flanders that makes compulsory the co-funding of project by private actors. These exchanges of knowledge are also supported by the informal interactions of agents who often share a same background and a same education in the faculties of agriculture, and a strong geographical proximity (around Ghent in Flanders and Gembloux in Wallonia for instance).

These collaborations have ended in concrete realisations. For instance, there are many examples of joint implementation of experiments and R&D, but also of the dissemination of the results of these R&D projects. Some of these examples are embedded in long traditions, like the “cereal white book” published since 30 years in Wallonia. Some are more recent, as the Sietinet project in the sector of Flemish ornamental plant, where private firms could formulate requests to a consortium of R&D actors (universities, applied research institute, experimental stations). The consortium would make it possible to identify who owns the relevant knowledge and competences regarding the request and to propose a review of literature useful for practice and for the company. These relations are not only ones between the actors of AKIS, but also between AKIS actors and other stakeholders of the innovation systems.

This question is also related to the connections between advisory services and collective organizations of farmers. Collective actions of farmers are embedded in a long history in both regions of Belgium. In Flanders and Wallonia, the main farmers’ union (Boedenbond in Flanders and FWA in Wallonia) plays a key role in the provision of services and information to farmers. In Flanders for instance, the Boerenbond has created a bookkeeping company (which implemented about 30% of FAS activity), an innovation centre with about 20 advisers, and a company, AVEVE, involved in upstream and downstream industries, and based on the consultation of farmers’ circle. In this context, a challenge is to give a voice to the plurality of interests and conceptions of farming. This issue is all the more problematic in a context of decrease of the number of farms that could make it difficult to raise enough human resources to support a diversity of collective actions in the country.

## **Bulgaria**

AKIS in Bulgaria is represented by public authority (MAF), public extension system (NAAS), agricultural scientific institutes and universities, including private advisory companies and non-government organizations. Public extension system support and facilitate people engaged in agricultural production to solve problems and obtain information, skills and technologies. Since the start of the RDP in 2007, NAAS was the only beneficiary for measure 143, which provided assistance to small and medium-size farmers in its applications for two measure of RDP while private advisory companies provided extension services to other measures (mainly measure 121). At this time, number of meetings and trainings were organized for informing farmers at the regional and municipal levels.” After such a big campaign (even, using the TV and radio), thousands of farmers applied in the programme with the expectation to receive financial support for improving their facilities and productions. This process of implementation of the rural development measures (assisting farmers to benefit from them) was complicated for Bulgarian public and private extension systems. The identified problematic issues were insufficient staff members, a lack of skills and expertise, unclear tasks and responsibilities, and low accessibility

for the most vulnerable farmers. These issues need to be taken in consideration for the forthcoming programming period 2014-2020.

This study presents clear linkages among various AKIS players at the different levels of the current Bulgarian advisory system. There are several linkages between various AKIS actors at different levels:

- Between MAF and other public organizations (NAAS and SFA-PA) consisting of defining and delegating missions, training staff and providing resources. They need to work together across different levels. Often the central level tries to retain control over local decisions and this may decrease the quality of services delivered by public advisory provider to farmers;
- Between MAF and educational and research organizations (universities and regional scientific institutes with Agricultural Academy) are still weak, but they may benefit from working together and synchronized their activities through doing actual and concrete agricultural research and formally agreed for the training of the students and future agricultural experts;
- Between MAF, SFA-PA and diverse extension services providers (private advisory sector, farmer based organizations and NGOs). Public authorities need to be more transparent and to provide information related to changes in legislations. NGOs as well as private extension providers, in the past, had to change the project application due to unexpected changes in administrative documents;
- Between public and private extension services providers and farmers. This linkage is so important for both actors. Farmers need support and the extension providers need to provide it before and during the application process and to continue working with them and afterwards. During conducted interviews with public and private extension experts, they said that “application documents and procedures for the rural development measures were too complicated for farmers to prepare them without advisory help. Therefore, they expect, in the new programme period (2013-2020), simplified regulations for application procedures and a quick evaluation process”.
- Between MAF and NGOs (professional farm organizations and foundations). The non-government organizations closely work with the MAF. Their members participated in the preparation, implementation, monitoring and evaluation of the rural development measures for period 2007-2013. Also, the professional farm organizations closely work with private extension providers and their members, usually, use their services.
- Between international and regional suppliers and farmers. Their advisory services to farmers are mainly relating to plant protection, machinery and seed use and agricultural production.

## **Cyprus**

In Cyprus, the AKIS comprises the Agricultural Division of the Ministry of Agriculture, Natural Resources & Environment (mainly the Department of Agriculture, with emphasis on its Extension Section, and ARI (the Agricultural Research Institute), the newly established Cyprus University of Technology, private consultants and private (input) shops, cooperatives (dealing

with the processing and marketing of produces) and producers groups and, of course, individual farmers.

In terms of knowledge generation ARI, through its applied research, predominates given that the university has only recently started to play some role; neither institute has mechanisms to disseminate knowledge to farmers. An important fact (confirmed by both ARI and the University) is that (very few) farmers have recently started to ask for specialized information and fund small-scale projects (mainly product analyses).

New knowledge and technology is also imported or generated (experimental plots) by private agronomists' companies (input shops). In terms of knowledge dissemination the Extension service (comprising the Extension Section, the District Offices and beat extension workers) predominates. Private companies' agronomists as well as producer groups' and cooperatives' agronomists (esp. of the ones applying quality systems) also contribute to the transfer of knowledge and technology to farmers. Finally, farmer-to-farmer dissemination plays an important role in a small country such as Cyprus.

Missing links may be identified between private (input) companies and the extension service as well as between consultants and the service (i.e. beyond legal matters). Nevertheless, informal links (occasionally) exist at district and local level.

### **Czech Republic**

The advisory services are provided in various forms representing individual levels from general informative advisory services to professional advisory services, individual field advisory services, up to synthetic information provided through inter-connected web sites. All these levels are inter-connected, complete, and support one another thereby making up an integrated system, which is financially secured through supporting programmes. Advisory services are provided by various bodies. Advisory system has 4 levels. For each level are designated or registered providers, which supply free advisory services in frame of main activities or in return for payment.

### **Denmark**

Denmark is (still) an agricultural country where almost two thirds of the area are cultivated and the animal production is high, especially and foremost the pig production. The sector is still important for the Danish economy and export of agricultural products including products from a significant agribusiness and agro machinery industry is of high importance for Danish employment and trade balance. If one disregards the current financial crisis which has affected the sector, the challenges for the sector have since the 1970s or at least since the 1980s all been related to the sector's relations to the surrounding society - initially the questions of environmental impact/sustainability and the impact on animal welfare from an increasingly industrial scale of production. Within the last 10-20 years the parameters of environmental impact/sustainability and animal welfare have been supplemented with the question of agricultural production and climate changes (both agriculture's impact on the climate and also challenges for the agricultural sector stemming from climate changes) and the production of bioenergy as both fuel and substitutes for current unwanted chemicals. But these challenges have also been positive as driving forces in the continuous development of Danish agriculture and as

new opportunities for how Danish agriculture could keep its position in front of agricultural production when demands from the political agenda and from the consumers were transformed into production advantages and innovations.

The Danish AKIS and advisory system are strong due to their deep roots in long historical traditions and due to some specific institutional legacies and characteristics of the Danish AKIS and advisory system. The combination of a powerful class of farmers – population – in the country side, since the nineteenth century, a very strong dependency on agriculture as the main earner of foreign currency until the 1960s – and still important today, an advisory system controlled by a system which is demand driven by the daily needs of the farmers and finally input and downstream companies also in the hands of the farmers have created a very strong and viable agricultural advisory system. Furthermore the advisory system has been strengthened by a traditionally close cooperation and network between Danish agriculture and Danish agricultural sciences.

The basic characteristics and surprise of the links between the different parts of the Danish AKIS are that they are at the same time both very informal as there are no or very few official documents papers connecting them, and on the other hand they are rather strong linkages. This basic characteristic is even more evident and especially strong concerning the Danish advisory system with its dense network of formal and personal linkages between associations, organisations, boards, institutions and companies. And at the centre of all these linkages are the Danish farmers or their representatives.

Denmark thus has overall a well-functioning AKIS with strong links between universities, public ministries and agencies, agricultural knowledge centres, agricultural colleges and vocational schools, advisory companies, and farmers and vice versa. Furthermore the Danish AKIS and advisory system are responsive towards the needs of the farmers and the demands and wishes from the political system and the public. But there are challenges.

## **Estonia**

In Estonia, the different components of AKIS have been made available to the producers and other interested parties. The information and knowledge system is composed of research, extension and educational organizations, structured and governed by the government through a sectorial agricultural policy. The linkages between various AKIS actors are quite weak and it is necessary to further develop co-operation and collaboration.

Experience with different advisory models has shown that a foreign advisory model cannot be implanted directly into another socioeconomic situation. Development of various extension models has provided experience and wider understanding of different possibilities for extension setup. This knowledge and practical experience has been the basis for development of Estonia's own extension model.

In Estonia the main overall points of concern are (1) the reinforcement of the cooperation between researchers, agricultural advisers and agricultural producers; (2) the precision, reliability and availability of scientific information and its distribution, (3) the possibilities to integrate research, advice and production.

The discussions concerning the future of AKIS are still going on. The Estonian advisory system will be modified in the foreseeable future.

### **Finland**

The development of the Finnish agricultural system is going in the right direction. Knowledge and education among farmers are increasing as well as the improved production and better know-how is leading to better results. The positive improvement of the agricultural sector is based on successful existing agriculture knowledge and information system. But the trends shows that in future, it will be even more important to improve the cooperation between the different AKIS actors and to upgrade the advisory services. It will be important to listen and answer to the needs of the future farmer or agricultural entrepreneur to get agri-research results even faster out to the farmers and into practice as well as to reach more cost-effective results.

Besides profitability and competitiveness the biggest concern in the Finnish agricultural sector right now is the aging of the farmers. The average age of farmers is increasing and there is general concern in how to get cope with the questions of generational change and ownership transfer among farmers. Overall all AKIS actors should take together the responsibility to improve the Finnish agricultural sector in relation to profitability, competitiveness, and management of still increasing farms in terms of size and the question of aging among the current population of farmers and how to get young people into becoming farmers.

### **France**

At a first sight, France may not appear as the European country which AKIS and agricultural advisory services have faced the most radical transformations over the last twenty years. The same key actors still operates: public research institutes (INRA, IRSTEA), private non-profit applied research institutes (ITA), chambers of agriculture, farmers' cooperatives and a diversity of farmers' associations that provide services (ONVAR, CERFrance, FCEL, etc.). Nevertheless, there have been some important changes in the conception and modalities of public intervention, from co-management to delegation of services. Before the early 2000s, there used to be some institutionalised negotiations between the state and the dominant farmers' union (FNSEA) about how to spend and spread between AKIS organisations the income generated by a tax on agricultural commodities. This has been replaced by a system of delegation of services, where the Ministry set contracts individually with a variety of actors of AKIS. This reform has changed the roles of both public and private actors, as well as the relations within the AKIS.

A first consequence is about the role of public administration. Besides research and education, the state is less and less active directly in the supply of information to farmers through applied research or advisory services. Its role consists in validating the terms of the contracts signed with the different AKIS actors subsidised, and then to evaluate their activity. The state is also responsible for controlling the quality of the knowledge available for the AKIS actors. Nevertheless, in a context of reduction of public expenditure and of the human and financial resources of the Ministry, one can wonder whether this control can truly go any further than just validating the accountability of the financial expenditures of the organisations subsidised. This can be illustrated with the case of the agricultural warning system (système d'avertissement agricole). This system aims at avoiding asymmetries of knowledge and at providing the same

information to all actors about the diffusion of pests. This information relies on field observation that used to be collected, validated and diffused by local agents of the Ministry of agriculture. These tasks are now delegated by the state to diverse actors (chambers of agriculture, cooperatives, farmers' associations). Some of the experts met for qualitative interviews fear a decrease in the quality of evidence collected given the low resources of the Ministry to validate the system. For instance, since this delegation of services has been established, there has been hardly any identification of fields contaminated by quarantine disease in potato production (such as cyst nematode). One can argue that it is indeed quite unlikely that an adviser paid by a farmers' association would warn the Ministry that a field of its client is contaminated by a quarantine disease. Beyond this case, there are some concerns expressed by different actors about the ability of the state to guarantee an access for farmers and advisers to robust evidence.

The changing relation between public and private sectors has also contributed to transform the relations between AKIS organisations and more specifically between advisory service organisations. Until the 2000s, there was little competition between the suppliers of services: the different organisations were specialised in different domains with limited overlapping. And there were often local institutional arrangements coordinated by the farmers' unions to delimitate the respective areas of activities of the chamber, of the cooperative, of CERFrance (which were all controlled by farmers). But this system of advisory services has ended, and the competition has strongly increased in a context of fast and constant diminution of the number of farmers. It can for instance be observed that the organisation specialised in advice based on the measurement of performance (like CERFrance about economic performance or FCEL on milk production) tend to develop agronomic advice on farmers' practices or production systems, relying on the data base they have accumulated on farm performance. This new competition appears in front-office, where different providers propose services on the same issues (like fertilisation), but also in back-office, where the knowledge and data base (for instance about farmers' practices and performance) appear more and more as key resources. In such a context, different stakeholders interviewed have emphasised their difficulties to access certain data and knowledge, such as academic publication (published on private platforms that individual consultants cannot afford to pay), evidence about the effectiveness of pesticides (partly confidential as part of industrial R&D of upstream companies), evidence on farmers' practices and farm performance, collected by different suppliers, partly thanks to public funds.

For the moment, this competition between advisory organisations does not seem to have transformed the relations between advisory services and other AKIS organisations. For instance, there are still some strong formal and informal collaboration between the various applied research institutes (ITAS) and advisory organisations such as the chambers of agriculture or the cooperatives or FCEL. There are even academic debates about whether the path dependence generated by these strong relations could induce or not some inertia or even some lock-in situations, especially regarding the use of pesticides. For instance, there could be a risk that the very strong role played by farmers and industries in the planning of the R&D activities implemented by some ITA could prevent from the emergence of new issues for R&D.

## **Germany**

The findings and general conclusions with regard to the overall German AKIS are following:

- The German AKIS is composed of a huge variety of organisations and institutions with mostly long-standing traditions and well-established roles. All organisational categories (public administration, public and private research and education, private sector, farmer-based organisations and non-governmental organisations) are represented. A dominant characteristic of the German AKIS are institutionally differing advisory systems at state level, a fact that creates considerable obstacles for the horizontal knowledge flows. According to literature and expert interviews, the linkages within the AKIS can therefore not be classified as well-functioning, especially taking the national perspective. Nevertheless, among the organisations of the same category, communication and cooperation is frequently considered as good.
- Integrating national policies mainly exist with regard to rural development topic and for research and innovation processes. Coordinating structures and activities are provided by both public bodies (e.g. the thematic working panels) and non-governmental bodies (e.g. the federation of agricultural chambers VLK). In this regard, good bases for a functioning AKIS are given.
- However, the actual agency of the federal institutions is insofar restricted as the responsibility for the design and the funding of agricultural research and education belongs mostly to state ministries as well as the design of rural development policies. Selected incentives, e.g. set in the field of research through national programmes may not suffice to counterbalance state-level reduction of e.g. research capacities or co-funding means. Hence, coordination of and exchange on agricultural research at the different levels (national, states) and in the different spheres (public, private) is very limited among the actors in the German AKIS.
- While the Federal ministry can set favourable framework conditions for policy instruments through the GAK, it is the state level which is finally in charge for the implementation and where priorities are set for rural and agricultural development policies. This decentralised approach can be considered as strength in so far as regional specificities can be taken into account and regionally adjusted measures be developed. On the other side, this institutional fragmentation hinders the exchange and the mutual learning among the different state-level actors and might even contribute to competitive attitudes. In this regard the German AKIS reveals a distinct weakness – knowledge flows cannot easily be organised and supported.
- From the interviews the picture of a divided AKIS emerged: on the one side there is a “mainstream”, conventional-market oriented AKIS which is represented by e.g. the interest organisation DLG and other professional organisations as well as private and public research bodies. On the other side, there is distinctively smaller AKIS that comprises various small(er)-scale farm organisations from organic, traditional and regional forms of agriculture which we might call the “alternative” AKIS. With all necessary caution due to the restricted empirical bases of this study we propose to further study the German AKIS with the hypothesis of an ‘ideological divide’ that considerably hinders its overall performance.



The findings and general conclusions with regard to policy and coordination structures:

- There is a continuing tendency towards cutting public funds down for public advisory services which is manifested by increased privatization and commercialization even in states with a chamber system or public advisory institutions. Similarly, funding of the relevant research and experimental stations (which are funded by each state) are significantly being cut down, or increasingly privatized.
- Recent policy approaches with impact on the German AKIS are the DIP and the EIP “agricultural productivity and sustainability”. From their design, they seem quite opposite: while the idea of the EIP is to support bottom-up approaches of actor groups along the agricultural value chain, the DIP builds upon the initiatives and existing research groups already funded in the innovation support program. Here, innovative research projects are selected from the steering group which means that the funding of the DIP is not open to all kinds of initiatives. While the DIP is a national policy initiative, the EIP will be implemented through state-level policies. Hence, vertical coordination and well-functioning knowledge flows are necessary in order to make both policy approaches effective and efficient

## **Greece**

The current picture of AKIS and, in particular, of advisory/extension services in Greece is that of a highly fragmented and ineffective system. More specifically, the breakup of the services and therefore of the line of command of the Ministry of Rural Development & Food (MRDF; ex-Ministry of Agriculture) in the name of decentralisation as well as due to the financial crisis resulted in the following paradox: the headquarters of MRDF seem to be isolated from lower levels with the regional and sub-regional (ex-Prefectural Directorates of Agriculture/RD) services being under the Ministry of Interior which again seem disconnected from the local offices (ex-Extension/RD Offices) being under the Municipalities, although the tasks of all the sub-national levels emanate from MRDF. The breaking away of a number of functions from MRDF (such as research and training) has resulted, at best, in extremely weak linkages and thus coordination and cooperation among these organisations. Furthermore, their functions are in the last 3-4 years severely curtailed given the current crisis implying lack of staff and funds. Moreover, it is a common understanding that MRDF has not put together a development strategy for agriculture and rural development; instead MRDF is perceived as being primarily occupied with the maximization of the CAP financial resources and their distribution to farmers resulting, in turn, in farmers’ obsession with subsidies and grants.

Overall, since the accession to the EEC/EU in 1981 the Greek Extension Service gradually got heavily involved in fulfilling the increasing administrative bureaucratic tasks of the State (implementation of the CAP policies and control of subsidies); extensionists were thus gradually transformed into almost typical civil servants working in office. Therefore, extensionists became more than ever severely restricted vis-à-vis the provision of advice to Greek farmers (bureaucratic function; conflict between advisory and inspection roles); information was provided to those of the farmers who actively sought it albeit in a rather fragmented, inadequate and inefficient manner. As a result, there is demand for extension and training, even if this implies fees, given that a number of prerequisites pertaining the content, format and personnel are fulfilled. The vacuum created was filled by private agronomists either working for private

companies or establishing local commercial enterprises promoting, in both cases, all kinds of commercial inputs.

The Greek situation clearly identifies with extension systems in which agronomists have the role of experts who disseminate technical information to highly dependent upon them farmers. The Greek extension system has thus to be transformed/re-built. To this end, agronomic education has to change as well. In the first place, courses on Agricultural Extension will have to be widely introduced in university curricula since the lack of such training results in a top-down, expert-led extension (and knowledge) system. Additionally, in the aggregate, agronomic education has, among others, to abandon mono-disciplinary and reductionist science in favour of trans-disciplinarity as well as to change from transmissive to transformative learning.

Overall, in the last 30 years the need for extension has been seriously downplayed as a result of the dominant attitude according to which the absorption of available EU funds (subsidies and grants) overwhelmed ‘the need to produce’; in this sense, the scientific support of farmers was not deemed ‘necessary’. Despite continuous calls (on the part of academics and GEOTEE) for the reorganisation and reorientation of extension services in Greece no relevant action has been taken; on the contrary, the extension system has been disrupted. The restructuring of MRDF and the establishment of ELGO may be a chance for improvement.

Especially nowadays, in a time of crisis, when there are indications that many (among the rising numbers of) unemployed are thinking of returning to the countryside (home-towns and villages) the lack of a service to support them may lead to the undertaking of uninformed and thus unsuccessful efforts to establish themselves as farmers.

## **Hungary**

There are a number of key questions, or ‘dilemmas’ facing the AKIS in Hungary, specifically regarding the way in which the advisory service operates, especially in terms of its institutional structure. The fact that these are still ‘dilemmas’ is due to the fact that there are convincing reasons both in support of and against each point:

- Should farmers, especially small farmers, pay for extension services? The take up rates of paid services are at present relatively low. Would this change encourage or discourage the take-up of advice by farmers?
- Should there be an official definition of ‘farm advising’ and should the scope of activities be defined in legislation? Is the present definition helping to restrict the information flow between the advisory services and the rest of the AKIS?
- Should parallel services be eliminated? Is this duplication actually serving to restrict information flow between the parts of the farm advisory network?
- Should farmers (and other stakeholders) be involved in planning the shape of advisory services? Would this improve trust and responsiveness to needs?

Functioning of the AKIS in Hungary, in terms of knowledge flows, must be improved and makes six recommendations:

- (a) a comprehensive review of the AKIS in Hungary should be conducted;

- (b) the present system of incentives for knowledge flow through the AKIS should be urgently reviewed;
- (c) future planning should be based on a state-of-the-art understanding of AKIS as multi-actor networks rather than simply as a unidirectional linear flow;
- (d) new models should be developed and tested on the basis of experience from other EU Member States;
- (e) monitoring of the performance of the AKIS in Hungary should be improved; and
- (f) an annual report on the performance of the AKIS should be prepared by the Hungarian government and submitted to Parliament.

### **Ireland**

Ireland is unique in having a substantial component of its AKIS within a single organisation, Teagasc. Teagasc undertakes research, offers extension services, agricultural education and support structures. This gives the Irish AKIS a coherent core that is lacking in other countries with AKIS where roles are dispersed over a wider range of actors. Teagasc activities are complemented by private agricultural consultants and veterinarians, private research entities, universities and Institutes of Technology, DAFM and other government departments, various public agencies and numerous other actors. Teagasc has been successful in establishing farmer-run demonstration farms (BETTER farms and Monitor Farms) and organising a large number of farmers in discussion groups to enhance peer-to-peer learning. Its 51 local offices make the organisation accessible to farmers.

The role of Teagasc is unlikely to change in the near future. Private agricultural consultants may become more important but this trend seems to be strongly influenced by government policy and the existence of schemes that require regular farmer advisory services. National regulations regarding the implementation and (access to) financing for FAS also plays a role in the viability of the small consultancies.

### **Italy**

The Italian AKIS presents a great structural complexity and high heterogeneity, due to the administrative decentralization and the excessive breakdown of tasks and responsibilities between several institutional levels. In addition, the historical separation between private and public actors, and especially the lack of effective governance mechanisms, increase even more the system fragmentation.

The regional organization of the public advisory services responds to the extreme differentiation of the local farming systems, institutional arrangements, market opportunities, and many other contextual factors. In Italy, each Region has its own law and its own policy on agriculture advisory services, developing 21 different systems that rarely interact with each other. Also the FAS implementation is devoted to the Regions that use the measure of EAFRD to fund it, resulting in very different Regional frameworks.

The possibility to design an agricultural advisory system on local basis could be an important prerequisite in devising a system that fit the specific needs and situations, according to the

theoretical framework that support a shift from a “best practice” or “one-size-fits-all” to a “best fit” approach in the reform of public advisory services.

In reality, however, the actual AKIS framework produces a great variety of local systems with different quantity and quality of service, poor coordination, duplication of efforts and limited funding, penalizing some Regions. As is clear from interviews, usually the quality of public advisory services is not really related to the expense, but to the smooth functioning of the public administration that varies greatly from one Region to another and even within the same Region, presenting too often the traditional weakness such as bureaucratic inertia, low levels of effectiveness and efficiency, not much responsiveness to citizens’ demands, etc.

Of course, there are also several examples of excellence of the public AKIS providing advisory service very effective even for the emerging needs (such as agritourism, care farming, etc.). However, as evidenced by interviews, in general an important AKIS bottleneck is to be not sufficiently demand oriented, especially respect to the agricultural research considered too often self-referent and not adequately linked to the real farmers needs. Moreover the research results are not communicated properly and on a large scale to the parties concerned. As demonstrated by several studies, the farmers express demands of innovation already available, but clearly not yet well known.

In the last period Italy experienced numerous successful cases of bottom up innovation led by local networks mainly related to the quality production, emerging also new figures covering advisory functions (Slow food, Consorzia, CSA etc.). These innovations networks however remain limited, they fail to cover all the farmers needs and especially to reach those in the most need, as the vulnerable and marginal farmers. Thus, an important challenge of the Italian AKIS is how to include and support new bottom-up innovation processes and disseminate the benefits of positive experiences to all actors, comprised the small and marginal farmers. By the way, this issue is in line with the ongoing debate about the regeneration of AKIS.

To provide an appropriate, positive and effective response to the farmer’s needs, the Italian AKIS clearly required a process of rationalization to move toward a more efficient and effective use of the available resources. However, rather than a rationalization it is currently undergoing a process of drastic reduction of public spending for advisory services, research and education, with indiscriminate cutting of human and technical resources.

Actually it exists a multiplicity of public and private actors accountable to different system components, each with different professional cultures and theoretical frameworks, with different systems of accountability, different financial regimes, working to their own agendas. Moreover there are also different combinations of these actors involved in the delivery process at local levels, giving rise to problems of both vertical and horizontal integration.

It is even very complicate to rough out the resulting organizational complexity.

The requirement of more system integration is widely stressed, but it doesn’t give concrete expression to solve the fragmentation of policies and practices. Co-ordination is clearly hard to achieve, but more formal methods to ensure better governance need to be employed. In the context of joined-up working, the agricultural knowledge system must be thought of as the totality of players, including public, private, NGOs and citizens that operate in research,

education and extension. Effective AKIS requires effectiveness within each component of the system and effective links between them, including the development of a more horizontal model which recognizes the importance of local specificities and the emerging of bottom up innovation processes. It might be useful for this purpose to implement an open organization structures that facilitate dialogue, adopting a shared planning with strong task definition and clear accountability for results. It should be supported by effective monitoring and evaluation systems, improving long term continuous learning from experience. At present, it's not available a common monitoring and evaluation system of AKIS policies or of its individual components, but different experiences and situations exist. Generally there are more structured evaluations mechanisms for the education and research than for advisory services.

The European Innovation Partnership (EIP) for Agriculture Productivity and Sustainability could be useful to improve the linkages in the Italian AKIS, operating also to better sustain the already existing innovation bottom up networks. However, at the moment it is not yet clear the EIP implementation and actually this is a big concern of the Italian Regions (likes the possibility to operate at inter-Regional level, how identifying the actors, the roles, the mechanisms etc.). Moreover the effect of EIP could be limited in terms of time, space, contents and actors involved, enhancing the power of the already strong actors.

Anyway the effectiveness of this and other specific instruments is limited without a comprehensive AKIS reform able to strength the whole governance structures and long term strategic planning processes, breaking also the excessive dependence on the funding provided by the European Union. For instance different Regions use the FAS measures to replace their own funds.

Finally, the Italian AKISs suffer for a lack of "systematic knowledge about the agricultural knowledge system", including the absence of common databases about the services delivered and the ongoing research, a systematic collection of information about "who does what", etc. This knowledge is necessary and crucial to improve the system and to support the policy makers.

## **Latvia**

Agriculture keeps a strategic position in Latvian economy and employment structure, especially in rural areas. Although farm sizes and intensification of agricultural production are increasing, Latvian agriculture is dominated by small scale, low-input and low-output production pattern which shapes also agricultural knowledge demand. Many of these farms have limited financial means to pay for professional agricultural advice and their needs have not been well addressed in existing agricultural policy. Taking into account their big share in Latvian agriculture, they are strategically important to maintain vitality of rural areas and communities, rural and agricultural diversity. The Rural Development Program for 2014-2020 initially proposed measures better targeting specifically small farms, but they have been reduced though. In turn, financially more sound big commercial farms are in need of more technological knowledge appropriated for their scale farming, but it happens to be not available in Latvia due to the lack of local experts or they are under-qualified or -equipped to provide such knowledge. It has to be added also, that agricultural production is diversifying: Next to traditional crops production and dairy farming, there have been new or alternative agricultural branches developing, like, organic farming,

energy crops. Agriculture is also coupled with other rural economy activities - tourism, processing, catering etc. These new types and forms of farming also demand specific knowledge.

To serve farmers' diverse knowledge needs, there are various agricultural knowledge institutions operating in public, private and third sector. However, AKIS remains fragmented as there are weak single planning and coordinating mechanisms. The traditional public research, extension and educational organisations are governed through agricultural, science and education policies. These policies are developed in consultations with farmer organisations to integrate better their needs; however, they are not well coordinated and there is lacking a strategic vision of agricultural knowledge system. Although farmers' education has been set as a priority of rural development, in practice it is poorly implemented. The already small public funding for agricultural advisory as well as science, research and education in general have been even more reduced during the recent financial crisis. This results in enduring shortcomings in human, organisational and technical capacity of public knowledge institutions that hinders their efficacy to create and/or provide farmers with topical knowledge. Recently the responsible ministries with the involvement of practitioners have launched various measures to improve coordination and consolidate the dispersed resources: for instance, creation of the State Research Centre of Agricultural Resources and Food, transformation of professional agricultural schools into vocational competence centres.

In parallel to traditional knowledge institutions, knowledge and innovation are created and disseminated in various formal and informal, short- and long-term multi-sector and -actor learning and innovation networks. These networks are often primary sources of knowledge and information for farmers. Involving actors from agriculture and science, but also education, business and policy communities, into interactive co-creation of new solutions for farmers' needs, these knowledge networks materialize well the concept and approach of EIP. Captured by the linear approach to knowledge transfer in farmer education, the current national policies of agriculture and science do not address well such interactive such knowledge and innovation networks. More systemic support to them may challenge also the fragmentation of agricultural knowledge resulting from the fact that many knowledge initiatives operate on short-term project base. Although projects create valuable knowledge, in long-term it is often poorly used as there are no follow-up activities after a project ends.

## **Lithuania**

(Lack of information in country report)

## **Luxembourg**

From the results of the document review, semi-structured interviews and the quantitative online-survey of advisory organisations, several conclusions with respect to Luxembourgian AKIS could be drawn:

- With its three public agricultural advisory institutions, the agricultural chamber and several FBO-based advisory services, a relatively pluralistic AKIS picture has evolved for a relatively small country like Luxembourg. Moreover, private enterprises (particularly up- and downstream industries) are known to play a role in product-related advisory services which could not be fully assessed in this report.

- Public funding of jointly selected advisory projects ensures that other advisory organisations can carry out advisory services according to special topics which go beyond the advisory scope of public advisory organisations. The selection and consulting process shall be highlighted as an interesting and fruitful form of joint decision-making – it is coordinated by the agricultural chamber and involves public, some private and farmer-based organisations likewise.
- Several advisory organisations seem to carry out advisory services with similar contents (e.g. accounting services, advisory on topics of public relevance) which may carry along the aspect of a doubling of structures, particularly in the public sector.
- Luxembourg is well connected and to some extent reliant on external knowledge sources. While within the country, the creation of knowledge is intensely supported through the CRP's, Luxembourg can be considered as a knowledge importer. In chapter 2 it was shown that cross-border exchange on knowledge and cooperation with agricultural actors from the public, private and research sector is high. It was noted that this connection (particularly to research institutes and advisory organisations in France and Germany) poses to be a vital linkage for accessing relevant knowledge.
- It was emphasised in one interview that the linking of knowledge-transfer from research to practice will be targeted in the future in order to ensure faster and more effective transfer of (new) knowledge and innovations into practice.
- Furthermore, a trend towards integrated farming supposedly replacing conventional farming in the future was mentioned. This refers to increasing efficiency of agro-chemical input use, generally reducing inputs and safeguarding natural resources which are perceived as important challenges in the agricultural sector.

## **Malta**

Malta is still facing off the transition from a protectionist economy, which had isolated the agricultural sector from the rest of the world, to the EU/international competitiveness.

This is challenging especially for a small island that, apart from the geographical limitations, is characterized by structural deficits and law/traditions constraints, such as: the fragmentation; the smallness of the farms (average size of the holdings is 1,6 ha and the 79% of the holdings stay on 5 to 9 LSU); the high levels of illiteracy and aging of farmers; the high land prices for agricultural land and inheritance practices which dictate that farmland be divided between offspring through limiting new farming entrants. Moreover, two thirds of the agricultural land in the Maltese Islands is owned by the State, 76% of the agricultural land area cultivated is rented, with only 24% being owner occupied.

Since 2004, the AKIS in Malta is living a phase of changeover from a de-concentration type, where the National level provided the services through its own departments, to a co-management type, where the Ministry participate in the management of the advisory system together with the professionals (FAS Consortium) and the farmers (cooperatives and POs).

In this context, the key concerns for the AKIS are the followings:

- a) the lack of a proper national strategy on research and innovation in agriculture or at least an action plan. On this point, even the National Rural Development Strategy for the programming period 2007-2013 does not refer to the research and the innovation; while the “National Research and Innovation strategy 2020”, refers to the opportunity for promoting the value added and innovation in agriculture and rural development just by addressing the RDP 2014-2020 for the actions to be implemented. This is bringing to a few of mostly public researches, not linked one to each other, funded by international programmes (i.e. FP7) and with any real usability/application at farm level;
- b) the lack of a systemic vision of the AKIS’ actors. Indeed, the co-management approach seems to be more oriented to fix “what has to be delivered to whom” rather than set the stage for recognizing the actors and providing a reorganization of their roles, functions and relations, thus bringing to a resilient fragmentation of the AKIS into very few providers and duties. On this regard, there’s a need for a major recognition of the role of the system as a whole for increasing the competitiveness in agriculture, by spreading innovative thinking among the farmers and enabling responsive entrepreneurship. Indeed, on the other hand, the research let emerge also a scarce self-acknowledgement of the researchers, of the private consultants and of the trainers, on their specific roles as part of the agricultural and innovation system, within they should cooperate and dialogue in view of implementing more targeted (useful and usable) researches and innovations. On this point, certainly, there’s a call for promoting the enhancement of the skills and competencies of the actual actors, the entrance of new subjects, a wide awareness on the AKIS actors among the farmers, bridging the actors and fostering their cooperation for innovation;
- c) the only focus on cross compliance (FAS) and not on innovation. Indeed, the advisory system designed by the MSDEC is still linked to the compliance and doesn’t offer a service aimed to knowledge transfer and innovation and to enhance general farm management, which are the most important needs to be addressed in view of increasing the competitiveness of agriculture and fostering environmental and social sustainability;
- d) the reluctance of farmers to ask and pay for extension services. Farmers have always had a scarce entrepreneurial attitude to innovation and competitiveness, being interested just in selling the productions at the best price, without any attempt to meliorate their quality or reduce their environmental impacts, or to address the consumers’ expectations. This market-orientation has been maintained across the accession to the EU, although translated into the emerging willingness for increasing the marketability of the productions and the productivity, through demanding just for marketing services and suppliers. This attitude, even if it is bridging the farmers to the extension services, is far from a major acknowledgement on the need for investments in human capital and entrepreneurship. Indeed, this is true especially when they act within cooperatives and the producer organizations, where they are still endorsing their own individualistic attitudes, without any attempt to promote a collaborative and unitary work for tracking common pathways of innovation of the value chains. Nevertheless, the associative bodies are playing a crucial role in linking the advisors to the farmers and these efforts should be better organized and enlarged to the researchers. Truly, in the actual context, the associative bodies seem to be likely to play the role of innovation brokers, once they reinforce their management skills, in



view of reaching more acknowledgment on their potentials and getting to a more systemic view of the AKIS.

In this situation, the renewed CAP, which major priority is the transfer of knowledge across the farmers, based on the enhancement of the capacities and skills of both farmers and trainers/advisors, is quite challenging and offers a number of opportunities to overtake the actual concerns if the AKIS in Malta. This demands first the settlement of a national innovation strategy which should provide a reconstruction of the AKIS based on the concept of interactive innovation, as well as the assumption of the mutual recognition and dialogue of its actors, and the existence of linkages which shape collaborative behaviours, through introducing “innovation to firm”. The responsible body at Member-State level is called to the difficult task of coordinating a new AKIS approach in order to allow the achievement of cross-linkage among functions and themes, farmers’ accessibility, stakeholders networking, as well as the enlargement of farm advisory service beyond the scope of advice on provisions concerning cross-compliance obligations into an instrument of sustainable development and innovation of farms.

### **The Netherlands**

In the last decades, Dutch agriculture has succeeded in maintaining its leadership in the world market by continually investing in innovation. This has led to a knowledge-intensive agricultural sector characterised by high levels of productivity. The Netherlands has a world-renowned knowledge infrastructure in agricultural R&D and historically there is an intensive cooperation between the private sector, scientific institutes and the Government.

After the collapse of the Dutch OVO triptych in the 1990s, the Dutch AKIS have experienced a transition to a new arrangement that is still on-going.

The stakeholders interviewed, while working in the field, have demonstrated a "sense of loss" in describing the Dutch AKIS arena, revealing a clear difficulty in tracing its boundaries and in clearly define the identity and the role of each actors.

The end of the OVO triptych has meant a transition from a stable system, with well-defined actors, bound together by institutionalized mechanisms to a highly dynamic system with great hybridity of actions and functions.

In parallel with the changed extension arrangements, other changes have taken place in the Dutch OVO. In education, the transition is towards a so-called OOO network, Education, Research, Entrepreneurship (in Dutch: Onderwijs, Onderzoek, Ondernemerschap), in which academic research, education and industries work together in a network system, to establish effective education programs. However, this transition is not yet a reality, as evidenced by Kupper et al.: *"schools have an image gap to be bridged. There is a widespread assumption that they lag behind in awareness of current research knowledge and in connection with practice"*.

In the Research the transition is toward a Public-private partnerships model, involving the so called Golden Triangle (Government, Private industry, Research and University) with a growing of market-driven research in the context of decreasing public funds and public fiscal crises.

A major result of all these changes (that are strictly connected) is the gradual shift from knowledge as a public good to knowledge as a *marketable* product.

The creation of a *knowledge market* has been seen as an opportunity from many actors who have entered this vibrant arena, especially as advisory service providers. While the more classic AKIS actors have assumed new identities and new features; it is due to the action of different driving forces, including the search for funding no longer permanently insured by the Government.

To meet the market needs, innovative demand driven knowledge and services are developed, new arrangement and synergies are defined between the multitudes of AKIS actors. This system is so dynamic that sometimes the existing institutional framework inhibits the innovation processes, such in the case of spatial planning and multifunctional agriculture or in the case of environmental cooperatives.

However as mentioned above, several *market* and *system failures* occurred. Together with the end of the OVO triptych all the public structures before devoted to the AKIS governance collapsed. This resulted in disintegration of the knowledge distribution system and a lack of throughput of knowledge towards farmers.

Consequently the innovation networks and the figure of knowledge facilitator have emerged to rebuild the ties between the several actors and to promote knowledge creation and transmission within the system. The value of innovation networks and knowledge brokers in the Netherlands has been emphasized by different authors and also by the policy. The Government has funded and supported innovation networks and knowledge brokers considered as valid tools for the Dutch innovation policy.

This “innovation model” has considered as the answer to strengthening agricultural innovation capacity also in the international context and it has taken up by the same European Innovation Policy in the definition of the European Innovation Partnerships (EIP).

The experience of innovation networks, however, is in many cases too limited in time, in space, respect to the actors involved and to the themes addressed in order to be considered as the unique tool and a robust support for knowledge generation, accumulation and transmission. Moreover the action of innovation brokers’ networks does not act on some critical points of the Dutch AKIS, specifically with regard to knowledge access in both its dimensions of front office and back office.

It results in strong inequities between farmers for the access to cognitive resources that become more and more vital for the competition and the very farms survival. This represents a limitation of the Dutch AKIS in supporting Multifunctional Agriculture (MFA) assumed as “*the full range of contributions of agriculture to economic and social development as a whole*”, because MFA raises needs for new and more complex knowledge, as well as for a diversity of farmers and farming systems. In several cases, the regional or local Government interested to the MFA provision of public goods support and fund same innovation process.

Another weakness of the Dutch AKIS is in the back-office dimension of knowledge access and production. With the growing importance of the market lead mechanisms, the public investments in knowledge infrastructure are decreasing and they are more and more focus on the stronger sectors (as evident in the Top sector policy). The need for revenues obtained through market mechanisms regards also the public organizations, such as WUR, where the cutback in stable

government funding for research makes it hard the maintenance of basic research infrastructure. Another example is the Green Knowledge Cooperative, a platform of all green educational institutes operating as mediator in the knowledge exchange with business, research and other partners. One of the main tasks of GKC is building a database of scientific articles about specific topics able to be used in the green educational institutes. In 2015 the public funding for the cooperative will end and GKC will have to fund its programs (using the payment service or through contribution of farmers organization, private, etc.).

On the other hand, the R&D funded by Agro-Industry (also through Public Private Partnerships) is increasing, but it covers only selected profitable topics with short-term return. This led to a lack of knowledge investment useful to nourish the farms diversity, penalizing again the SMFs that may have specific knowledge needs.

In addition knowledge no longer circulates in the system as in the past. The more commercial orientation of the AKIS system implies a more protective attitude respect innovative knowledge as good with high market value.

Dutch agriculture sector is primarily focus on foreign market and consequently it has a very high international market exposure. To maintain its global leadership the sector needs continuous growth of productivity and efficiency. However Dutch agriculture is facing the challenge to develop into a sustainable sector and the Dutch AKIS is the main support of this challenge.

## **Poland**

In Poland there is not yet a well-functioning system of Agricultural Knowledge and Information. Despite the existence of most of the institutions and organizations that make up AKIS, the lack of mutual relations of actual interaction and prevents them from functioning as a system. This also makes the creation of agricultural knowledge is often done in isolation from the needs and expectations of its customers. Therefore, the effects of the functioning of the various institutions and organizations operating most often scattered or total isolation, dealing with often only studies are worse than would be expected given the size and quality of the owned intellectual potential.

In the Agricultural Knowledge and Information System, institutions, organisations and individual persons generate new knowledge, create new technologies, collect and prepare information, serve advisory services, but the linkages between particular units are not very strong. We can indicate some reasons of such situation, but the main reason is insufficient funding and lack of legislative acts, under which the AKIS system could work more efficiently. Looking at the sources of funding, we can notice differences in access to them – extension services are under-supported; knowledge coming from Universities (funding mainly through the Ministry of Science) is spreading too slow (University researcher, finalising his project, is not obliged to prepare the results for practice; as opposed to researchers of Research Institute, financing mainly by Ministry of Agriculture and Rural Development).

In Poland, there is still no well-functioning system of Agricultural Knowledge and Information. Despite the existence of most of the institutions and organizations that make up AKIS, the lack of mutual relations of actual interaction prevents them from functioning as a system. This also leads to the fact that agricultural knowledge is often developed in isolation from the needs and

expectations of its customers. Therefore, the effects of functioning of various institutions and organizations, which operate most often in a scattered way or total isolation, often dealing only with studies, are worse than it would be expected given the size and the quality of the possessed intellectual potential.

### **Portugal**

The Portuguese AKIS involves a set of actors performing a variety of functions, namely: policymaking; regulation, monitoring and evaluation; research; education; training; information, extension and consultancy work. 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 and monitoring,

research, information, education and training. The nonprofit actors are farmers' organizations of different types that, besides lobbying and policy concerns and administrative roles, are involved in training, information exchange and extension.

The private actors can be linked to industries providing farm equipment's and inputs, or consultancy firms, usually small, delivering services in such areas as project development (and farm investment plans), farm accountancy and training.

With the future CAP in mind, as well as, the challenges faced by farmers, farmer's organizations, the interviewed actors stressed the importance of: reinforcing the linkages with farmers, at the field level; giving more attention to extension work; developing the interaction and cooperation with research and education; qualifying the human resources; gaining financial sustainability; and having more active extension role for public services, in order to serve more farmers.

### **Romania**

In Romania, AKIS bears the imprint of his history. This suffered successive modifications in order to face the new challenges and realities. There are no coherent policies targeting AKIS, and its subsystems are largely under the influence of certain sectoral policies. The current system is inefficient in assisting the farmers: the existing subsystems – research, consultancy and agricultural education are weakly prepared to support Romania' approach in implementing the CAP 2014-2020. There is a limited integration of the consultancy, agricultural research and agricultural education activities. Furthermore, there is a lack of collaboration between farmers and the staff of the three subsystems, and this leads to farmers' lack of confidence in the activity performed by these subsystems.

Romania spends one of the lowest budgets in EU on agricultural research. The general diminution of public finance for agricultural research led to insufficient funds for wages, investments in infrastructure and low efficiency in implementing the research programs. The number of researchers diminished and the attraction of young people in this field of activity remained a desideratum. The loss of researchers' mobility and the low access to external information led to output quality diminution. In this context, more and more often, a great number of institutes perform commercial activities in order to increase their insufficient budgets, to the detriment of supplying the necessary information to farmers.

The agricultural education system is also facing difficulties in the process of adaptation to the farm sector requirements. The curricula of the education units, although have suffered a series of modifications, have still theory oriented structure. The present education system lacks educational and vocational training modules addressed to farmers. The agricultural education should be restructured in agreement with the structure and needs of the agri-food system.

### **Slovakia**

In the Agricultural Knowledge and Information System (AKIS), people and institutions are inter linked in order to generate new knowledge, share experiences and transfer them among themselves with the aim of introducing them into agricultural and rural practice. This kind of system only functions well in a situation where farmers, teachers from universities and secondary schools, support services and vendors/mediators are well integrated, with the objective of obtaining new knowledge and information from different sources about more sustainable land management, sustainable use of natural resources, and for improving the living conditions of farmers and the rural population.

Despite this, the integration of people and institutions in relation to research and extension, as well as links among the farmers' community, were not successfully developed during transition after EU accession. Regrettably it should be highlighted that this unfavourable situation continues no significant changes materialized with regard to the effectiveness of the agricultural extension system. The extension services are under supported or not operating at a satisfactory level in relation to the financial resources, space and mobility, and lack the capacity to orient themselves, in a flexible way, to the new challenges and be quick enough to obtain the most up-to-date information in a timely manner.

### **Slovenia**

The structure of institutions that form AKIS in Slovenia is diverse. In general they can be classified into six groups according to their mission and contribution to agriculture. First three groups' forms public sector with the Ministry for agriculture and affiliated bodies as national governmental institutions, research and education institutions and a group of public institutions that provide public services. Private interest driven institutions form second group that consists of farmer based organisations, private advisory organisations and companies and NGOs.

In chapters that refer on FAS and FASystem it is clearly stated that adaptation of service to changed situation on the market must accrue and this is also the issue in research and specially education sector. Research focus is on basic research while work on applied research is insignificant. Another issue is that key focus of education programs on faculties and in secondary schools is technology, thought students do not get enough knowledge on farm management (economy) as well as sustainable management. The whole knowledge (priorities) chain must be rebuilt.

Also the supply chain must be seen as a system of interdependent stakeholders. It is not possible to have successful food processing industry without farmers that will cost-effectively grow quality agricultural commodities.

On national level, legal ground documents for change in AKIS are strategic documents that determine Slovenia vision and goals in agriculture till 2020 - Resolution on strategic guidelines

for the Slovenian agriculture and food sectors by 2020 – “Food for Tomorrow” and Research and Innovation Strategy of Slovenia 2011-2020. This also reflect in first draft of the Rural development programme of Republic of Slovenia for period 2014 – 2020 as in line with article 36 support to European Innovation Partnership is predicted and key partners (food processing industry, NGO, farmers, consultants and researchers) are clearly stated. The obligation to encourage this process probably rests on research and education institutions.

Last but not the least important is the fact that Slovenia must clearly define its priorities. It is not possible to achieve a higher level of self-supply with food and at the same time protect mayor share of land with very strict environmental measures (e. g. Natura 2000). We must find some kind of compromise. In addition it is also necessary to ensure coherent politic (planning) of different sectors (e.g. forestry and rural development) and lead consistence long term politics on sector and national level as structure changes are long term process.

## **Spain**

In Spain AKIS network has a very scattered structure in the territory, not only physically but also in terms of management or organization. It is necessary to remember that the decentralization from the central government towards the 17 regions configured a complex administrative structure, with the assumption of much of the competences transferred to the regional governments, including that of agriculture, livestock, fisheries and forestry.

At the national level there are two main public centres of research, currently under the Ministry of Economy and Competitiveness, CSIC (formerly under the Ministry of Education and Science) and INIA (formerly under the Ministry of Agriculture). Both centres lead and/or coordinate other centres created in the different regions. CSIC has delegations in all the regions as well as a research structure which encompasses many scientific areas, among which stands out for its international recognition, the agricultural sciences. Moreover, since INIA leads the Coordination Commission of Agricultural Research, partially coordinates the activity of public research centres de-pendent on the regional governments (although each of the regional centres are independent in their budgets, organization and research planning). One important aspect is that in the decision making structure (Governing Council in the case of INIA and Executive Council in CSIC), especially at the time to design the research policy, they participate the key stakeholders involved in the sector (mainly OPAs, cooperatives, regional research centres, representatives of the Ministry of Agriculture and Economy and Competitiveness in the case of INIA, and the last one in the case of CSIC, added to the universities also in this case). Moreover, the strategic programme of CSIC is assessed by an international committee, which brings to the centre of a high prestige.

In addition to these two main centres and regional institutes, there is a wide variety of centres, usually public, carrying out important research in different fields of the agro-food issues. Universities and centres which depend of them play a very important role in this regard. On the other hand research centres created from contributions from other public as the CSIC, INIA or different universities centres (new join centres), are increasing their importance since they contribute to the generation of new and collaborative knowledge but also to the transfer of knowledge and technology between research centres.

The relationship between AKIS organizations is not only addressed to the creation of these joint centres but also they sign cooperation agreements and collaborate in projects or joint research. Furthermore, knowledge transfer between AKIS organizations, although could be significantly improved, is done normally through training courses, publications or cooperation of available 19 services for this purpose (OTRIs), etc. The Technological Centres participated by private institutions complete the framework of research in Spain.

National or regional governments participate in the functioning budget of its respective centres. However, funding for research for those public AKIS organizations comes mostly from the central government, mainly through the National R+D+I Plan. Central government exert a sort of coordination since it decides the topics for the research programmes in which are based the competitive calls. The main programme affecting agriculture research include four main topics, the challenge in security and quality food, productive and sustainable agricultural activities, natural resources, and marine research. This programme is managed by the national Coordinating Committee for Agricultural Research, being exclusively addressed to INIA and the regional centres included in the system INIA – regions. This means a reserved funding for the regional research centres and some dependence from INIA guidelines (at least in the way that this Committee decide what are the topics to be included in each call and that the funding is controlled by the Committee).

The remainder programmes and subprogrammes have non-restricted calls, thus all research institutions (including universities, CSIC or any other research public or private organizations) may present their projects in different ways, individually or collaborating with some other research institutions. If join proposals improve the relationships and knowledge transfer between institutions, they are increasingly favoured, being one of the criteria to have more possibilities to obtain funding.

With regard to the type of research carried out in the regional centres, it tends to be usually a research applied to the needs of the sector. However INIA and CSIC conducts more a fundamental or basic research since their researchers are not so in contact with the final users at the basis of the agro-food sector (farmers, stockbreeders, etc.).

The planning of each national (INIA and CSIC) or regional research centre is carried out not only by Directorate of the Centre but also often there are involved technical committees of the institutes, external committees from universities, OPAs, representatives of regional governments and/or national government, etc., according to the issues concerned and the scope of the centre (we have to remember that both within the INIA and CSIC there are diverse sections and sub-centres, sometimes with certain autonomy). Thus the planning of activities is done, in principle and theoretically, with the agreement of all involved stakeholders. CSIC has an additional input in their programming since after the design of the strategic planning usually this documents are sent to international committees to check out and asking for suggestions. This way to work brings high prestige to the centre.

As a conclusion, it may be summarized the main strengths and weaknesses of AKIS in Spain.

Related to AKIS the **main strengths** are:

- The presence of two national centres, which conducts basic and fundamental research, and constitutes one of the bases and a fundamental pillar of the Spanish knowledge system. The –at least formal- participation of stakeholders in their governing councils should ensure a design of research policy taking into account the needs of the sector.
- The extensive network of regional technological centres. They became a crucial pillar of the knowledge transfer system since they play two fundamental functions. First, their applied oriented research (whereas the national research centres focus on fundamental and basic research), needed for the modernization of the agro-food sector. Second, their training programmes, which are ensuring knowledge transfer to the sector since they combine applied research with training to the final users.
- In spite that regional technological centres are highly autonomous, there is an important link with the National Institute for Agricultural and Food Research and Technology (INIA) through the restricted research programme and the call for proposals just for researches of the system INIA-regional centres.

However, there are also a number of **weaknesses**:

- The strong reduction of budgets during the very last years (especially in the National Research Council, CSIC), which is seriously threatening the viability of many investigations already underway.
- The reduction of training programmes, among which may have particularly negative impact in the case of courses, scientific conferences and seminars aimed at knowledge transfer with researchers from regional centres.
- The lack -or weaknesses- of a system of knowledge transfer between national centres and regional centres sufficiently established and comprehensive. Transfer currently depends on individual initiatives, seminars and conferences and the availability of budgets for their organization and/or assistance to them. On the other hand, the knowledge transfer from national centres is more frequent within the academic fields (more recognized) than in the professional ones. This explains the tendency for researchers to be much aware of the scientific publications than an effective dissemination and knowledge transfer to the agri-cultural sector.
- Even though the research programme restricted to system INIA-regional centres exerts certain coordination from the INIA, it lacks a more robust system of coordination focused on strategic orientations of research policies of AKIS at national level, taking into account the regional centres. There is not a coordination body of the regional centres nor a solid enough and well established discussion forum on the strategic orientations of the re-search policy (if we discard the initial design). Each centre and or region has their own strategic orientations.

## **Sweden**

Farmers have sometimes criticized agricultural advisory services for not being relevant and based on demand, and that they want to see more demand-driven advisory services and not to see their money thrown down the drain. This is especially the case when it comes to the free



advisory service like “Focus on Nutrients”. It is a challenge to find a good balance between push and pull in the knowledge flow – sometimes the farmers need to push for new knowledge and sometimes the research need to pull.

This balance would be easier with a strong chain between researcher-advisor-farmer, which is unfortunately not very strong today. There is a need for more networks and platforms where researchers, advisors and farmer can meet, rather than the situation of today, where they are mainly just platforms for researchers and advisors or advisors and farmers. One interesting way to work is farmers-driven research, where farmers and researchers work close together. Maybe crowd-funded research could be interesting, where farmers cooperate and pays for a specific research project that they are interested in.

Swedish advisory service also needs to be better at inviting researchers to events and meetings. One problem is that there are not so many possibilities and incitements for researchers to attend meetings or networks where farmers are, in order to communicate their research and to get knowledge of what kind of research that farmers are interested in. The budget for a researcher is tight and therefore they could need some kind of financial support in order for them to be able to participate in farmer’s events.

One possibility for better research flow between university and advisory organisations would be to share employees, for example that an advisor conducts part-time research, or that a researcher is hired part-time at an advisory company to work with research and development. Having an advisor with a PhD is also a good way to move advisory services and research closer together, as it is then easier for the advisor to understand the academic language.

There is a need for more applied research, the ground research is important for the applied research to build on, but today the general opinion is that there is lack of applied research which makes the farmers and advisors look east and south to Denmark, England and Germany. Some suggestions to this problem have been to have higher demands on the ground research e.g. by setting aside parts of the research funding to think about communication of the result, and how this new knowledge could be used. There have also been requests for more cooperation between the Nordic countries, to share the results from the applied research that is carried out. In the past there have been an organisation Nordic Agricultural Research (NJF) that have coordinated and communicated the applied research, but it is no longer very active, but maybe it would be good to improve Nordic cooperation.

There is also a critique that the research is communicated in a too academic language, which makes it difficult for farmers and advisors to use the new knowledge. It is therefore important to find new channels and new ways to communicate research. Another critique has also been that the university is too much focused on analysing problems, and not finding solutions – but it’s the solutions and innovations that Swedish agriculture needs!

The aging and declining number of farmers together with a low profitability will be a challenge for the Swedish advisory organisations.

When Swedish agriculture becomes more market oriented, there is a need for Swedish farmers to undergo a shift from producer to entrepreneur. For this to happen, the agricultural advisory organizations also need a mental shift, from focus on production to focus on the entire business.

Advisory service needs to stand on three legs: production – market – management, but this is not the case today. There are shortcomings regarding the service provided by the advisory organisations when it comes to management and leadership. These shortcomings need to be remedied. Today there are a lot of platforms and networks where advisors on production can meet and discuss, but these don't exist to the same extent when it comes to management and leadership.

Larger farms and more complex business put a pressure on the farmer, which also increases the expectations on the expertise of the advisor. Even though there is a need for a more holistic advisory approach, the farmer will also request more specialist knowledge as the younger farmers are very often well educated. This means that the farmers need to be closer to the research and knowledge. The farmer and the advisory services need a close partnership in order for the advisory services to know what kind of knowledge the farmers want and need.

One potential problem for the advisory organisations in the future is that with a declining number of farmers and a declining profit, there will be less time and money for in-training and education in order for the advisors to be real experts in their area of knowledge.

Learning by others advisory organisations is important, and as the prerequisites and the challenges for European agriculture and European agricultural services are quite similar, it could be good to have a European cooperation between European agricultural advisory organisations.

### **United Kingdom**

The current AKIS and advisory system in the UK is characterised by diverse and increasingly separated arrangements in the four UK countries, e.g. for setting SMRs and GAEC, education and training, rural development, and much research. Only in theory is there a UK AKIS as depicted in Figure 1. In practice, there are four quite separate knowledge systems, governed by discrete sets of policy, government departments and agencies, and to a large degree also discrete sets of NGOs, farmer organisations and private commercial actors. The links between the individual AKIS have not been measured but based on similarities in set up of advisory services, activity range of providers, evolution of advisory services and current political links we assume stronger links between the AKIS in Scotland and Northern Ireland, as well as between the English and Welsh AKIS.

There are only a limited number of organisations which link across two or more UK-countries in terms of their work and subsequently their knowledge flows. Among them are the levy boards; NGOs such as LEAF and RSPB; the National Farmers Union to some extent; larger consultancies such as ADAS; Lantra as the sector skills council for the UK; the Science and Technology Boards; as well as food chain actors such as supermarkets or large agricultural input suppliers. Both governmental and private advisory actors are likely to develop their knowledge and skills based on the regional context they work in, specialising e.g. in the respective rural development programmes and legislation, the markets and networks, and various formal and informal rules that apply only to 'their' UK-country. The devolved responsibility for agriculture and subsequently the separate policy frameworks and agency competencies go some way in explaining the separate AKIS. There are high transaction costs in transferring knowledge due to organisational and institutional boundaries.

## **6.2. Summary and conclusions on section 4+5 (characteristics of main providers and topics of advices, and their clients)**

### **Austria**

The chambers of agriculture form the backbone of the AKIS. Around 600 advisors cover a wide range of topics and services. This is complemented by activities of a number of other organisations (research institutes and schools, farmer associations and NGOs) in specific fields. In cooperation with the LFI the chambers are in the position to deliver trainings on a vast number of topics.

Agricultural advisors graduate from the University of Agro and Environmental Pedagogy. This education involves methodological and didactical subjects next to standard technical subjects. Furthermore advisors are continuously trained during employment. Networks of advisors foster cooperation and exchange.

A number of methods and approaches can be considered as best-practices, such as the “Arbeitskreisberatung” and other thematically working-groups, the promotion of multipliers in agriculture, the support to specific target groups (women in agriculture, the Rural Youth), and the fact that social issues are tackled.

The Farm Advisory System is implemented by the Chambers of Agriculture and builds on existing structures. In 2011 the Chambers employed in total 22 certified cross-compliance advisors (in terms of full-time equivalents). Advice on cross-compliance standards is integrated into existing education and extension measures and conveyed to farmers primarily in the course of trainings and technical assistance.

The path Austria has chosen to promote organic farming and rural and regional development can also be considered as successful.

The AKIS and concerned actors are confronted with challenges which request action in a number of fields.

- Commitment to the public character of the Austrian AKIS and provision of adequate funding. The public character and the AKIS in its present form should therefore be reinforced in order to continue contributing to the political and public objectives in agriculture. This would require mid and long-term public funding strategies and corresponding commitments as well as the reinforcement of the role of the Ministry for coordination and steering of advisory services.
- Provision of affordable, independent and broad coverage of advisory services. In view of practically declining public funding, organisations need to develop new strategies for securing their operation and attract alternative sources of finance in order to maintain the provision of services in the present form. At the same time ever-increasing administrative requirements seem to gulp valuable resources.
- Individual organisations and the system could pursue several paths. Charging for certain specific services in the future without discriminating farmers with little means is a possibility for organisations. Funding through projects is another option, in particular when

networks and consortia of various organisations are formed. This can increase the chance to participate in different thematic programmes. Funding from programme for rural development 2014-2020 and the European Innovation Partnerships may be options systemic actors can pursue.

- In this context it is worthwhile to point out to the differences in the understanding of training and advisory services between Austria and the EU. Concepts, meanings and understanding vary between both sides which renders the utilization of EU funds for training measures in Austria difficult.
- Continuing and safeguarding the formation of existing and new advisory staff to prepare for the challenges of the future. The complexity of problems steadily increases, the number of regulations and standards rises too. So do client's demand and the specialisation of farms. This burdens advisors who are called to provide even more specific and tailored advice. Eventually this requires higher qualifications on their side and boosts costs for the organisation. Failing to do so could impair cooperation and trust with clients.
- Increasing the level of education of farmers. The level of education of full-time farmers lies below average compared with other EU member states. According to the impact assessment high education levels are directly correlated with higher productivity and levels of satisfaction.
- Intensifying collaboration of advisory and training with research institutions to step up the transfer between the field and research. Research should in particular increase the practical relevance of its work. Results and outcomes of research should find their way quicker into (formal) education and training.
- Enhancing information flow and exchange. The AKIS is fit to meet the challenges ahead, the establishment of new structures is not necessary. Coordination and information flow within AKIS is mediocre yet. Cooperation between organisations and regions should therefore be increased to enhance the exchange of information, to share experts and expertise, tools and products, to divide work and jointly draw up programmes, and to step up collaboration in projects. Cooperation should be improved between organisations and across regions. Specialization of advisors and organisations/branch offices should be increased with a view to establish regional competence centres.
- Development of methods, tools and products. Specific services and products for small and smallest holdings should be developed. New niche products and projects, new test farms established and the area for field research increased in order to further develop the AKIS. In general AKIS has to develop new tailor-made products for specific target groups, and to discuss the relevance and dimension of liability claims.
- Stepping up consulting in business and organisation related matters, with the help of coaching and process management.
- Agriculture and rural development. Agriculture plays an important part in rural development. When devising rural and regional development strategies the focus should be enlarged to entire local and regional production cycles and supply chains. Other actors,

sectors and issues should be considered as well because innovation often takes place at links and cutting points. AKIS activities should be better linked with LEADER projects.

- Establishing a systemic framework for advisory work. The need to invest some time into achieving common understanding of relevant terms and methodologies which form the conceptual framework of advisory work was articulated. Clarity and consent as regards to the systemic framework are indispensable for establishing a common ground for planning, implementing and evaluating education and advisory measures.
- Improve marketing of advisory measures. To promote advisory measures and communicate success stories with a view to increase understanding and awareness for the importance of training and education among clients and agricultural matters among the wider public.
- Reaching out to the wider public. Advisory organisations should expand their target groups and reach out to the wider public in the future. With a view to promote the development of responsible citizens and consumers, and to raise their interest and awareness in rural issues, and to improve the image of agriculture, a set of activities on agricultural, forestry and rural issues should be targeted at the public.
- Evaluation of extension and advisory service, i.e. assess impact, effectiveness, efficiency and sustainability of activities and programmes.

## **Belgium**

The different questions connected with linkages within AKIS actors are challenges for public policies based on a delegation of services. As experienced in Wallonia, even though there are some concerns about the access of certain populations of farmers to information and knowledge (such as small farms), it is not easy to collect information about the clients and beneficiaries of advice delivered by the association subsidized by the public administration, which moreover cover only a part of the total supply of services in the region. It should be noted that this question of the public of beneficiaries of services is hardly debated in the two regions. For instance, there were no priorities set on which kind of farms should benefit from FAS services in the two regions. More globally, the FAS regulation was the illustration of the difficulties to integrate different objective in advisory services in a context of delegation of services. For instance, in Flanders, the FAS was implemented by a very specific dimension of the supply of services: bookkeeping companies. If such consultancy firms have competencies in helping farmers controlling the conformity of their practices vis-à-vis cross-compliance and advocate for a better connexion of FAS with advice on farm economic management, they are poorly connected to applied research institutes and universities, and experimental stations that implement R&D about environment and agriculture.

In Wallonia, it was difficult for the region to give a good visibility of the FAS regulation in a context of a very fragmented supply of services. In total, it appears that the advisory services of Wallonia and Flanders are embedded in a long tradition of public investments and of integration of these services in broader AKIS and innovation systems, where collective organizations of farmers play a very important role. Advisory services are still considered as an important instrument of public policies. This could be illustrated by the fact that both administrations still have specific department for advisory services that produce reflection papers on the evaluation

and foresight of such services, including about the ability of the delegation of service to integrate different agricultural populations and functions.

## **Bulgaria**

Despite the fact that there is not any specific policy framework or formal agreements between the AKIS actors, the Extension Service covers, as a coordination mechanism, more or less, actors' bonding needs. The service is, for example, in contact with producer groups and coops (through District Offices) as well as with individual farmers through District Offices and beats extension officers; therefore, a two-way communication mechanism between the Extension Section and farmers is, despite shortcomings, long ago established and still working. Important in this respect is the knowledge produced by innovative farmers who produce adapted knowledge (esp. on new crops, such as stevia and hippophaes, or new varieties) since they inform or ask for advice from the District Offices which, in turn inform (or ask for help from) the Extension Section and, generally, the Division of Agriculture.

Furthermore, the Extension Section cooperates with ARI in putting together its annual extension programmes (which the Section monitors) as well as in defining research needs. On the other hand, ARI staff actively participates in the service's educational activities and tries (although without a relevant section/staff or funds) to grasp farmers' problems.

Especially as far as FAS is concerned, the set-up of the cross-compliance service downgraded its implementation to a marginal action – rather as an experiment vis-à-vis the establishment of a mixed system in the country.

## **Cyprus**

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Especially as far as FAS is concerned, the set up of the Cross-compliance Service downgraded its implementation to a marginal action – rather as an experiment vis-à-vis the establishment of a mixed system in the country.

- Given the fact that a) the Extension Service as a result of both the country's accession into the EU (2004) has increasingly undertaken bureaucratic tasks (currently further aggravated by the obligations imposed by the Troika), b) the decreasing interaction of ARI with farmers, and c) both ARI and the Cyprus University of Technology are largely dependent on participation in EU-funded projects which nevertheless do not, more or less, correspond to the needs of the Cypriot agriculture, while at the same time d) are both largely oriented towards publications in scientific journals, the need for more intensive cooperation between all the actors concerned (with the lead of the Dept. of Agriculture/ Extension Section) underlined by all the actors who participated in PRO-AKIS research in Cyprus is not surprising.
- Concerns are also expressed about the adequate staffing of the Section, and more generally of the Dept. of Agriculture, which along with the pressure for the restructuring (downsizing) of the public sector by the Troika, may result in the downgrading of extension/advisory work in Cyprus; privatisation does not seem to be a viable option for Cyprus due to the extremely small scale farming (and other structural characteristics of the sector) in the country. The updating of extension officers knowledge (including extension methodology) has also been put forward; the same is, more or less, true for all agronomists notwithstanding their employment status (public or private).
- Despite interesting proposals such as:
  - a) the establishment of a network of experimental plots (collaborative experiments) all over the countryside in order, on the one hand, to generate, adapt and disseminate (through farmer-to-farmer extension processes as well) innovations and, on the other hand, to focus more on farmers' needs and
  - b) the enhancement of farmers' occupational training (with emphasis on experiential learning), farmers have, on their part, to become more entrepreneurial as well as more open and willing to share their know-how with their colleagues; farmers' unwillingness to pay for advice (since currently they do not) may be a further obstacle insofar as private services will become an important source of advice.

## **Czech Republic**

Czech mixed advisory model is suitable for all sizes of agricultural holdings. Large holdings prefer more personal face to face advisory, small farms use more websites information. A position of advisory services and role of professional advisers increases thanks to new demands for food quality and safety.

For the future planning period Farming Advisory System need to point its activity to higher member states self-sufficiency in conditions of climatic change and possible modifications of agriculture systems on national and European levels.

## **Denmark**

Overall the Danish AKIS and the Danish advisory service system are both strong and overall able to produce and deliver both knowledge and advisory services to all groups of Danish farmers, but some challenges might occur for both of them.

Challenges for the Danish AKIS and the Danish advisory system can be described in term of structural development within agriculture, the impact of the university reform and in term of funds.

(1) The structural development within Danish agriculture

*The number of full-time farmers continues to decline.* The classical farmhouse farm may be at its end, and in future the ever increasing growth in size of farms will turn farms into large scale farms organised legally as a business owned by financial actors outside the sector and thus turning the farmer into a farm manager employed on ordinary employee conditions and not owning his own farm. Furthermore the number of people who are employed or just having contact with the agricultural sector and farmers in the countryside are also decreasing. Will this affect a system based on farmers' associations and the accompanying dense network of farmer controlled organisations including the farmer owned and controlled advisory companies?

*The increased size of the large full-time farms on one hand and the many part-time farmers with farming more or less as a hobby on the other hand* confront the advisory system with the challenge of serving two different groups of customers while the traditional dominating customer – the middle sized farmer – are the farmers most rapidly disappearing. The advisory companies have been confronted with this issue within the last 5-10 years. Again the expectation among interviewees is that the flexibility of the Danish advisory system will make sure that the advisory companies will adjust to this development and new needs. And rightly this development is already happening.

*The decreasing number of farmers with resulting decreasing number of customers.* So far the demand for advisers has not experienced any structural fall in demand (apart from the impact from the current financial crisis). But the number of DAAS-centres has continued to fall through the last decades and is predicted to continue do so. How will the situation be like when there are only 3-5 DAAS companies left? Will they cooperate in the DAAS-cooperation? And will they still be in a need of the Knowledge Centre for Agriculture? The interviewees who brought up these issues were not nervous and predicted that the Danish advisory service system would continue to exist in the existing form.

*The increased educational level and the continued trend for specialisation among farmers.* The knowledge level among Danish farmers has always been high due to farmer cooperation and a very long tradition for attending agricultural educations – first and foremost the agricultural colleges. But today's Danish farmer - especially the young ones - has a very high knowledge level and many of them themselves have a high level of agricultural education. In addition to this the agricultural production is continuing the process of getting still more specialised. This confronts the advisers when meeting the needs and demands of the farmers. This may be a challenge and even a threat to the traditional advisers but can bring new demands and new types of advisers forward and change the composition of the group of advisers. The development may be strengthened by the fact that the increasing number of full-time farmers is seeking advice concerning the topics of entrepreneurship, management, or being a business owner with a multitude of employees. And on the other hand farmers, especially part timer farmers, who have not seen the same decrease in number as the medium sized farmer, are seeking advice on product



differentiation. The advisory companies expect to be able to respond to this change in need and to this development for the business.

(2) The impact of the reform of the universities in 2007 – good or bad?

In 2007 the Royal Veterinarian and Agricultural University was made part of the University of Copenhagen and elements of the agricultural research within the public sector were merged with the Aarhus University and the Technical University of Denmark. This meant that re-search within the public sector was transferred from the Ministries and merged with the universities. Various people have feared that this could have an effect on the type and level of applied research done within different fields including agriculture in Denmark. Some of the interviewees agree to this analysis and fear that the attention towards applied research and the funds for applied research are being reduced. Furthermore that such a development may turn away the academic meritocracy from applied sciences. They fear that in the future this will affect the production and supply of knowledge with direct relevance to the farmers and the accompanying advisory service sector. Some interviewees are more optimistic and think the farmer controlled advisory system may be able to deal with this challenge and situation and bring about what the sector may need in terms of agricultural research. Furthermore political attention nationally and in the European system towards applied sciences and the political desire of a stronger focus on getting innovation and more knowledge implemented into practice will work in the opposite direction.

*The number of young people attending agricultural educations at the agricultural colleges, vocational schools and at the universities* has stabilised after a small increase since the number hit an all-time low in the mid-2000s. The number of pupils is so far sufficient to satisfy the demand of the sector. The main challenge is to get an adequate number to go for a higher level of agricultural education and the level of managerial education, rather than just to settle with the traditional farmer training level. But again there is not any deep pessimism, although the traditional system of agricultural colleges is under pressure. Over time the numbers of agricultural colleges will probably be reduced even further.

*It is a challenge for the agricultural sector and the advisory system* to make the sector and the profession attractive. The sector cannot take for granted that young people will choose agricultural educations and a career in the Danish advisory system.

The students at the universities are not enrolling in the same number as earlier when it comes to the classical agricultural university educations - but again no deep pessimism. The industry will manage and already today the highest numbers of advisers work within business and bookkeeping. Furthermore in the future the highest growth in the demanded services will be in relation to the increasing regulation of the agricultural sector and advisory services concerning the issues related to the environment, the climate, bioenergy and biotechnology.

(3) Erosion of production levies funds and the tax reimbursement fund

Some fear that the system of levy funds paid in by the farmers with the backing of the public authorities and administered by the sector itself is under pressure. Fear is especially expressed in relation to the dominant tax reimbursement fund, which is the largest fund and which funds stems from taxes on pesticides. This fund has traditionally both contributed to the production

funds and also been the main source for financing new and common projects with common value for the entire agricultural sector. Even today the significance of the dominant tax reimbursement fund is great, as the Knowledge Centre for Agriculture – a major recipient of funds from this fund – uses this financial source to co-finance projects which do not bring a 100% financing from the initial financial donor. Some interviewees do not fear this development. Others fear a situation, probably the most likely to happen, where the funds from the tax reimbursement only will be targeted environmental public stated political issues and goals instead of the traditional needs – subjects related to production and farm development – of the sector. This development is yet to be seen, but in the last few years the value of the funds from the tax reimbursement funds have been reduced as the fund is only receiving an unchanged fixed sum from the State budget for the last couple of years.

### **Estonia**

Concerning the extension service, Estonia has taken important steps to introduce rules of cross compliance. There has been developed various methods to inform agricultural producers in Estonia, e.g. trainings for advisors and farmers, advisory tools, handbooks, the web-page <http://www.pikk.ee/valdkonnad/nouetele-vastavus>, and booklets. Throughout the years the main objectives have been to ensure the development of an effective agricultural science which involves doctoral students, increases the number of agricultural research programmes, and helps to co-finance and integrate more Estonian researchers in international projects. Another priority has been to ensure a well-functioning farm advisory system to meet the needs of target groups and raise the number of clients. This is possible through consistent training of advisors and keeping the information materials (booklets, brochures, web-page [www.pikk.ee](http://www.pikk.ee), etc.) up to date. A major priority of the Estonian extension services is the improvement of the competitiveness and sustainability of the agricultural and rural economy sectors.

Despite the several extension and information schemes underway to support development of viable farms and farmer capacities, there is still a need for urgent measures to strengthen the country's overall advisory capacity.

### **Finland**

The need for agricultural and rural advisory services varies considerably across Finnish farms. Farms are very different; different in sizes, are in different parts of a lifecycle and needs and goals are not always similar with the neighbour farm. The number of farms is decreasing and the average size is growing. The labour is displaced even more with the new technology. The current situation requires more and more from the farmer, whose role increasingly are transformed into the role as entrepreneur rather than the classical perception of the role as a farmer.

The lead management of a farm reminds more and more an enterprise, whose aim is to provide financial returns to the business owner. This new kind of a farm needs even more production planning work, calculations, investments, collaborations, new technology and new point of thinking and doing the work. The farmer or the entrepreneur should also have more time for examination the achieved results and conclusions.

This is why the role of an adviser is increasingly important. A good leader or manager is not the one who is able to do everything by him, but the one who has the skill to use the existing

advisory networks most rationally and the best way he or she can. The future agricultural advising is more like “walking within” the farmer, where the advisor besides taking care of the economy and production of the farm, also look after and provide services in relation to the well-being and welfare of the farmer e.g. work environment, stress.

## **France**

An important topic that emerged during the interviews is a major one: how to adjust the supply of advisory services (both front-office and back-office) to the radical transformations of farm structures? These transformations are manifold and raise specific questions for the adaptation of farm advisory services and broader AKIS. This can be illustrated in the case of advice for a safe use of pesticides

- The farms continue becoming bigger and bigger. This growth can change radically the distribution of tasks. The manager sometime hardly uses machinery. Thus, advice on pesticide use may involve the manager, about managerial issues, the agronomist in charge of decisions about farm practices, and the employees in charge of spraying.
- Farm growth, combined with the ageing of farmers’ population, is associated to new forms of organisation, with a more collective distribution of activities between farms. This could be done through open collaboration, or through contracts that delegate certain tasks to others farmers, like harvest. Such transformations change not only the distribution of tasks but also the procedures of decision within a given farm and between farms. Advisory services must adapt to these new schemes.
- More globally, the growing relative share of employees in agriculture raise the question of specific advice for this population. Such advice seems to lack, especially for migrant seasonal workers.
- Even though the number of small farms decrease, there are still numerous, and there are no evidence that they do have a better access to services than 10 years ago.

Despite all these challenges addressed to advisory services by the transformation of farm structures, there seems to be very little political debates about who should be the targeted clientele of advisory services financially supported by the state. Such a lack of debate might be the result of a fragmented support to advisory services. This fragmented support is the result of a strategy of delegation of services within a pluralist system of advisory services. Such a pluralist delegation may have a great potential for targeting different issues and populations through different channels, but it could lead to difficulties to integrate these issues and populations in a global perspective. This is all the more difficult as AKIS and advisory services are nowadays taken in a multi-level governance where departmental, regional, national, and European administrations delegate services to advisory and AKIS organizations, with specific rules, conditions and targets. Such difficulties are particularly vivid when it comes to evaluating the effectiveness of each public support instrument to advisory services. Beyond this complexity of the situation, it should nevertheless be noted that there is a clear renewal of the debates, both academic and political, associated with advisory services.

## **Germany**

The German advisory system is – historically – a very heterogeneous one and this trend has even increased in the past decades. Nowadays, the classical tripartite situation with official, chamber and private entities still exists, however there is an additional diversity of private and third sector organisations offering mostly specialized services. This diversity makes it impossible to give an adequate picture of German advisory services in the frame of the PRO AKIS study. Hereby, also survey restrictions played a role so that e.g. the results do not cover all German states equally. They state that in addition to the multifaceted nature of Germany, the agricultural innovation system is largely driven by outside agriculture trends, and because of globalisation - innovation circulates around the globe, as information does. This alone makes it impossible to give a complete and correct overview on the country level.

Nevertheless, there are a number of findings in the survey that provide interesting insights into the current situation:

- Obviously, the active advisors have good educational backgrounds and frequently make use of training opportunities. A rather surprising figure is the low representation of women among advisors which would merit deeper research.
- The target groups of advisory services are dominantly medium to large scale farms. While this finding is not surprising and coincides with many other studies, it renews the questions of a functioning AKIS and especially the integration of small-scale farmers' knowledge needs.
- The cooperation between public and private advisory services has been well appreciated by the survey respondents. This is an encouraging finding with regard to the future of the pluralistic systems as e.g. with the implementation of the EIP's instruments at state level, good cooperation between different actors in the sector will be a prerequisite.
- The needs and challenges as expressed by the advisory organisations are: better link with research, especially applied research, more training opportunities, networking and acquisition of competent staff.

We conclude by recommending that public authorities willing to back up advisory services should address these issues.

## **Greece**

Currently, the only channel for the transfer of new technology and practices in Greek agriculture is private companies (branches of transnational companies) through private agronomists – input shop owners at the local level. Nevertheless, private agronomists, making a living from the sales of inputs, with advice not been paid as such, mainly target commercial farmers and thus largely neglect other segments of the farming population. It is interesting to note that some of these agronomists also try to organise farmers in order to introduce new, innovative cultivations or to carry out small-scale on-farm trials.

Suspicion towards, on the one hand, the bureaucratic and clientelistic public services and, on the other hand, the largely profit-oriented private agronomists, aggravates the situation. Additionally, the fact that farmers follow recommendations relating to rapidly changing physical

products (such as fertilizers) without understanding (because of lack of general and/or occupational education/training) results in uncertainty on the part of the farmers and further undermines ‘expert’ knowledge. Therefore, there are some evidence, that “individuals are often compelled to act ‘as if’ they trust experts and/or institutions because they feel they have no other choice, keeping any significant doubts to themselves”.

On their part, private consultants (agronomists) serve those interested in having access to EU programmes and are thus restricted to the putting together applications with little room for manoeuvre in terms of advice on farm development issues. Finally, some local Development Agencies try to introduce innovations in local agriculture through the establishment of stakeholders’ networks thus corresponding to the current developments in international literature. Unfortunately, this kind of activities is rather marginal and not supported.

An exception to this picture concerns producer groups certified under the Integrated Management System for agricultural production, in compliance with AGRO 2.1 & AGRO 2.2. standards. In this case the groups’ agronomists provide continuous advice to farmers (group-members) as well as assist farmers with the records demanded by the system. At the same time, they also protect farmers from the irresponsible and profiteering practices on the part of some of the input shop owners.

## **Hungary**

Transformation of the advisory activities towards being driven by the market would best contribute to improving their efficiency. There is evidence to support this view from other EU Member States where the privatisation of AKIS and changing demands from the agricultural sector have induced a shift from supply-driven towards demand-driven modes of working. However, whilst any initiative that makes the system more responsive to needs is to be welcomed, experience in Hungary with the EU co-financed Farm Advisory System (FAS) has shown that several associated issues need to be addressed:

Firstly, the market potential for a purely commercial advisory service in Hungary presently seems to be very limited. Very big farmers have their own advisors and do not use the FAS which mainly services farms between (very approximately) 30 and 200 ha in size. Very small farmers do not seek technical advice. There are very few genuinely independent commercial advisors because farmers do not like to pay for advice. They cannot see the benefit, only the cost. Specialist advisors operating through the FAS are frequently under-employed because demand for their services is low. Commercial advisors, if working for, for example, input suppliers, can give biased advice.

Secondly, if paid services are to be subsidised from Hungarian government or EU funds, the administrative procedures must be speeded up. For the current subsidised services, the Paying Agency was slow to approve applications for funding (those submitted at the end of October were not approved until the end of December). It may then take up to 18 months for the farmer to actually receive the subsidy. The EU limitation on the number of times a farmer can use the FAS has now been scrapped so this constraint on take-up has been removed, but the ceiling of EUR 1500 of advice per farmer per year remains.

Thirdly, the lack of trust between farmers and advisors in terms of the inconsistent quality of the advice given has a number of different causes. These include the difficulty in locating the right person to give the advice (there is little possibility to get advice on technical subjects such as plant protection and soil management) and the fact that the best advisors prefer not to be part of the bureaucratic public sector services.

### **Ireland**

Over the years, the Teagasc advisory service has contained a strong public good programme. Despite the introduction of fees in 1987 and the application of charges, the majority of farmers continue to use this service. Kelly (2009) noted several benefits of fee-based services for Ireland, including that such services focused on client needs, increased adviser confidence, involved more business-like relationship, and achieved cost recovery for specific services thus avoiding unfair competition claims from private sector, and an improved status of the service. This is in contrast to some negative impacts, which included the perception that the service was only for commercial farmers; a tendency of advisers to resort to schemes to collect targets while ignoring development work; adviser ownership of clients; and struggles by some advisers to adjust to changes.

Previous research on the Food Innovation System (FIS) in Ireland – which would partly overlap with the AKIS – found that the range of actors works well to ensure that research is conducted along the spectrum from basic to applied research. In recent years there was also noted a considerable change in the FIS, for example, additional research centres have initiated food research programmes, while increased multi-disciplinary activity has seen diverse specialist areas enter the system.

### **Italy**

Some recent studies unlighted different deficits and gaps of the Italian advisory services.

The paradigm of multifunctional agriculture in Italy finds full expression both as farm diversity and as farm diversification, but different researches show that the public extension services do not adequately respond to the farmers need for diversification and neither covered the needs of different kind of farms, especially the smaller one. "Agricultural extension services are actually supporting the agro-industrial paradigm, more than the alternative territorial integrated (and multifunctional) paradigm..(..) a large part of farms remains left out, due to the types of services supplied, mainly production oriented and less careful to environmental and multifunctional aspects of agricultural activity".

The present trends highlight greater pluralism and also privatization of Italian extension services, emerging new players and different organization/configuration of the traditional actors. If these trends positively impact the services supply, however, the public advisory services remains crucial important to meet the knowledge needs of Italian agriculture. In fact, the structural characteristics of Italian agricultural sector (presenting a large presence of small and medium-sized farms, rarely competitive on the global markets, providing significant public-good emphasized by the political dominant narrative of rural development) is not always able to express a willingness to pay for advisory services.

The recent measures to cut public extension system have further compromised the quality of services offered, not addressing the main problems of Italian AKIS, while the most critical aspect is the absence of effective and inclusive governance.

The expansion of FAS, proposed by the EU for the future CAP is evaluated very positively, as well as the provisions regarding the measures beneficiaries and the possibility of training opportunity for advisers.

## **Latvia**

Agricultural advisory in Latvia is diversified and decentralised with various public, private and third sector organisations involved in delivering knowledge to farmers, but among which there are no strong coordinating mechanisms. This perhaps does not ease farmers' situation when they are in need to choose the most appropriate knowledge provider.

The quality of advice is an issue which often is addressed by AKIS actors. Both public and private sector advisors have received criticism. Public sector is most often approached in lacking professional advice for commercial farmers, whereas knowledge coming from private sector sources is considered as less trustable due to the lack of its verification in local conditions as well as due to business interests behind them. Different quality and availability of advice between various sectors is observable. In traditional agricultural sectors, in general there is good availability and quality of local expertise. It is especially lacking in new agricultural production sectors and also those which undergo rapid restructuring or demand capital intensive investment and highly specialised advice.

On big extent, the diverse quality of advice is also a consequence of historical development and governance of sectors – in some sectors lack of collaboration, inability to lobby interests and short-term planning have led to poor knowledge base. Moreover, the interviewed experts suggest that in some sectors long-lasting disinterest in updating knowledge has led to situation that it may be impossible to find the needed information and knowledge at all so poor and out-dated they are. Yet in other sectors there are well established research traditions and actors have managed to co-operate and jointly solve information and knowledge needs.

Farmers' knowledge needs are diverse, and information and knowledge about public regulations of agricultural production and their implementation have become of crucial importance for farmers and so do of their interest. A FA, developed for the purpose to help farmers understand and implement the various requirements, in Latvia is only partly set in place. There is no functioning mechanism of accreditation of farm advisory bodies, nor their coordination and control. As a result there are a limited number of advisory organisations and certified advisors to provide farmers with qualified advice on CC. The only advisory service organisation which is providing advice on CC is LRATC with its 33 certified advisors on CC.

There is no equal access to all farmers to existing FAS services. The criteria set for farmers (minimum farm size in terms of cattle or cultivated cropland; priority to farmers who receive more than 15000 euros of direct payments per year) to access public-funded farm advisory services on CC do not take well into account the structural reality of Latvian agriculture in which small farms compose so big share. The potential and specificity of these farms should be better addressed in future agricultural policies and their practical implementation.

## **Lithuania**

Lithuania has achieved progress in several areas of knowledge economy: primarily in the fields of economical and institutional regime improvement and information and communication technology framework creation. Currently, an advisory system consisting of private, national (public) and farmer organizations is available: Lithuanian Agricultural Advisory Service and Chamber of Agriculture of the Republic of Lithuania. Farmers are provided with an opportunity to select the most acceptable and attractive advisory institution, as over 40 national and private organizations, which can supply advisory services, were accredited by the Ministry of Agriculture. Since the state provides financial support for advisory services, farmers can upgrade their qualifications at low cost.

Consultations are provided on private farms or 1- 3 day, free of charge seminars are available locally (in municipalities).

It is necessary to note that advisory programmes do not sufficiently address the impact of climate change on agricultural activities.

Due to the poor notification of seminars farmers often fail to participate in seminars and field days.

The uniform preparation, qualification upgrade and assessment system of advisors do not receive adequate attention. Therefore, it is recommended to provide financial support for their preparation and qualification upgrade and to carry out research into the feedback between their qualification and training.

So far the Internet has not gained popularity among farmers as a consultation tool.

## **Luxembourg**

In both interviews and throughout the online-survey, it was mentioned that bureaucratic requirements complicate work of advisors and farmers. Administrative compliance with national and EU requirements were highlighted as a particular burden for advisory organisations. The reduction of bureaucracy was therefore mentioned as a future challenge.

Results from the quantitative survey point to the perception that as of now, public advisory services do not cooperate sufficiently. The desire for an increased exchange between advisory organisations was noted.

With regard to advisory topics, a focus on plant and animal production could be determined. Moreover, advisory topics of public interest and water conservation in particular gain importance. In addition, water management, climate change and biodiversity management were mentioned as future knowledge needs by several experts from advisory organisations.

## **Malta**

In Malta, the provision of advisory services is characterized by quite a clear separation between standardized services and client-targeted services, which are run by three major types of suppliers: public, semi-public and private bodies. The first are mainly represented by the farm advisory services, except for some information and advisory services that are offered directly by the MSDEC, that are shaped by the EU regulations on the cross compliance, through including



just the advice addressing the GAEC and SMR requirements. Even if standardized, their delivery is tailored to farmers needs through a vary of methods and tools applied by the advisors. They are meant to be delivered only by the FAS Consortium, a semi-public body which has been officially recognized by the MSDEC, involving 2 producers cooperatives (milk and pigs) and the MSDEC, as partners, and a number of 10 part-time officers, as advisors. In principle, this types of services, include also the farmers' support for the applications to the RDP and the delivery of training courses, still related to the cross compliance. They rely on a very prescriptive (top-down approach) national and European regulatory framework, through being totally financed by the RDP (measures 114 and 115).

Certainly, by looking at the data and to the interviews, it emerges that, the marketization of the FAS appears to be failing both for the policy design and the delivery system applied for its implementation. In effect, these services are quite unattractive, due to the costly and complex access to the public contribution, the lack of transparency in the selection procedures, the link to the penalties for not being complaints to the EU requirements and the low public contribution to the use of the services. Besides, the implementation of the FAS is very recent and the first performances are far away from the targets.

The other types of services are the meant to be tailored upon the farmer's needs and are carry out by private advisory firms, farmers' cooperatives, POs and NGOs. These are mostly designed and programmed in cooperation between the advisors and the clients and out of any national and European regulation framework. Consequently the themes, methods and tools are vary along with a certain extent of diversity of services providers, clients and funding schemes.

Overall, a general assessment, in terms of deficits and gaps of the advisory services arrangements provided by Malta's government could be synthesized in the followings.

The advisory system as a whole still needs to close the gap with the farmers expectations in terms of themes and methods which should better fit their needs of increasing the competitiveness, in line with the EU policy for sustainable growth and rural development.

The very limited interest of private advisors to access to the EARDF through measures, beyond the setting up of FAS, show their limits in self-acknowledging their role in supporting the global management of farmers. Truly, they risk to be set apart to bookkeeping, accountability and taxes services by other actors who appear more pro-active (namely the cooperative).

The advisors, the researchers and the trainers result to be linked one to each other to a very little extent, and hardly the farmers are involved in the circulation of knowledge across the value chains. This lack of integration leads the services providers to stay in their own activity, which is widely characterized by weak linkages and personal relations through which back-off activities are carried out.

The lack of a systemic approach to the AKIS is reflected into the design and the implementation of RDP's measures, which should been better integrated through correlating the use of farm advisory and training services with the farmers investments in material assets.

Moreover, few points can be remarked in terms of strengths:

- The cooperatives and the producers' organizations are a strength of the value chains and have a potential in fostering knowledge exchange and implementation of innovation at farm level, also due to their historical representativeness of the farmers. They are likely to play a crucial role in developing a major acknowledgement on the utility of advisory services, through their involvement in advisory mechanisms, as well as brokering relevant actors around innovation projects.
- The stakeholders show a certain evolving awareness on the opportunity to use the farm advisory services for increasing the farms competitiveness as well as a major acknowledgment in demanding for new services and matters correlated to the farms practices and to new themes of the rural development, such as climate change, innovation and food quality and security.

In conclusion, it would be interesting to treasure the pro-activeness of some actors (cooperatives, POs, NGOs) and some experiences, such as the collaboration run by the Organizazzjoni Produtturi Gheneb għall-Inbid Malta with the University of Malta and the Ministry for Resources and Rural Affairs, even outside the RDP framework, and the coordinates activities carries out by KPH aimed at spreading a circular-type knowledge and information flow.

### **The Netherlands**

The existence of private advisory service and market-led mechanisms are not a problem for the majority of Dutch companies, which have the economic dimension and the willingness to pay for the advisory services needed. However the advisory cost also in the Netherlands limits the access to extension service to a large part of SMFs that don't have the economic dimension to pay for it. In addition some sub-sectors/fields are no longer covered by the provision of advisory because they are considered unprofitable, such as the goat and sheep sector.

Until 1990 DLV had free access to information provided by research institutes and agricultural research stations, actually the advisers need to pay to improve their knowledge and it results in less access of reliable and accurate knowledge by advisory actors. According to our interviews and to the existing literature, the advisors operating in very competitive market invest less and less in technical knowledge and more and more in commercial skills that are necessary to sell their services.

The payment of advisory services also generates amongst the farmers a crisis of confidence in advisors, as evidenced by the common saying "if you have a problem and you call an agriculture advisor, then you have two problems".

However, to compete in a global market also the Dutch farmers are encouraged to be increasingly market oriented. They need to develop generic business skills, together with technical skills and production knowledge.

### **Poland**

The main advisory organisations in Poland are Provincial Advisory Centres. Currently, they employ 3454 well-prepared advisors, recognised by farmers and other AKIS stakeholders as very important for agriculture and rural development. The effects of their work are satisfactory, but the ODRs performing tasks of national agricultural policy and regional and local development

should therefore receive financial subsidies from the budget of national and local government units. These effects are appreciated by farmers. In their opinion, advisors are qualified and more reliable than private companies competing for market advisory services.

The agricultural advisory system in Poland is decentralized. This fragmented structure of advisory services has more disadvantages than advantages. Despite significant contribution of advisory services in the implementation of the CAP instruments in 2007-2013, most directors of ODRs (12 of 16 people) is of the opinion that the effectiveness of advisory services would be greater if they were subordinated to the Ministry of Agriculture and Rural Development, which allocates budgetary grants to advisory units, and almost all (15 out of 16) see the need for a central coordination unit for activity of 16 agricultural advisory services units in our country.

The results of survey pointed out several interesting findings:

- During economy transformation in Poland, agricultural advisory service played a key role in fostering the economic changes in rural areas. In the south-eastern part of the country, advisory work focus mainly on small and diverse (in terms of production and economic) farms, supporting farmers in undertaken non-agricultural activities bringing additional income. In regions where commercial farms prevail, the advisory work focuses different technologies.
- In Poland there is no special funding scheme to cover advisory work. In recent years we could observe the tendency towards limiting public funds for public advisory. Many, well prepared employees, achieving success in advisory works, decided to leave public advisory organisations and work for private companies or became freelancers.
- Advisors working in surveyed organisations have good background and they are well prepared for advisory work (especially with long-term of experience). Graduates of agricultural studies are very well prepared professionally, but are insufficiently prepared in terms of inter-personal communication and need time to achieve advisory skill. They have extensive and deep professional knowledge and good communication skills, know farmers' needs, are market-oriented and able to work with all stakeholders. Most of them (90.1%) have a university degree.
- Individual extension is the most common method applied. This approach is good for individual farmers, but limits the access of other farmers to advisors.
- The most important group of clients for Polish advisors are small and medium farms. It is related to specific characteristics of Polish agriculture (fragmentation of farms). The main topics of advisory services for medium commercial farm are: plant production, animal production, accounting, taxes, cross-compliance and environment protection.
- Farmers and farmer organisations seem to be the main source of knowledge in terms of farmer needs, which can be address to research institutions and organisations and producers of means for production. But they are still not efficient enough in their role.
- FAS is an important instrument of the Common Agricultural Policy supports farmers to meet cross-compliance requirements and the creation of a modern and competitive agriculture. However, it requires organizational and legal changes.

## **Portugal**

The provision of Extension has changed considerably in the last few decades, and is perhaps more relevant today than ever in the past. In the present context of changes, uncertainty and risks, many recent reflections, studies and policy documents have shown that a new agenda of critical agricultural and rural development issues needs to be urgently and appropriately addressed.

In general, in Portugal, the practice of agricultural extension was sporadic and mostly disorganized, and a technical assistance approach dominated. After a period of extension initiatives in the late 70's and early 80's, during which national, regional and local services were structured, technicians trained, and projects and actions developed, a decline period followed in the late 80's, characterized by national Extension Campaigns.

In 1990, a major programme - PROAGRI - was launched, reflecting the prevailing privatization views, with the objective of strengthening the capabilities of farmers' organizations in the areas of management and advisory work. Meanwhile, the hundreds of agents in the public agricultural services at the regional and local levels were asked to perform administrative and regulatory tasks.

The existence of public agricultural extension after PROAGRI is questionable. 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.

Today, public extension closely linked to agriculture is practically non-existent, and in the field we can find a complex patchwork of formal organizations of different types, with very heterogeneous philosophies, structures, capacities and domains of intervention, working to promote agricultural and rural development. This patchwork varies from region to region and place to place. This picture results from a variety of policies and programmes, mostly European, such as the LEADER Initiative on local development, and the Agro-Environmental measures of the Common Agricultural Policy, but also from the national Rural Development Programmes implemented in the last 27 years.

The key public services are the Regional Directorates. 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. In general, regional agricultural technicians, today in much less number than six year ago, perform, above all, desktype policy related functions linked to investment projects supported by public funds, and a variety of other regulatory actions.

Three major umbrella organizations – CAP, CAN and CONFRAGI – represent the agricultural sector. Lobbying is one of their major functions and most advisory tasks are performed by the many affiliated organizations (associations and cooperatives), at the regional and local levels, using different approaches and methods, with training and information exchange the crucial ones. Generally speaking, there is a very large number of very diverse organizations providing some kind of support and advice to farmers, in a very fragmented and not necessarily articulated

fashion. In many instances this work is primarily linked to the applications for grants and financial support available through the Common Agriculture Policy.

Following the EU policy, the Farm Advisory Services were implemented in Portugal. In the end of 2011, 150 organizations were recognized and active in the provision of FAS. The vast majority of the partnerships are led by national and regional farmers' organizations (CAP, CONFAGRI, CNA, FATA and CNJ), involving others as well, like AJAP. In general, the implementation of the FAS in Portugal shows that few organizations and farmers have been involved, and the impacts of these services are quite small. In the early 90's, with the new EU promoted LEADER Initiative, new Local Development Associations (LDAs) were created in all rural areas. Presently, there are 53 Associations, organized in a national Federation, called "Minha Terra" (or 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 organizations 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 extension work, more decentralized, with a wider focus, based on multidisciplinary teams and participatory methods.

A great variety of private consultancy firms also provide advice and support to farmers. Many are linked to the agro-industrial and food sectors, as well as to farm input companies (seeds, fertilizers, pesticides, etc.), and have grown tremendously in the last decades, occupying the space and functions that the state has left open. Besides these, there is a very large 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, training, project planning and management, management and accounting, support for agricultural subsidies, marketing services, and acknowledging new technologies.

What results from this picture is an extension sub-system of the Portuguese AKIS with a very large number of organizations involved, mostly private, poorly articulated, making it difficult to produce synergies. If it is a fact that the subsystem is pluralist in nature, given the inclusion of a great diversity of rural actors, it is also true that such atomization raises issues such as the lack of focus and coordination.

Besides, in most (or all) cases these organizations perform a variety of tasks, such as administrative ones, related to the application for grants and financial support available through the Common Agriculture Policy, very often dominant, and extension restricted to training courses and provision of information.

Authors like Birner et al. emphasize the benefits of pluralistic extension, particularly "their ability to overcome constraints, such as shortages in funding, staffing, and expertise, and to provide the necessary flexibility to tailor services to the needs of specific subsectors or regions". However, the plurality of extension service configurations also raises a variety of questions, debates and tensions in different domains, such as: system coordination vs fragmentation; increased financial and administrative complexity; extension research linkages; articulation between supply and demand; system quality control; monitoring and evaluation of programmes

and staff; served and not served territories and people; capacity building; and system financial sustainability. These questions are certainly applicable to the Portuguese AKIS situation.

### **Romania**

Throughout the period of transition and integration of Romania's agriculture and rural area into the EU structures, the place and position of the agricultural advisory services have experienced ups and downs, formations and transformations. The current situation of the public advisory service is quite uncertain. As shown under point 2, at present there is a structure under dissolution, which "has finance only until September 2013" and a structure in the stage of desire. The interviewed specialists' opinions are contradictory. Some believe that "NAAC should have got privatized but they were not able to do this, they were not competitive enough", other has a contrary opinion, stating, "many CACs could become private companies without any problems, mainly in the counties where the small farms prevail... the large-sized farms can manage by themselves". Yet "it was instability that characterized its history/evolution throughout the years."

Although it had courageous general and specific objectives, the public advisory service could not assert itself on the agricultural consultancy market. Romania is in the situation of the year 1998, when the creation of an efficient agricultural advisory service represented a stringent need. The support form and modality of this service will represent a challenge, but it will also have to take into consideration the tradition and history.

Regardless of the path to be followed in the future, the policy makers must not neglect the fact that "there is no progress in agriculture in the absence of as competitive advisory service". This will have the mission to respond in the best way possible to farmers' needs and to gain their confidence. Not only gaining the farmers' community confidence is mostly important, but also the quality and constancy of services, as well as their support through agricultural policy measures and professional representation. This alternative is mostly realistic, taking into consideration the European context of Romania's agriculture.

### **Slovakia**

Due to financial limitations and uncompleted architecture, the extension services did not fully meet the expectations of agribusiness professionals. Following EU accession, the whole system was renovated in 2007 with the target of harmonizing it with the requirements of Cross Compliance.

Among the most challenging issues facing agricultural extension are the following:

- The need for more professional dissemination of information to meet the demands of different kinds of EU programmes/projects,
- Orientation of the sector towards a more dynamic, effective and competitive market with respect to agricultural commodities; successful management of the negative impacts of climate change and assurance of sustainable management of natural resources; enhancement of measures to tackle the effects of the economic and financial crisis and to promote improvement of the overall performance of agricultural extension,
- Currently, the agricultural extension service is not playing as active a role as it should be in the EU environment. Moreover, it is not considered as a government priority, despite the fact

that its role was substantially highlighted following accession of the Slovak Republic to the European Union, particularly in connection with utilization of EU financial resources,

- What is expected of agricultural extension is that it will become more market-oriented, which would help farmers to achieve a higher marketability for their products. Extension activities should be oriented towards strengthened vertical and horizontal integrating links alongside the commodity production chains,
- With regard of new CAP a very important task is the establishment of procurement/sales cooperatives or associations. If they play their role in an effective way, they can have a positive impact on the sector avoiding the negative impacts of the volatility of price surges and supporting sector stability,
- Furthermore, the Government policies can greatly influence the costs and returns of extension. Price, trade, fiscal and exchange rate policies influence commodity prices. Commodity prices, in turn, significantly influence the rates of return to research investments in different areas or commodities and subsequently the nature of information that is available for dissemination. Commodity prices, as they influence farm enterprise incomes, will also determine the affordability of buying extension services. The nature of the Government's technology and regulatory policy will similarly enhance or restrict access to the technologies which can be introduced by extension agencies.

## **Slovenia**

FAS, has operated within CAFS for over a decade and is well recognised by the farmers. It is organised within eight territorial Agricultural and Forestry Institutes and 59 local units and employ over 300 advisors with different type of specialisation. As such is very accessible to all farmers, especially to small farmers. In addition to EU regulated basic requirement, Slovenia FAS provide wider scope of services as economic diversification, FADN, support to agriculture associations, organisation of different national competition etc. Its Annual program of activities is confirmed by the government who also provide funds for implementation.

CAFS is key farmers based organisation but farmers' membership in this organisation is defined by the law. It is organisation that represents farmers' interests (to the government and society) and on the other hand it provides public FAS including implementation of CAP (in the name of the government) to the farmers. It is expert opinion that this organisation has strong political power and it has very difficult task in balancing farmers' interests with implementation of CAP and national regulations.

One of key Slovene FASystem characteristic is centralisation. FAS and public service in forestry are assigned to two public institutions with very strong political position. As a result, private consultancy market is literally undeveloped. Changes in this sector started and will be in greater scope implemented in next RDP programming period. Though it is necessary to stress that public FAS is important and some of today services must be preserved; opening market for private consultants would on the other hand contribute to faster development of farms as well as development of advisory service.

All institutions, including CAFS, agree that FAS advisors competence and knowledge will need to be improved in addition to more close cooperation with farmers. Situation on the market, at

least as big farmers are concern, has changed. Although farmers are relatively conservative, it is evident that the most successful farmers are willing to pay for good advice and that they are able to find information on new technologies on themselves (e.g. via internet, compare offers of different technology producers or visit farms with advanced technologies). Another issue is, that farmers need support that will provide holistic approach to the farm development, therefore support must be provided by group of experts that cover all relative issues. This amongst others is one key change that also must be adopted in FAS.

Information campaign on subsidies and later support to farmers is one of the tasks performed by FAS advisors. Farmers can enter data in digital information system themselves or exclusively with a the help of FAS advisors (CAFS). One could argue that this is monopole situation, as service is (this year) in full paid by farmers, but others claim that this is part of advisory service to farmers (directing the development of farm) that assure efficiency in those measure implementation. It is also common opinion that FAS advisors put too much importance and their time to subsidy campaign instead of work on development of farms.

Key issue in all public sectors is also average age of employees and results from restriction on employment in the public sector. This approach prevents employment of new young persons that would bring new knowledge and new approaches to the service. Consequently adoption of FAS to changed market situation and different farmer's needs would be even harder.

## **Spain**

Regarding to Farm Advisory System and Farm Advisory Services, in Spain it was a precedent in the Agricultural Extension Service (born in 1955) and their County Agricultural Offices (born in 1956). The Agricultural Extension Service (AES) had as main objective, to be implemented through County Agricultural Offices (OCAs), knowledge transfer and informal training to farmers and stock-breeders in the country. The AES, with the transfer of competences to the regions at the end of the 1980s, disappeared as a national and centralized managed service, being assumed mainly by 21 regional research centres and OPAs, under the control of regional governments. During the 80s, now belonging to the regional governments, the staff of the OCAs had to change from its traditional role offering extension services to the new one related to the legal CAP requirements and the challenges posed to the farmers.

Nevertheless, in parallel, after the transfer of competences from the central to regional governments and the emergence of regional AKIS centres, most of them developed functions of specialized advice to farmers and stockbreeders beside their research functions. This is a process of knowledge transfer very necessary for the agricultural sector, even critical because its modernization depends to a large degree on that transfer. In this regard, some regions developed a strong training system (for example, Andalusia) oriented to the final users, farmers and stockbreeders, as well as to the staff members of the FAServices. In fact the training of staff of the FAServices is done mainly through courses established by those regional research centres integrated in the system INIA-regions as well as other public research centres very involved in the knowledge transfer.

During the last decade, and mainly during its second half, regions had to adapt and to develop a comprehensive system of FAServices for farmers and stockbreeders. Training functions of



regional centres were not sufficiently as advice system. Therefore a large number of organizations (some of them very small, but many others, the most powerful, linked to OPAs and regional federations of cooperatives) began to improve their capabilities dealing with the new requirements from EU, national and regional regulations. A close work with regional centres was an important aspect to acquire the knowledge to improve their services for farmers and stockbreeders.

Certainly in the advisory sector we found a wide range of institutions, from OPAs and other farm-ers and stockbreeders organizations, Associations for Integrated Treatment in Agriculture (ATRI-As), agro-food cooperatives and agricultural training centres. County Agricultural Offices (that traditionally played this role although focused on the administrative tasks related with grants from the CAP), depending on the region, tried in some way have their place in this new system. But finally they continued losing power and capacity to act, partially because their potential functions were more and more in the hands of regional AKIS centres and the new organizations emerged or developed in the light of the coming FAS.

Regional Governments are just responsible for the records of FAServices organizations, meeting the requirements set by the European and Spanish legislation. The most powerful are OPAs, Agro-Food Cooperatives Confederation, and in some regions small organizations present through the rural areas. For example in Andalusia the regional government has a requirement that FAServices organizations must be present in all eight provinces. As a result, there are only four organizations delivering official FAServices. In Extremadura, with other requisites, there is a dense network, with about 28 official organizations. In other places it could be find most noticeable cases, such as a rural saving bank (Cuenca), due to the close relation between many rural saving banks (regulated officially as credit union) and farmers.

Farmers and stockbreeders have been supported in their costs for advisory services (provided by the FAServices) mainly through two measures in the Rural Development Programmes in each of the regions, number 114 (about the use of advice services by farmers, stockbreeders, foresters, etc.) and number 115 (implementation of services of management, replacement and FAServices, as well as forestry advisory services). The FAS organizations focus their work on a series of services, such as advising and monitoring farmers' obligations in relation to cross compliance grants (art. 4 and Annex III of Act 1782/2003, and Annex of Act 2352/2004), the good agricultural and environmental practices (Act 2352/2004), those related to support the initiation of activities by young farmers, labour safety standards (Regulation 1698/2005), as well as other issues that are requested in order to provide a comprehensive advice, which requires a polyvalent and versatile staff, trained in many different fields and with the necessary skills and knowledge to effectively provide the information to the farmer.

As a conclusion, it may be summarized the main strengths and weaknesses of FAS and FAServices and in Spain.

**The main strengths** to be pointed out are:

- Regional centres developed functions of training-advice to the end users, farmers and stockbreeders.

- Training programmes by the regional centres are close to the needs and demands from the farmers and stockbreeders and their OPAs.
- Regional centres perform knowledge transfer to end users taking into account the objectives of modernization, innovation and improvement of competitiveness of the agricultural, livestock and forestry sectors.
- During the last decade OPAs, and many cooperatives (those more powerful and better established, but mainly through the national Agro-Food Cooperatives Confederation) were able to convert themselves to become FAServices, using their past experience working very close with the farmers and extensive knowledge of the agricultural and livestock sector. The model of a very few number of FAS organizations comes from Andalusia, but they have presence in all eight provinces through their network of offices.
- In addition to OPAs and regional federations of agro-food cooperatives, in the regions with significant weight of the agricultural sector, and due to the demand from farmers and stockbreeders, it emerged a dense network of FAServices with an extensive presence in the rural areas (such as in Extremadura or La Rioja).
- The close links between farmers and their professional organizations with the industry (mainly providers) constitutes an increasingly important source of knowledge and transfer of innovations to the farmers.

However the important amount of organizations being part of the different regional FAS, they have some **weaknesses** to deal with:

- It lacks a regional body in charge of the coordination of FAS. The regional ministries of agriculture only play a role of control, monitoring and registration in this regard, but not of 23
- coordination of the activities of the FAS. Obviously each organization is in charge to coordinate their services in the region or area in which they are present.
- The County Agricultural Offices (OCAs) were, from the opinion of some experts, potentially able to develop such a role as advisory services first, starting during the 80s, and could have been coordinating FAServices later on, during the 90s and after EU regulations related to the compulsory implementation of FAS. However, the daily evolution and the legal framework (within the regions) have shown that duplication and overlap of functions among OCAs and the FAS organizations were growing. Added to this most of regional governments have been gradually emptying contents and functions of the OCAs, and in some regions they have virtually disappeared (as for example in Andalusia).
- National and regional regulations establish a minimum of expertise and grades for each FAServices organization. However, there are not protocols, homogeneous system and any commitment for staff members to update themselves and follow some kind of continuous training programmes (with the exception of some regions). To be updated it depends very much on their own. The regional governments bring opportunities through courses and seminars offered by regional centres, but there is not a system to ensure

training update for FAServices staff. The creation of such a protocol would facilitate and would formalize the relationship and knowledge transfer between research institutions and advisory bodies.

- From the point of view of staff in organizations coping with advisory services to farmers, knowledge and innovation transfer to them from research centres is insufficient and not addressing the real and daily needs of farmers. With the exception of training courses, those research centres do not do much, sufficient and effective transfer effort to staff in FAS organizations (and much less to the farmers).

## **Sweden**

Today agricultural advisory service relies on public financing to a quite high extent. To rely on politics is always a risk, as there is no long term security when the political goals can change from year to year. The political goals steers what kind of competence the advisory organisations are hiring and what kind of advisory services that they provide, but if the political goals are changing, it could be a problem that the advisory services and the advisor staff is no longer wanted by the farmers. Therefore it's important that advisory organisations have knowledge of their vulnerability to political changes, and calculates with the risk of changes in public financing.

But at the same time it is important with public support to agricultural advisory service. Today the public authorities is an important player as they are often providing e.g. in-service training, this is valuable for smaller advisory organisations as they can be updated on the latest knowledge. Public financing also plays an important role when it comes to advisory service that the farmer doesn't want to pay for, but that is important for Swedish agriculture and the society as a whole, e.g. advisory service on environment. One problem when it comes to public financing of advisory services is that the County Administrative Board acts as both the provider and the procurer of advisory services, which sometimes can make it difficult for other regional advisory services to compete.

Finding new advisory staff and keeping them is a concern for many advisory organisations. With fewer agricultural students, it is getting harder for advisory organisations to compete with other organisations. Connecting with young professionals during their studies to attract them at an early stage, a clear career path and an incentive program that makes it interesting to stay and grow in the organization could be some solutions.

Times are changing fast. Today farmers have access to new technology and new possibilities that we never could dream of 10-20 years ago. This makes it important for the farmers and the advisory organisations to stay updated and keep up with the fast changes. Advisory service has still not adapted well to new technology, as the "old" technology is still dominating in communicating with farmers. This is off course partially because of the fact that not many of the farmers are using new technology, but then the advisory service needs to take the lead and show the farmers how technology can be used.

The needs of the farmers are also changing – in the past the farmer has settled for advise on his or her specific production, but as the role as a farmer is getting more and more complex there is a need of a more comprehensive view on advisory services. Therefore the advisory service needs

to be organised to meet these demands. The farmer doesn't only want the expertise of his or her advisor, but want the entire network that the advisor can offer. There is an on-going organisational change, but this has to happen faster in order for the advisory organisation to be relevant in the future.

Long term rules and regulations are important for the stability in the agricultural firms, but today farmers feel more insecure about politics than they do about the weather. The increasing demands from the society on farmers makes the role of the advisor more about providing safety and security when it comes to handling and adapting to changes in politics. The role of the advisor is also changing from an advisor that tells the farmer what to do, to be more of a discussion partner and a coach that supports the farmer when making decisions.

There is also a demand from farmers to meet, discuss and share their experiences in order to gain more knowledge. In this work, the advisors could be the catalysts that takes care of the practicality, drives the process forward, but is not involved primarily as experts or provider of knowledge.

In the future bio based economy where the industry of the green sector is growing, there will be new buyers of agricultural products and new business opportunities. The industry needs to find partners that can guarantee them a continuous deliverance of products, and the farmer wants to find partners that are willing to make long term commitments which the farmer needs in order to make investments. A new role of the advisor in the future could therefore be a catalyst that matches the connection between farmers and industry in order to create business.

The Swedish agricultural sector is very bad at innovation today. There are a lot of ideas among farmers, but they very seldom get commercialized. Therefore the advisory services needs to be better on picking up innovative ideas, support them in the innovation process, and there also needs to be a supporting system that helps the farmer to commercialize the idea. Today there is little knowledge on innovation and commercialization among farmers and advisors, which means that a lot of ideas stay on the farm. Maybe there needs to be certain incubation centres for the green sector, as there are in many other sectors. Maybe the university could be a partner, together with advisory services, in order to help the farmer in the innovation process.

## **United Kingdom**

Hence, reviews and evaluations advisory services are typically carried out for individual countries. For example, a report by the Rural Advisory Service Working Group detailed the strengths and weaknesses of the advisory services provided in Scotland. Note that this is an overall assessment, rather than of the FAS in particular because FAS in Scotland is integrated into the existing advisory services.

- **Strengths:** Different sources of advice are available and the coverage is generally fairly good. There are advisors around which are trusted and have the right skills for the job, in particular providing generalist farm business advice (SAC advisors). There is particular support for the FBAASS system and the current whole farm review scheme. It is also acknowledged that there currently is separation from the Scottish Government in relation to advice.

- **Weaknesses:** There is too little advice and it is too fragmented. There are not enough trained advisors and specialist/ technical advisors. Silo advice tended to be given on such things as nutrition and renewables. 20% of farmers are perceived to be in greatest need of advice but they are the group who do not access advice. The demise of the Farming Wildlife Advisory Group is perceived as a loss. There are not enough skills providers. There is no real ‘advisory service’ in forestry as this sort of service tends to be covered by a combination of engagement with FCS and forestry companies/ woodland NGOs. There is a risk of one dominant player establishing a monopolistic competitive advantage and a resultant potential loss of trust. Public and private sector advice should be more joined up, with better cohesion and integration.

As another example, a DEFRA review of the environmental advice provision in England finds that the current advice delivery landscape is providing reasonable support to farmers. However, the “lack of coherence between activities, as well as the absence of a shared view of ‘the customer’ both at national and local levels all account for the observed inefficiencies and duplication that consequently impacts on its effectiveness”. Partnership approaches between Defra and industry and as well as partnerships between government agencies are assessed to have made significant contributions on the provision of environmental and best practice advice to farmers and land managers (ibid.)

These two examples of evaluations of agricultural advice highlight similarities which may apply to some extent to the advisory services in Wales and Northern Ireland as well. Overall, and especially in England, there has been an organisational evolution towards the commercialisation and privatisation of knowledge production and transfer. NGOs, public and private actors compete for the provision of agricultural advice.

Many of the current problems are recognised and ways to address them were foremost in the development of the cross-Government Agri-Tech Strategy. This strategy takes continually reducing public funding/resources into account, suggesting to offset these through better industry engagement. Launched in July 2013, the strategy is seen as potentially the most significant development in the UK AKIS in recent years (Cooper, pers. comm.).

While some authors criticise the fragmentation of the UK AKIS and claim that the disjuncture and the unregulated nature of the AKIS have been frustrating for many in the agricultural community other authors urge that the integration of advisory services should not be at the expense of diversity. Garforth et al. also argue that growing a public sector capability for delivering advice is less likely to achieve cost-effectiveness and flexibility compared to contracting private sector organisations to deliver services with well-defined goals and appropriate delivery methods within agreed timeframes. The DEFRA review however, highlighted the value of employing an integrated approach in the development and delivery of targeted (sector specific and locally focused) advice that balances farm business needs with environmental priorities (referring to findings from the Integrated Advice Pilot study). The authors of the review argue that this approach has the potential to help tackle perceived tensions between competing priorities and the conflicting messages.

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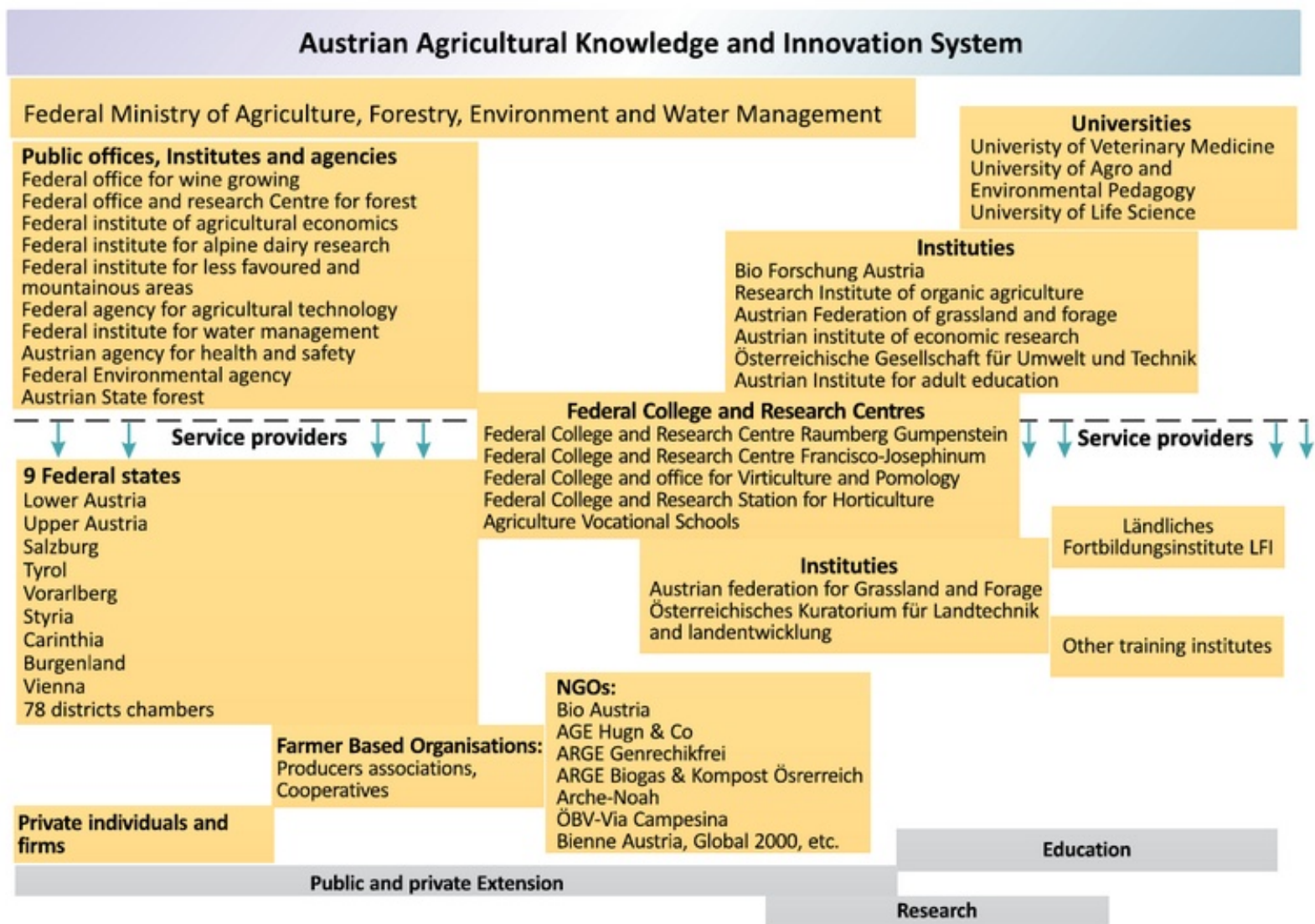


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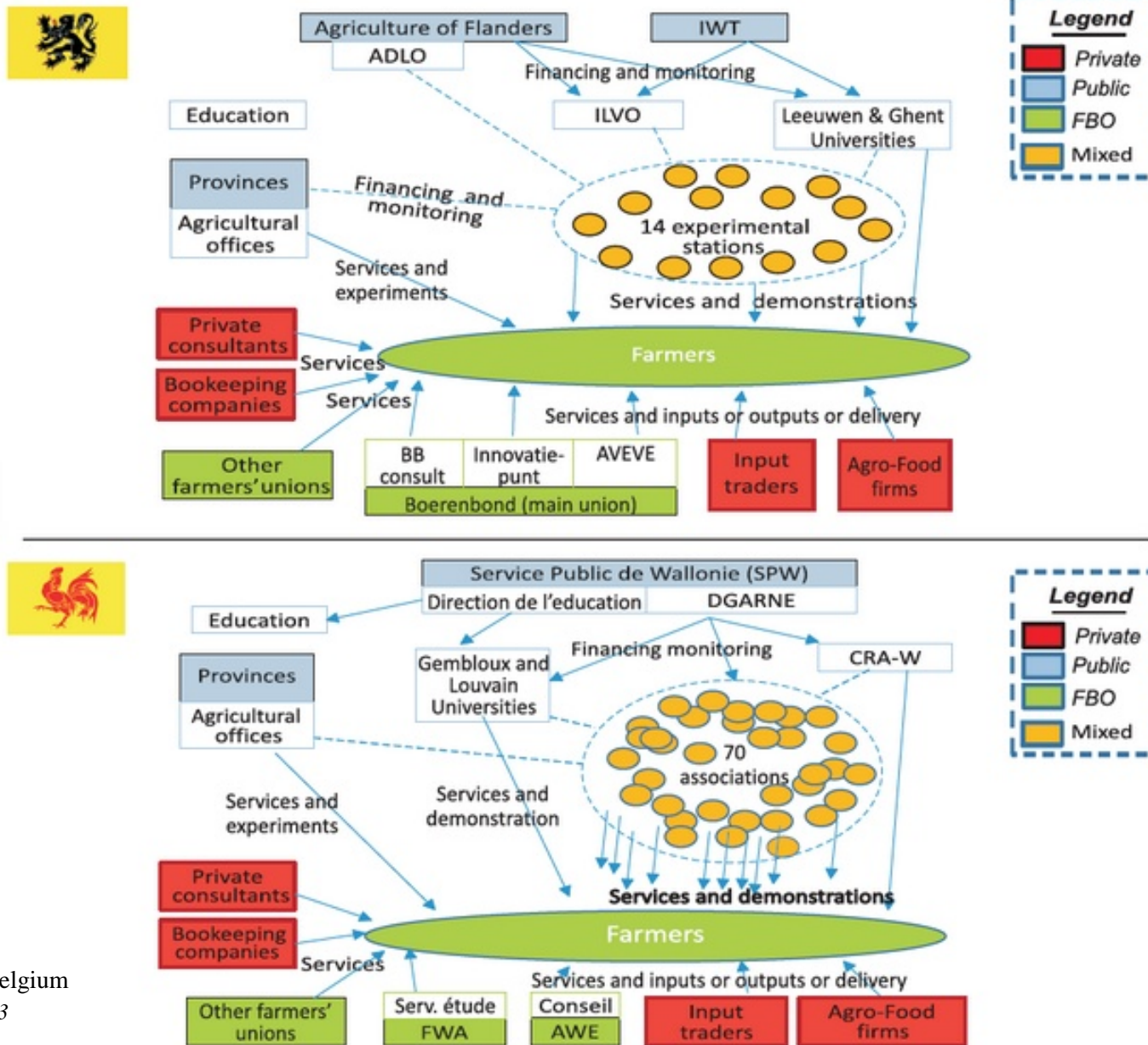
## **Appendices**

This part of final report consists of 27 schemes of AKIS system operating in 27 surveyed EU countries. The schemes are presented alphabetically according the names of surveyed countries. Each scheme consist of institutions and organisations created AKIS in particular country and linkages between them. The descriptions of AKIS are presented in chapter 2 of this report.

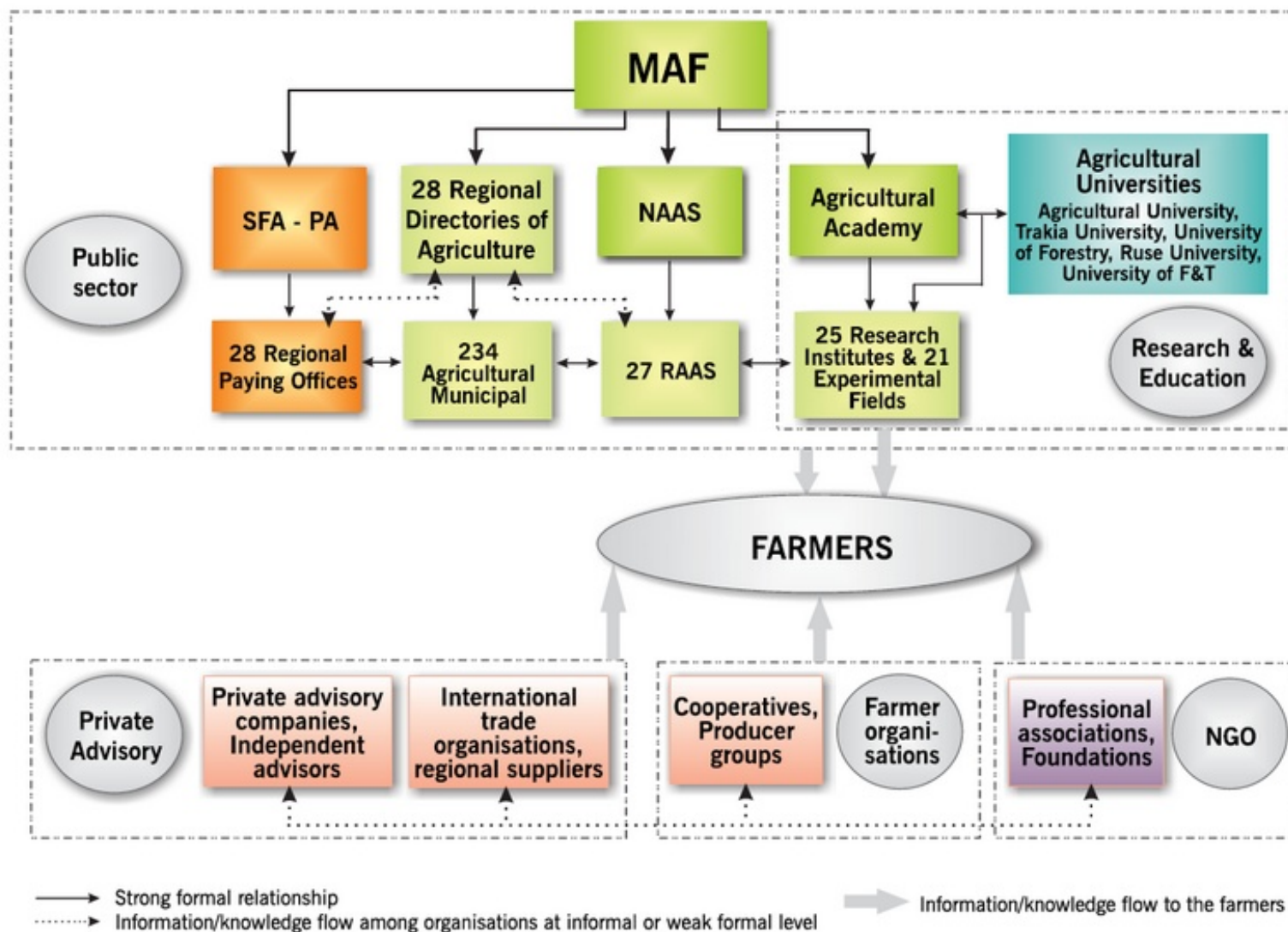


**Figure 39.** Diagram of AKIS in Austria

Source: Country report, Austria 2013

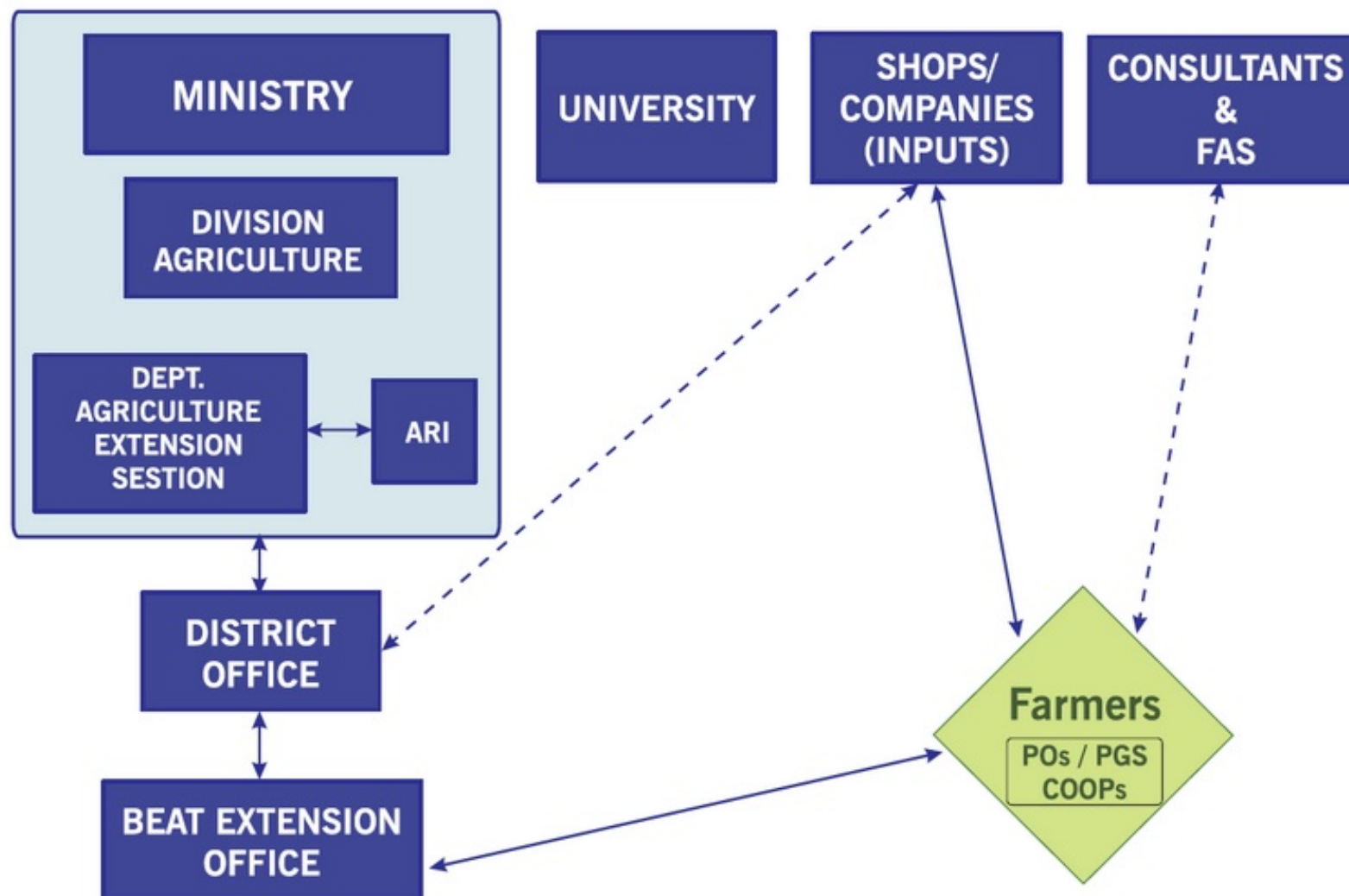


**Figure 40.** Diagram of AKIS in Belgium  
 Source: Country report, Belgium 2013

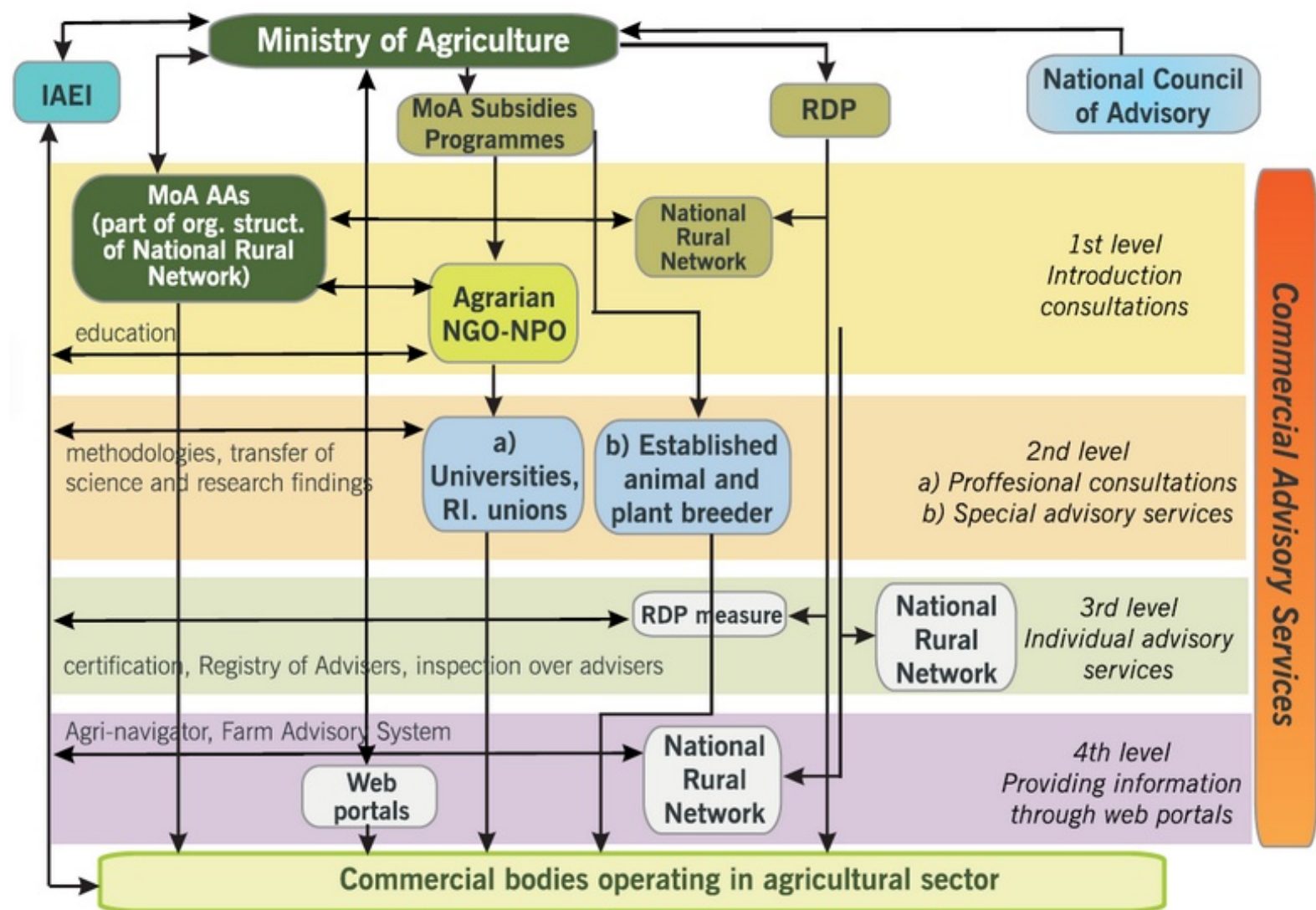


**Figure 41.** Diagram of AKIS in Bulgaria

Source: Country report, Bulgaria 2013

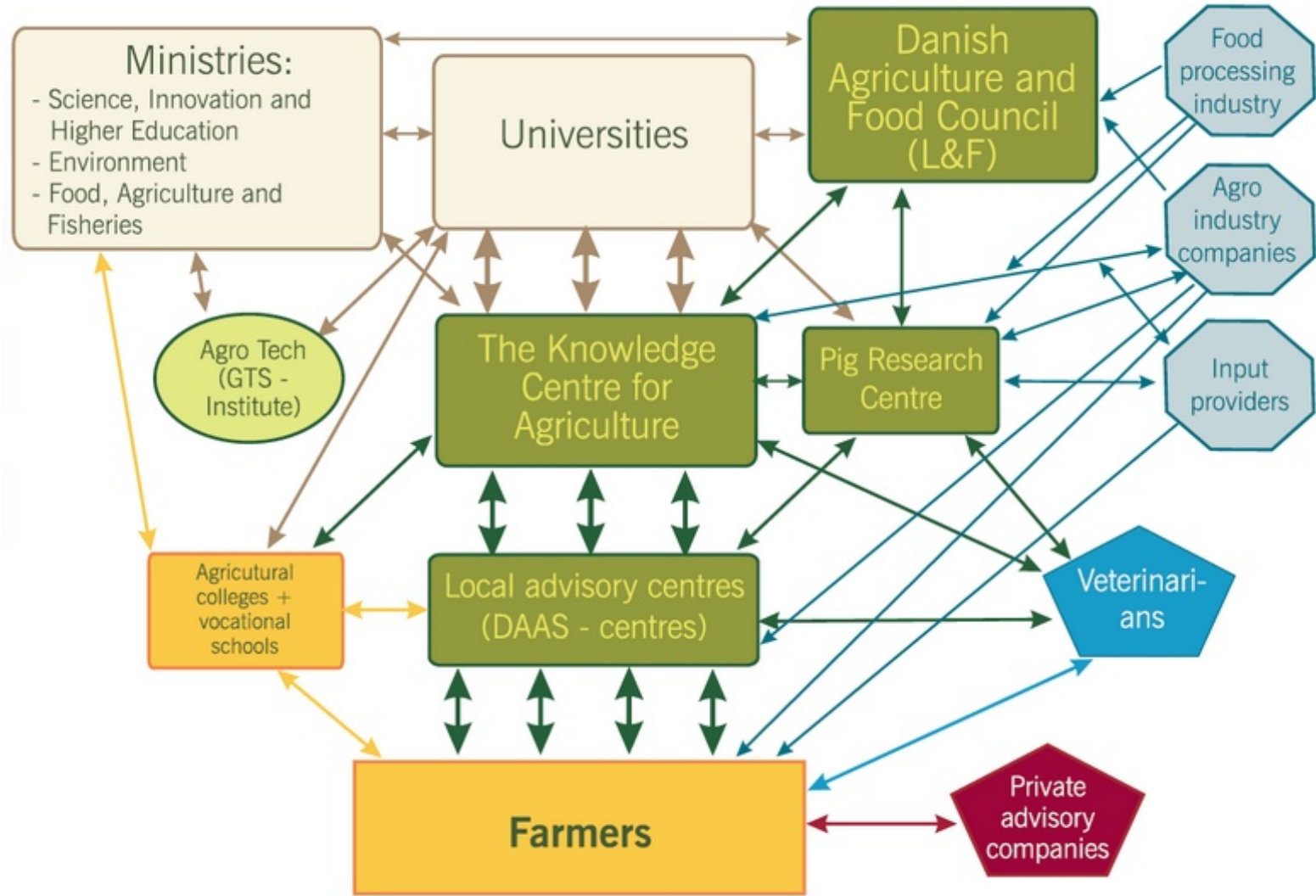


**Figure 42.** Diagram of AKIS in Cyprus  
*Source: Country report, Cyprus 2013*

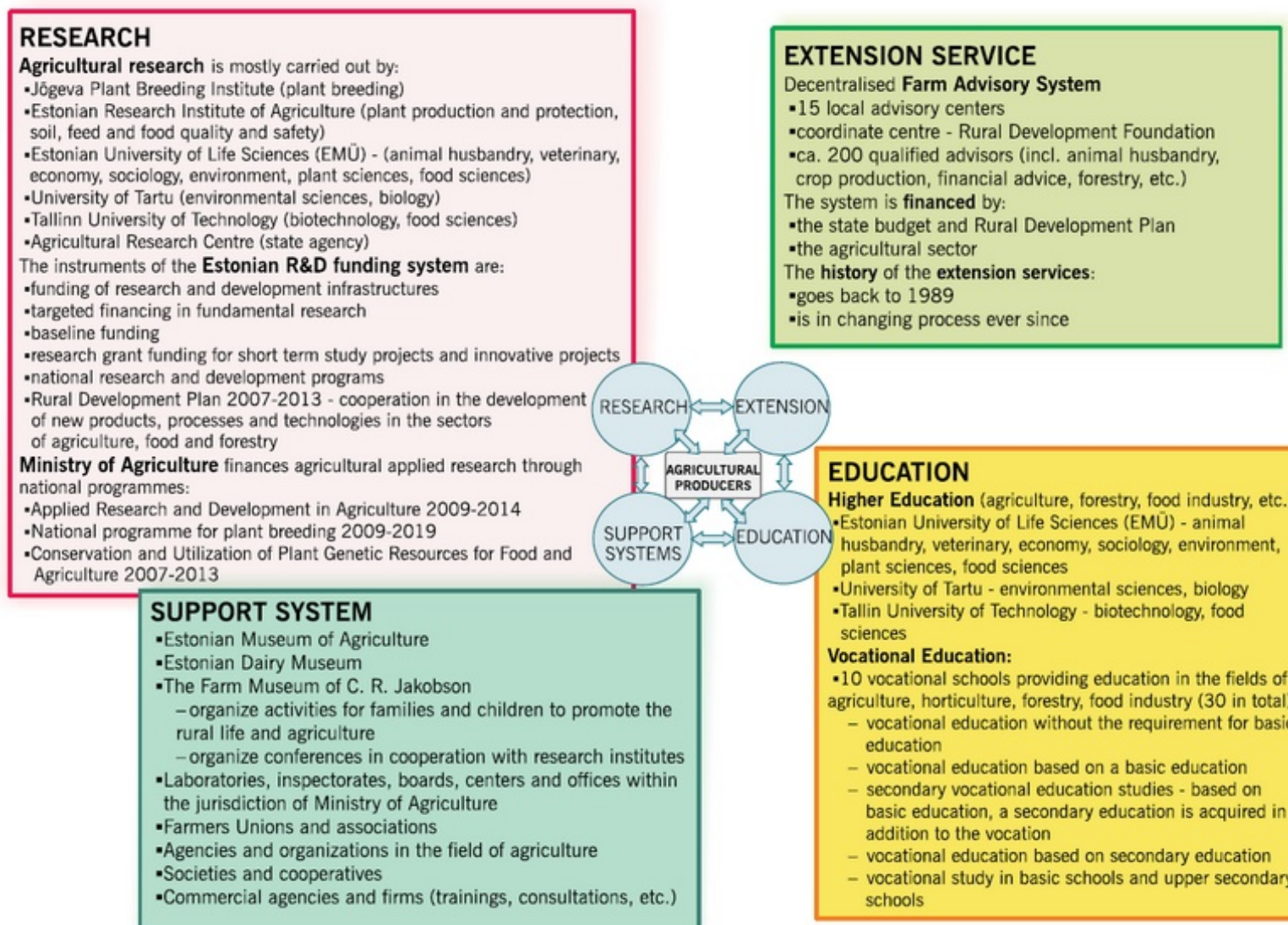


**Figure 43.** Diagram of AKIS in Czech Republic  
 Source: Country report, Czech Republic 2013



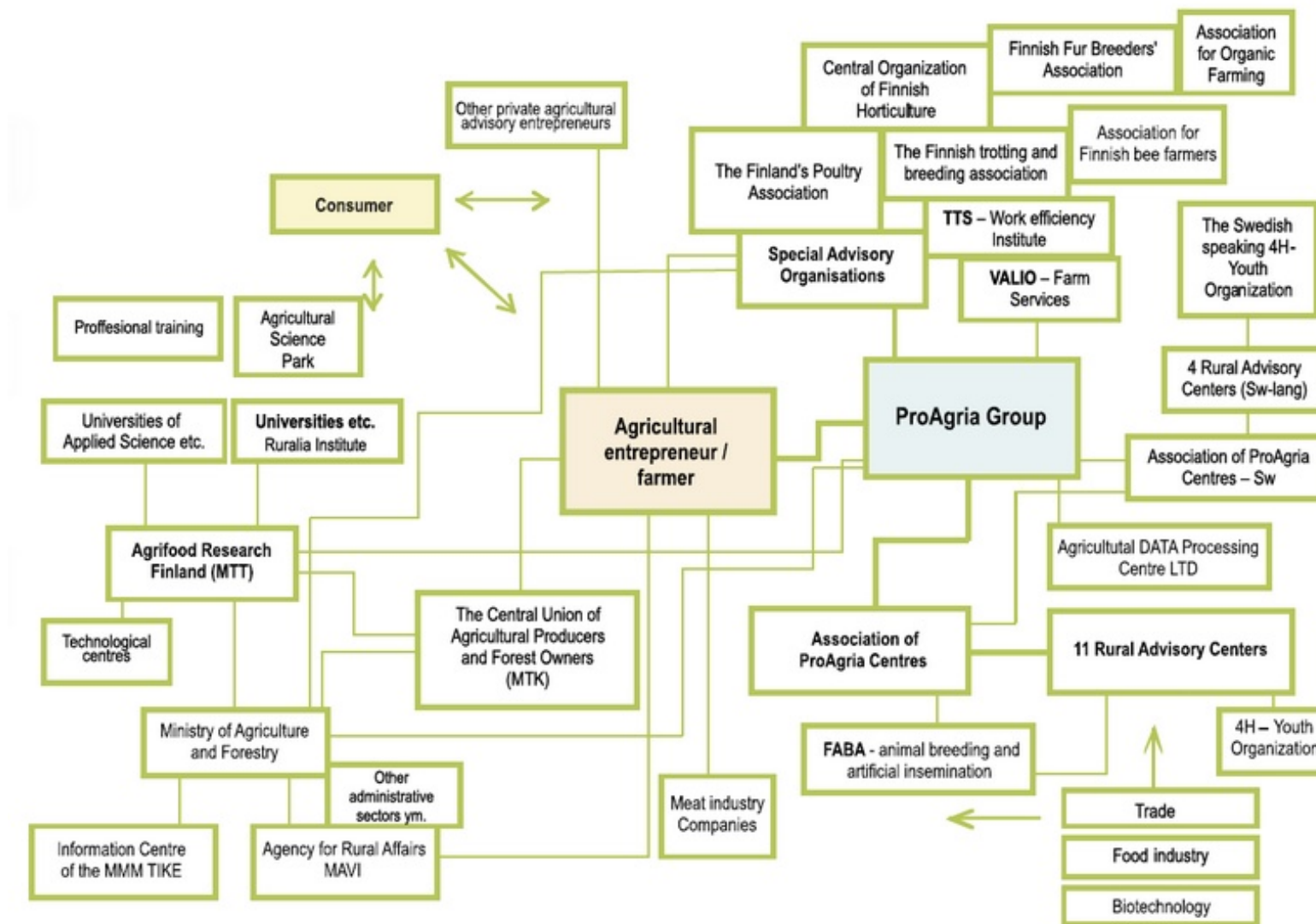


**Figure 44.** Diagram of AKIS in Denmark  
 Source: Country report, Denmark 2013

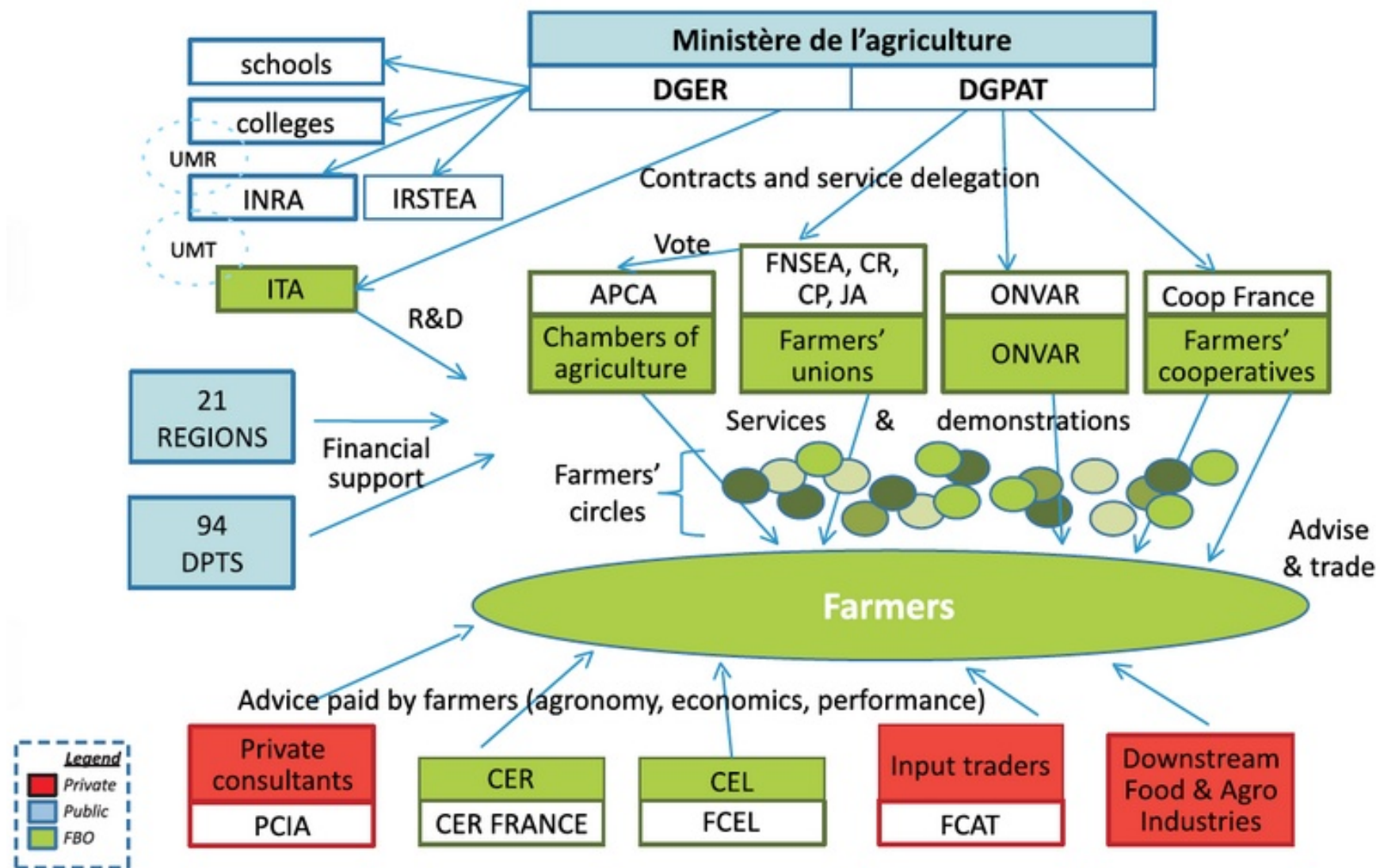


**Figure 45.** Diagram of AKIS in Estonia

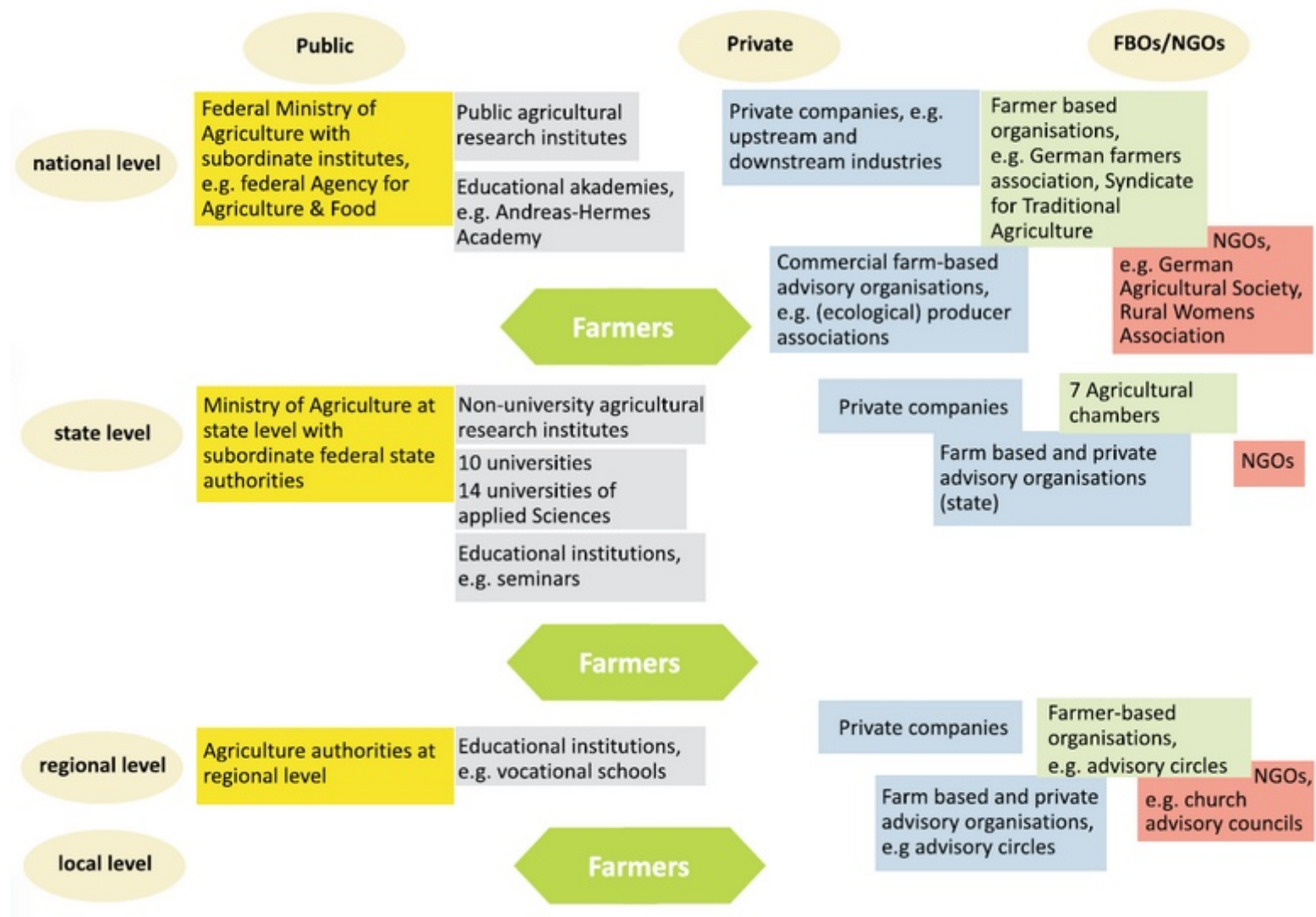
Source: Country report, Estonia 2013



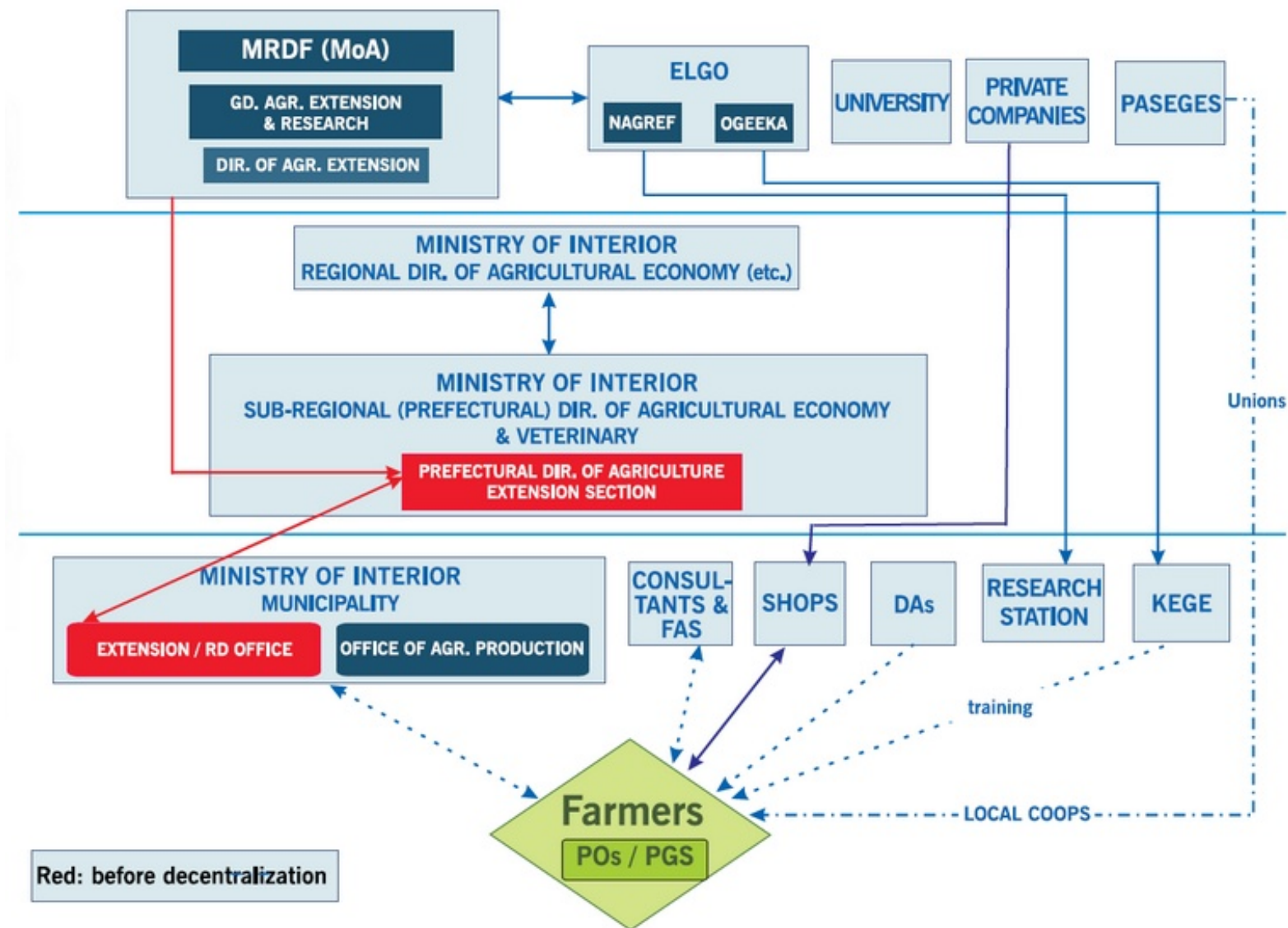
**Figure 46.** Diagram of AKIS in Finland  
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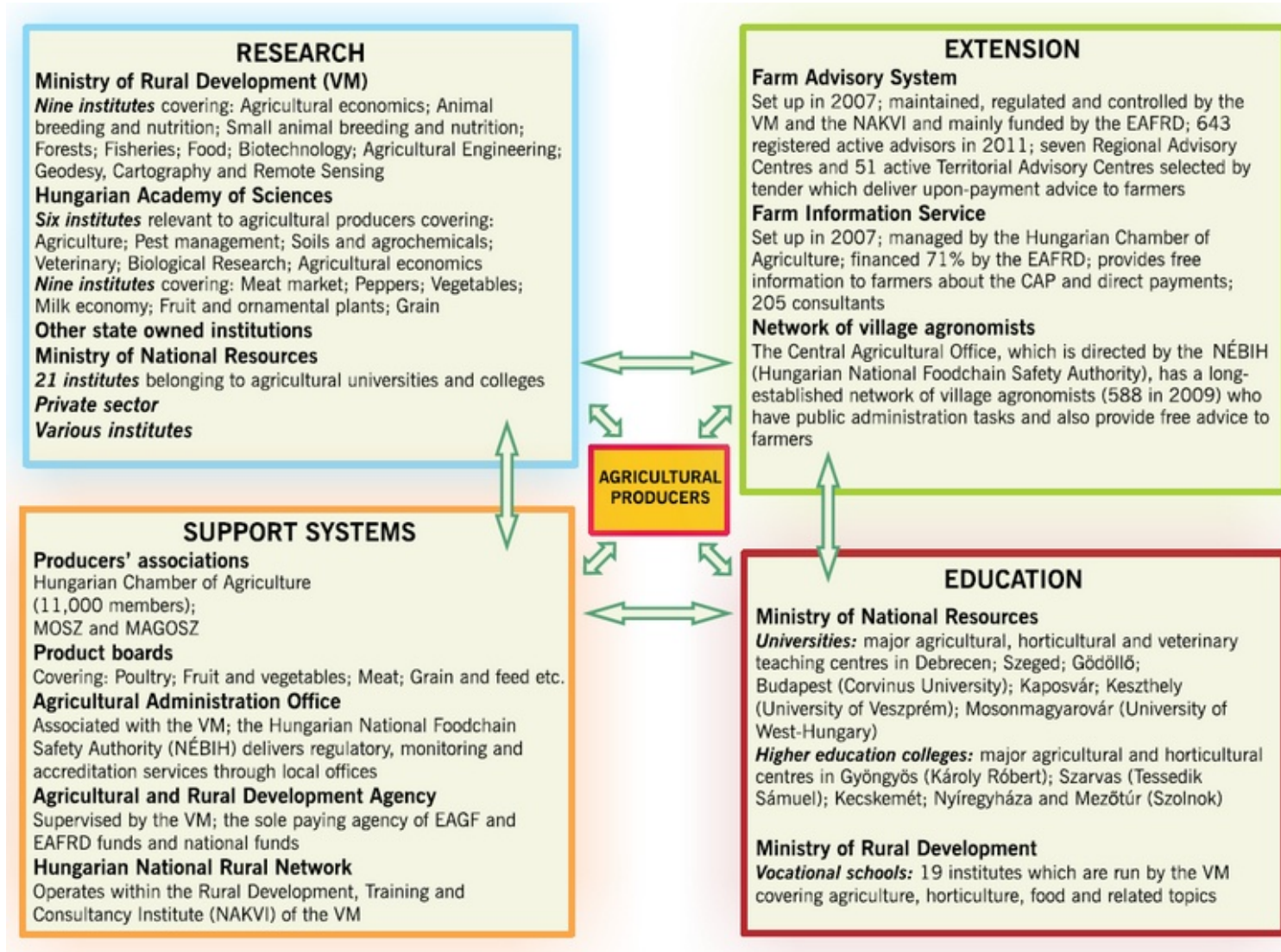
**Figure 47.** Diagram of AKIS in France  
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**Figure 48.** Diagram of AKIS in Germany  
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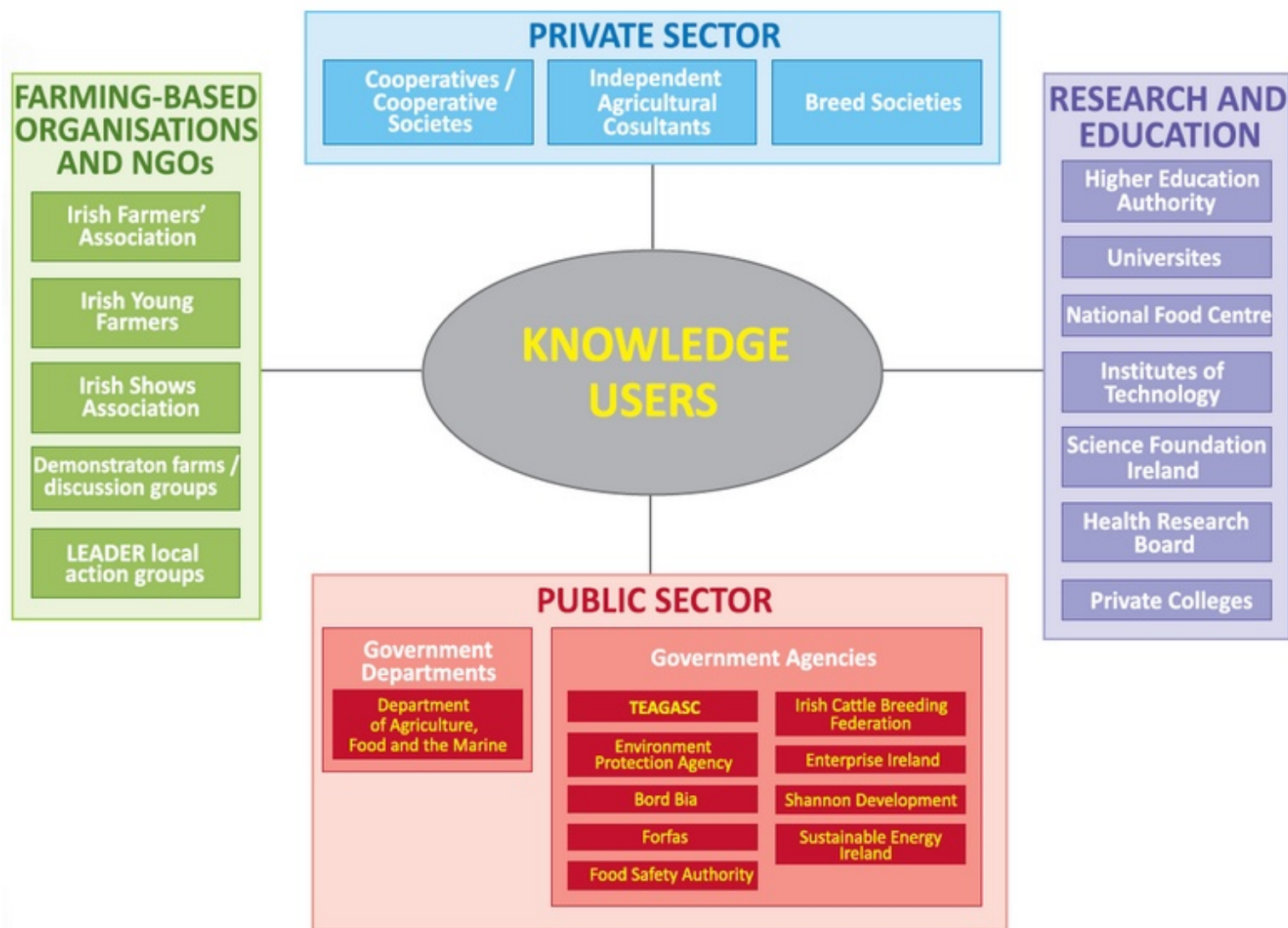


**Figure 49.** Diagram of AKIS in Greece  
 Source: Country report, Greece 2013



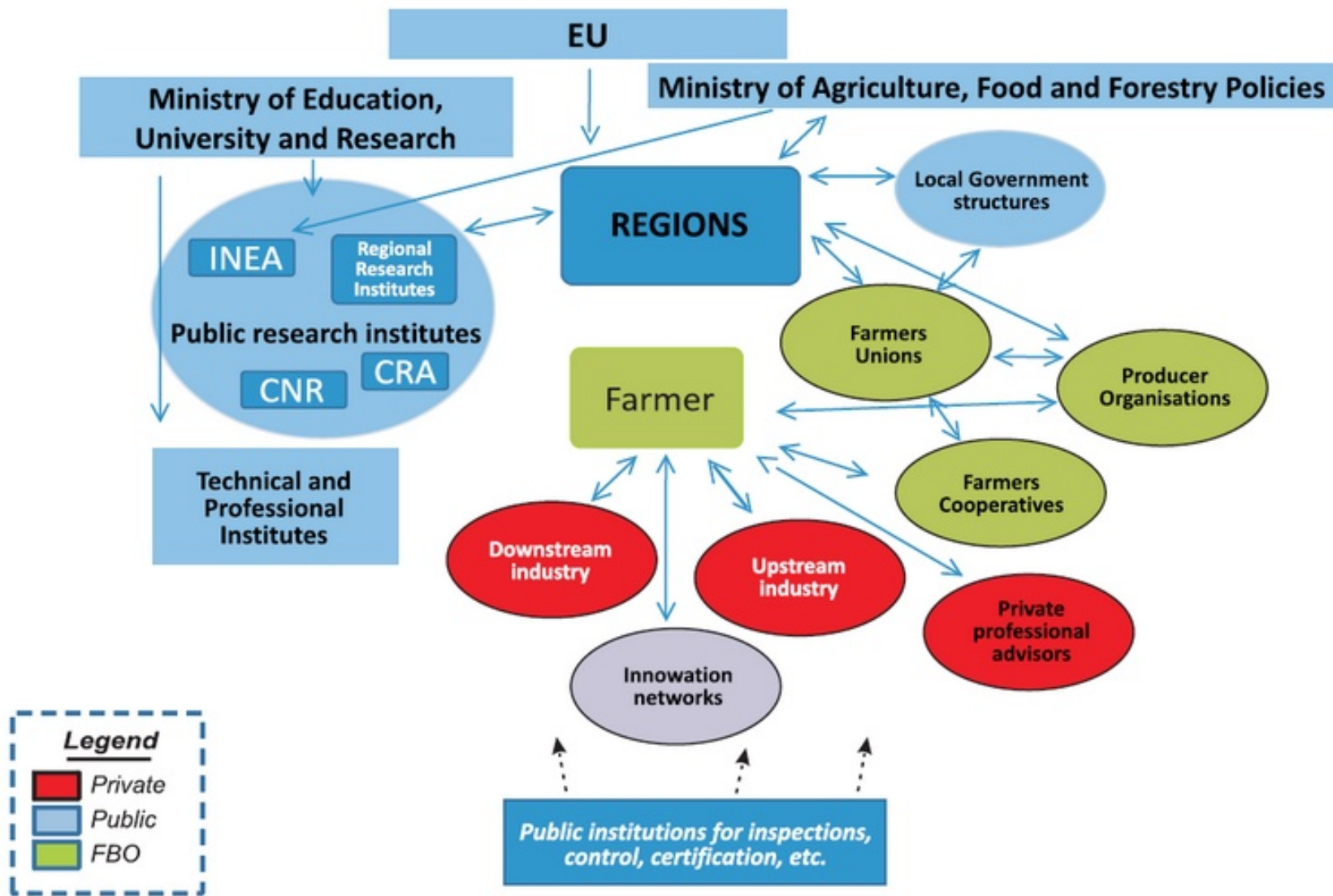
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Source: Country report, Hungary 2013

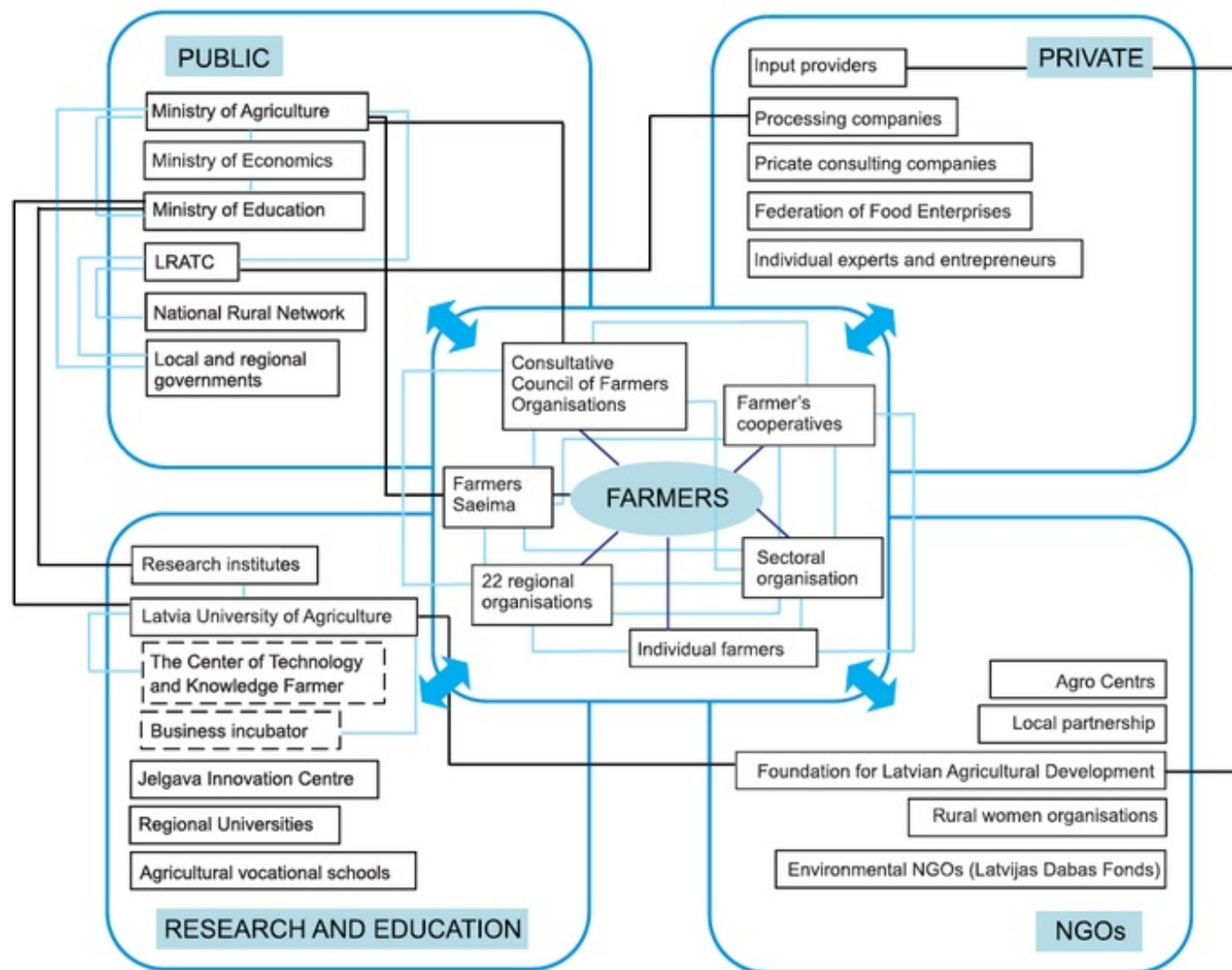


**Figure 51.** Diagram of AKIS in Ireland  
 Source: Country report, Ireland 2013

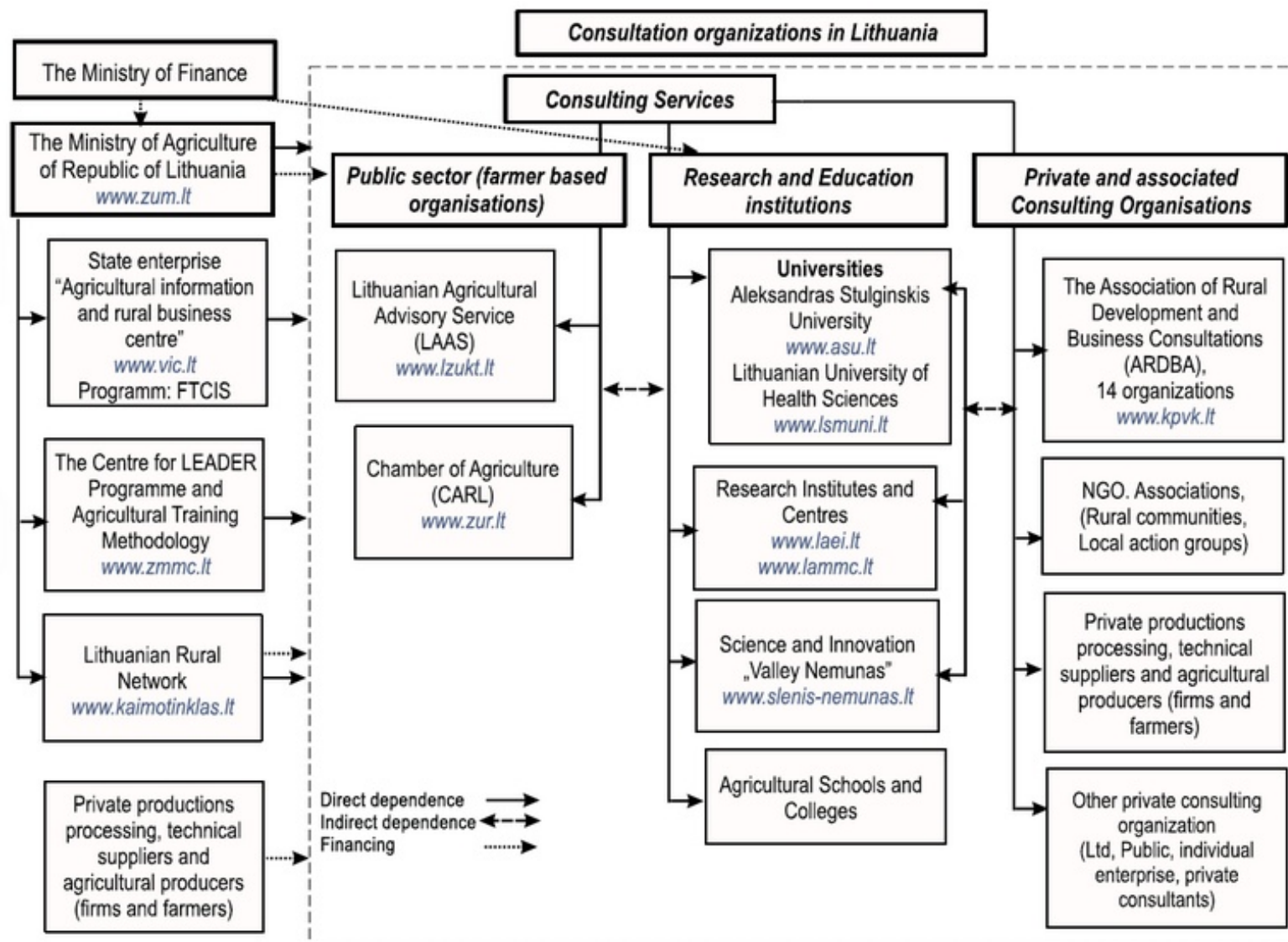




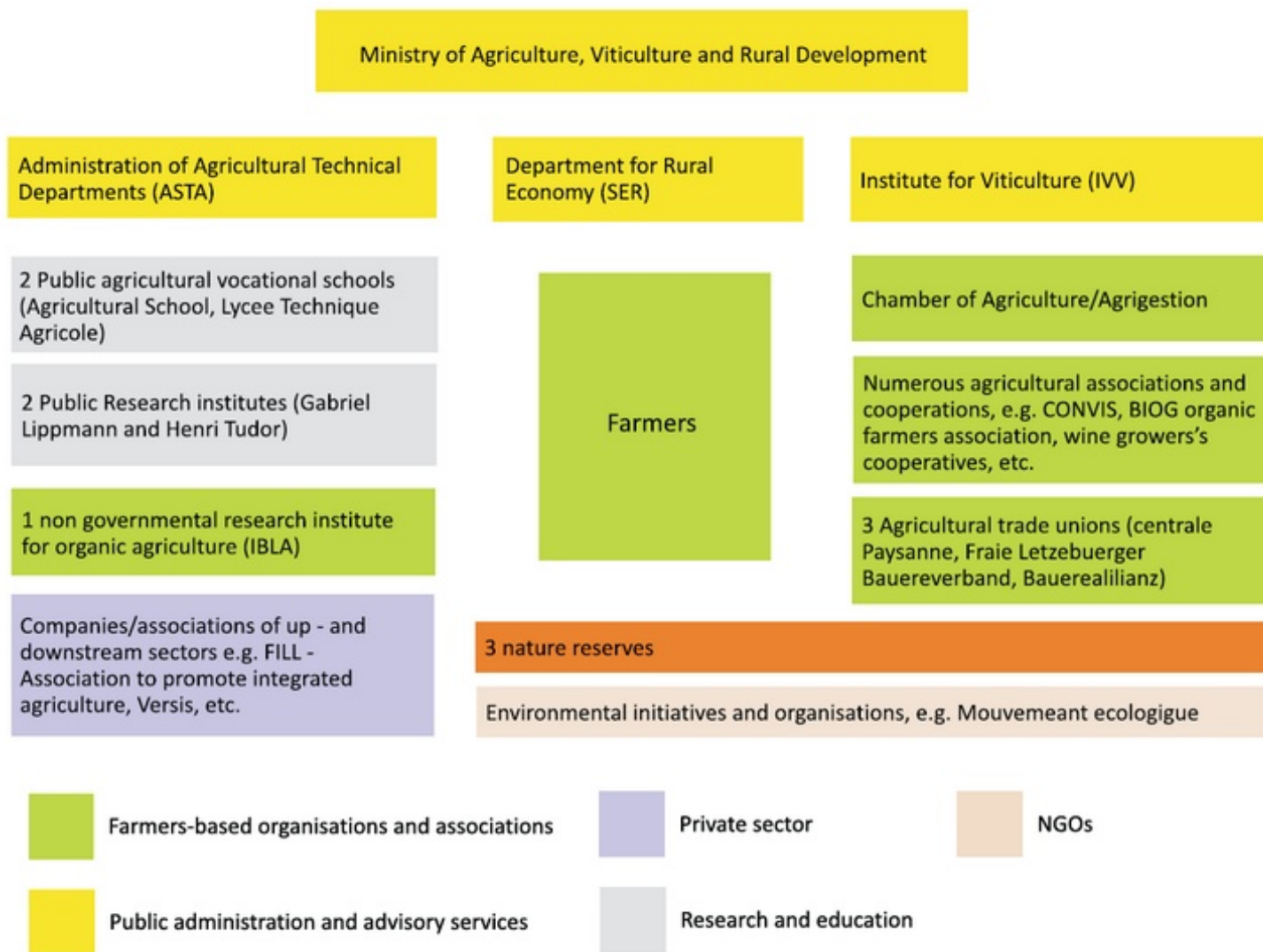
**Figure 52.** Diagram of AKIS in Italy  
 Source: Country report, Italy 2013



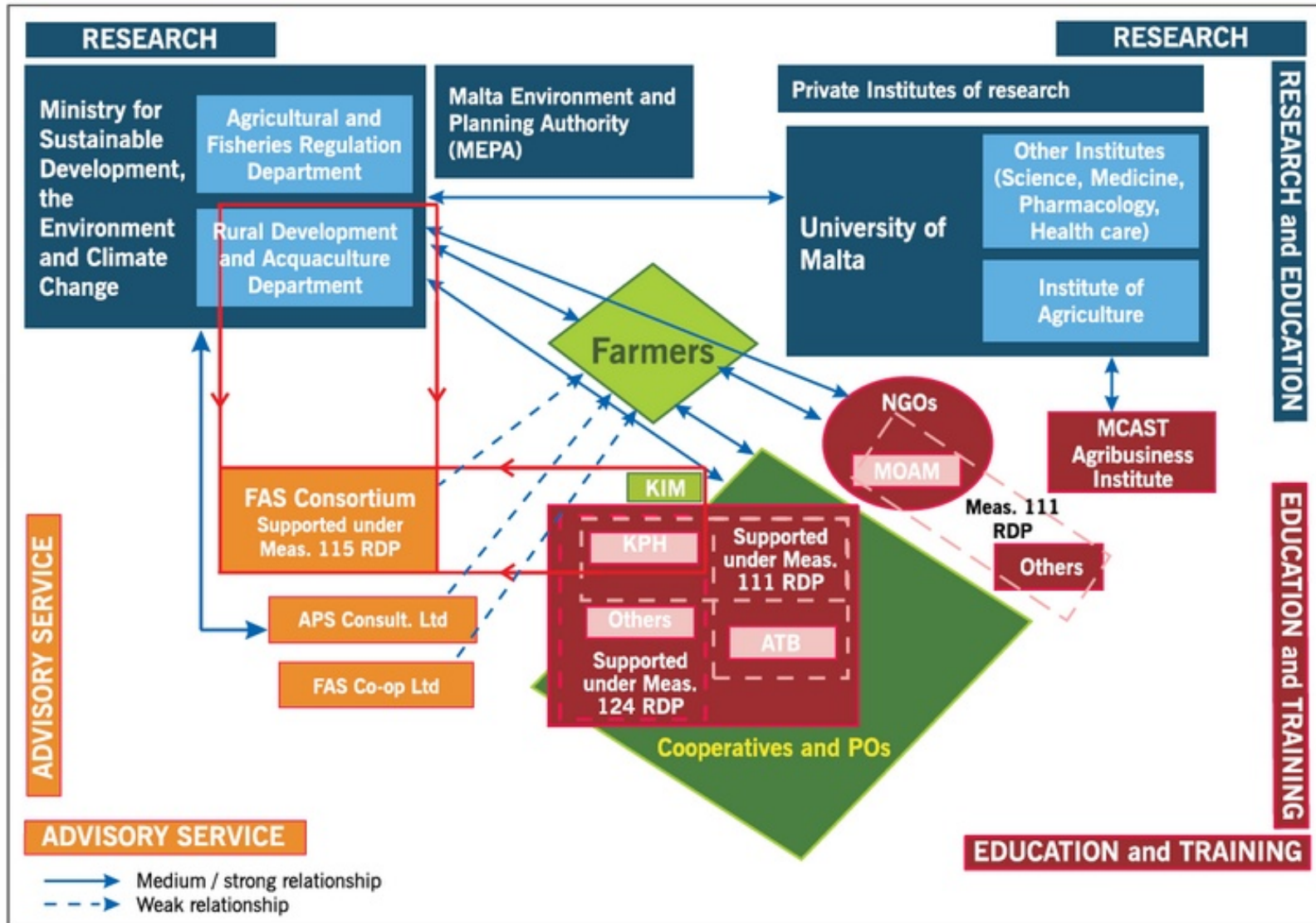
**Figure 53.** Diagram of AKIS in Latvia  
 Source: Country report, Latvia 2013



**Figure 54.** Diagram of AKIS in Lithuania  
 Source: Country report, Lithuania 2013

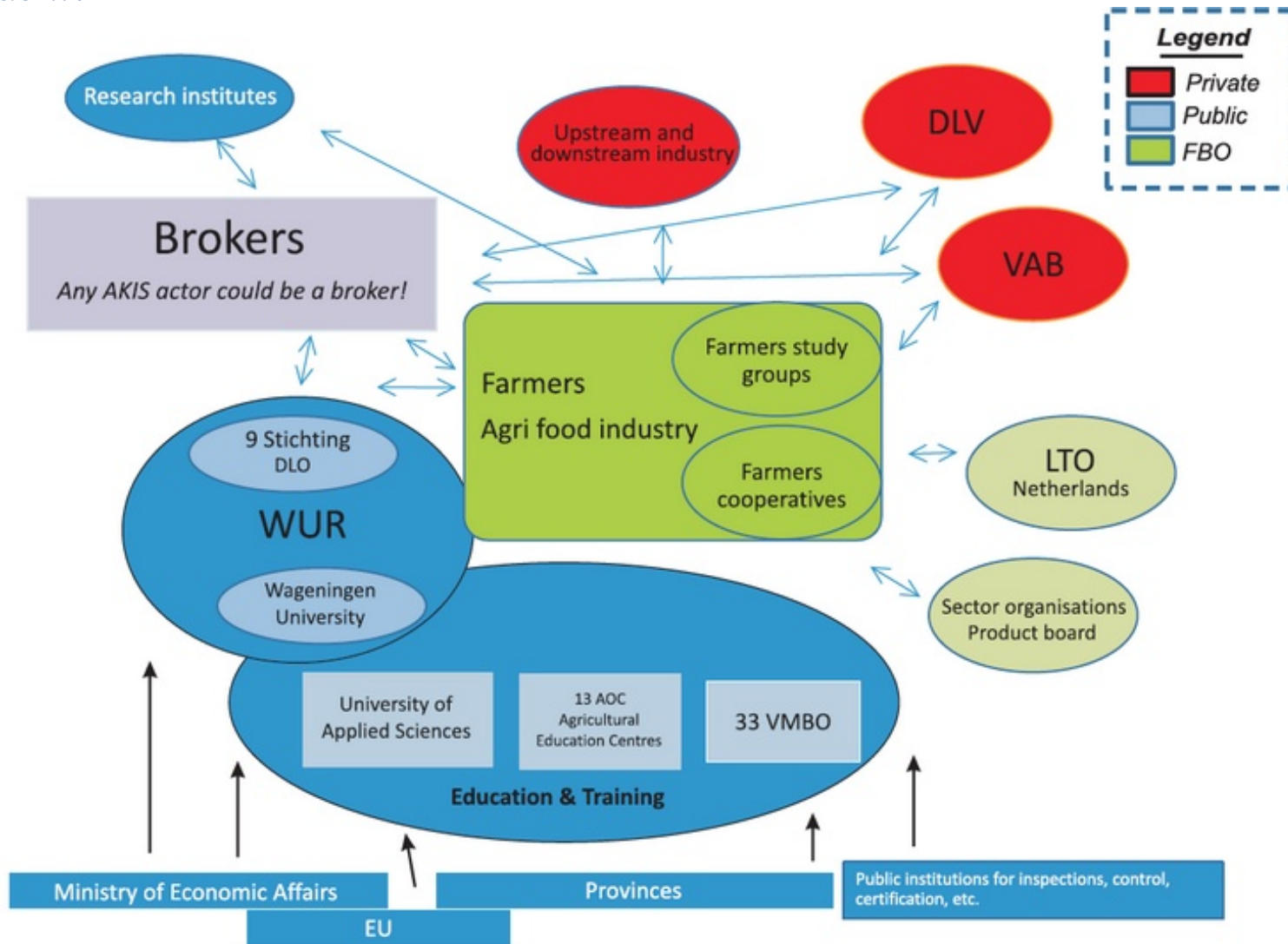


**Figure 55.** Diagram of AKIS in Luxembourg  
 Source: Country report, Luxembourg 2013

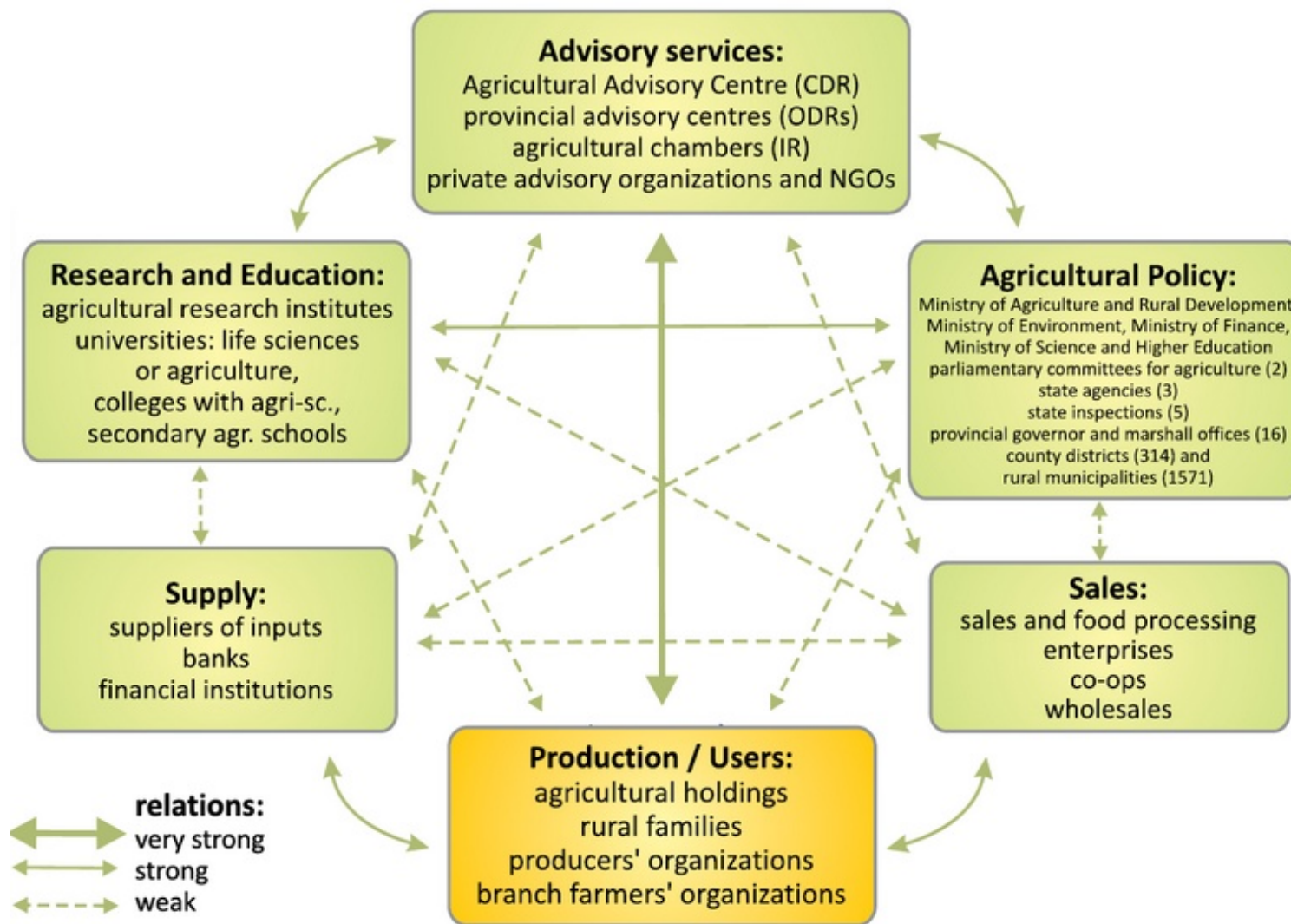


**Figure 56.** Diagram of AKIS in Malta

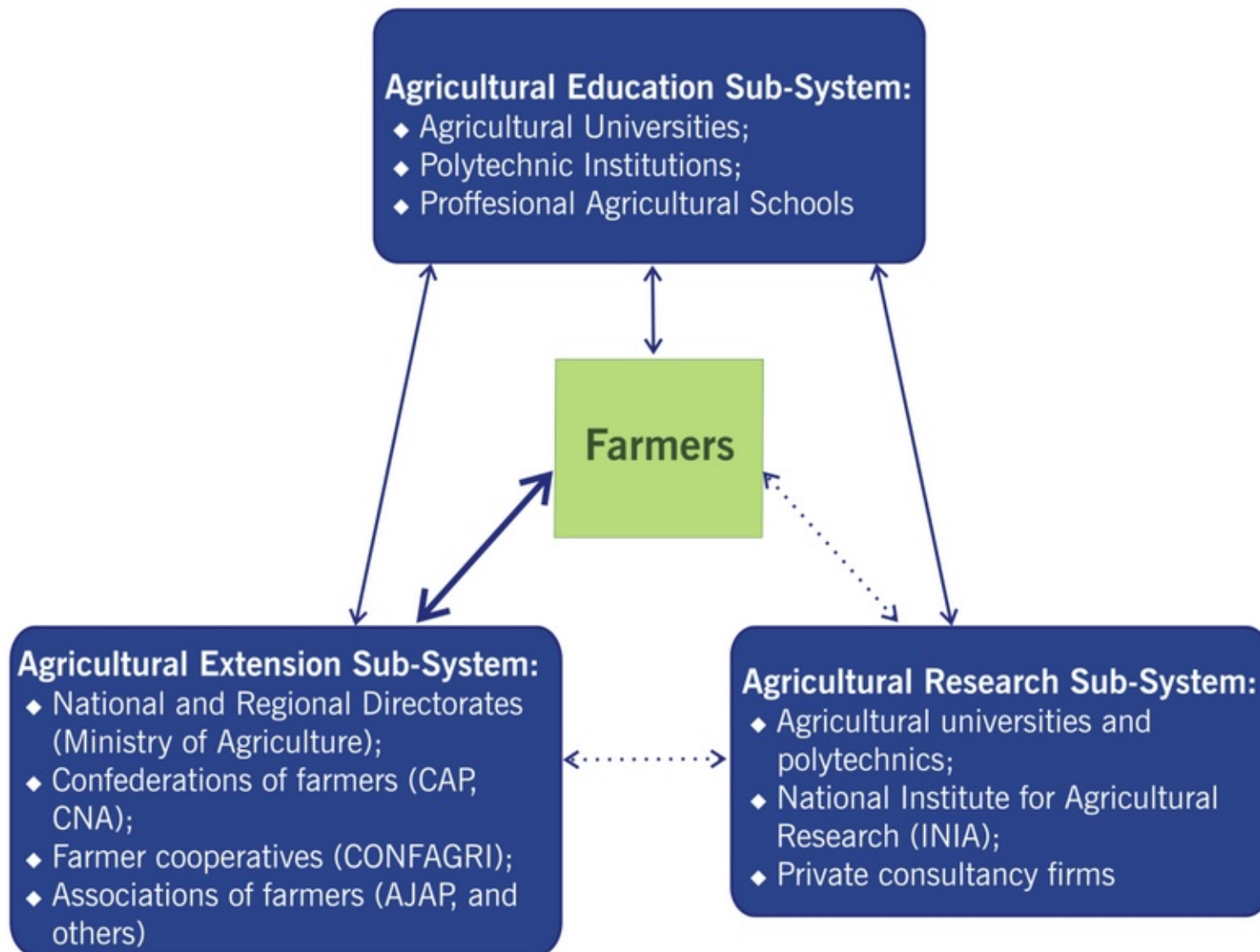
Source: Country report, Malta 2013



**Figure 57.** Diagram of AKIS in The Netherlands  
 Source: Country report, The Netherlands 2013

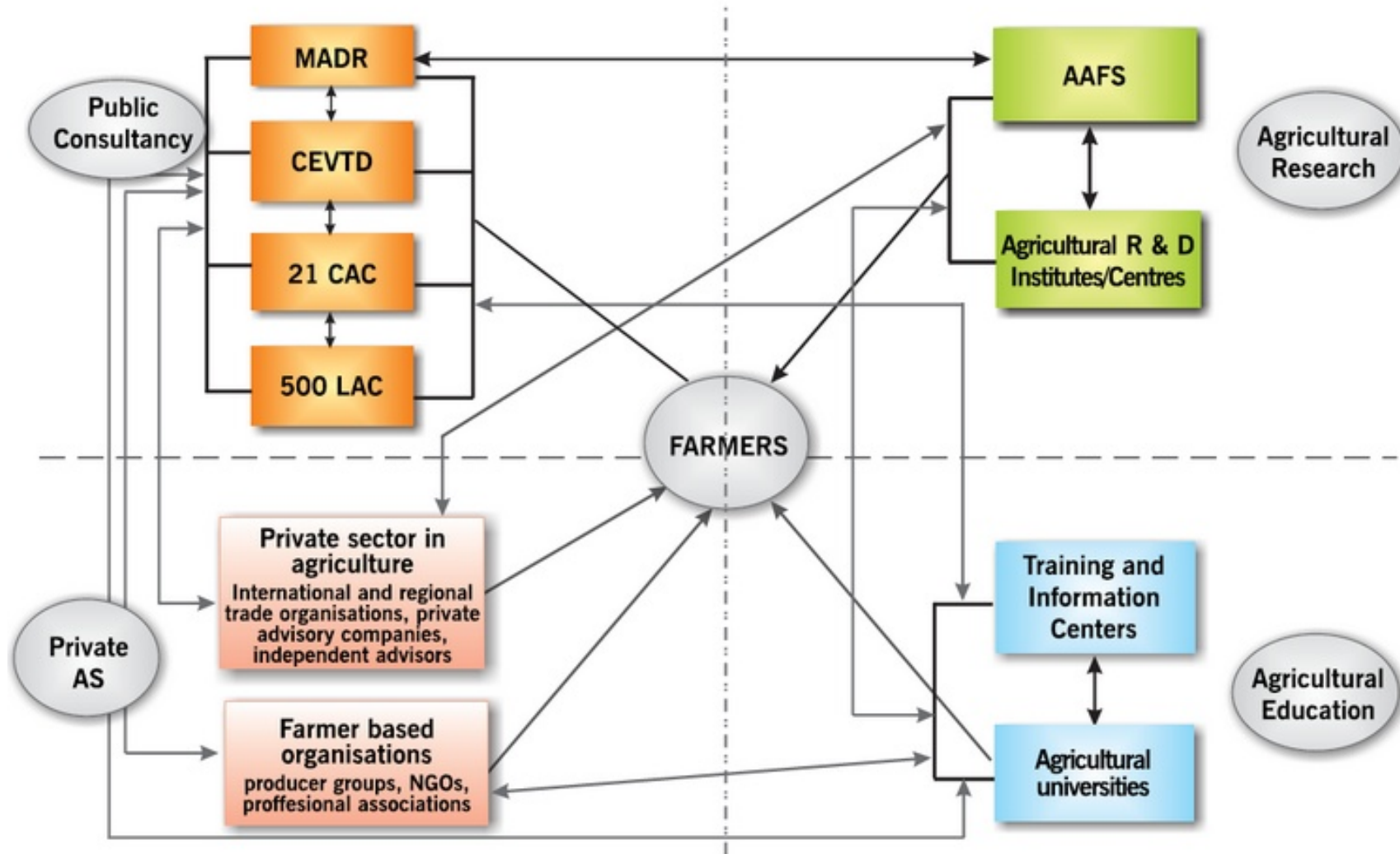


**Figure 58.** Diagram of AKIS in Poland  
 Source: Country report, Poland 2013

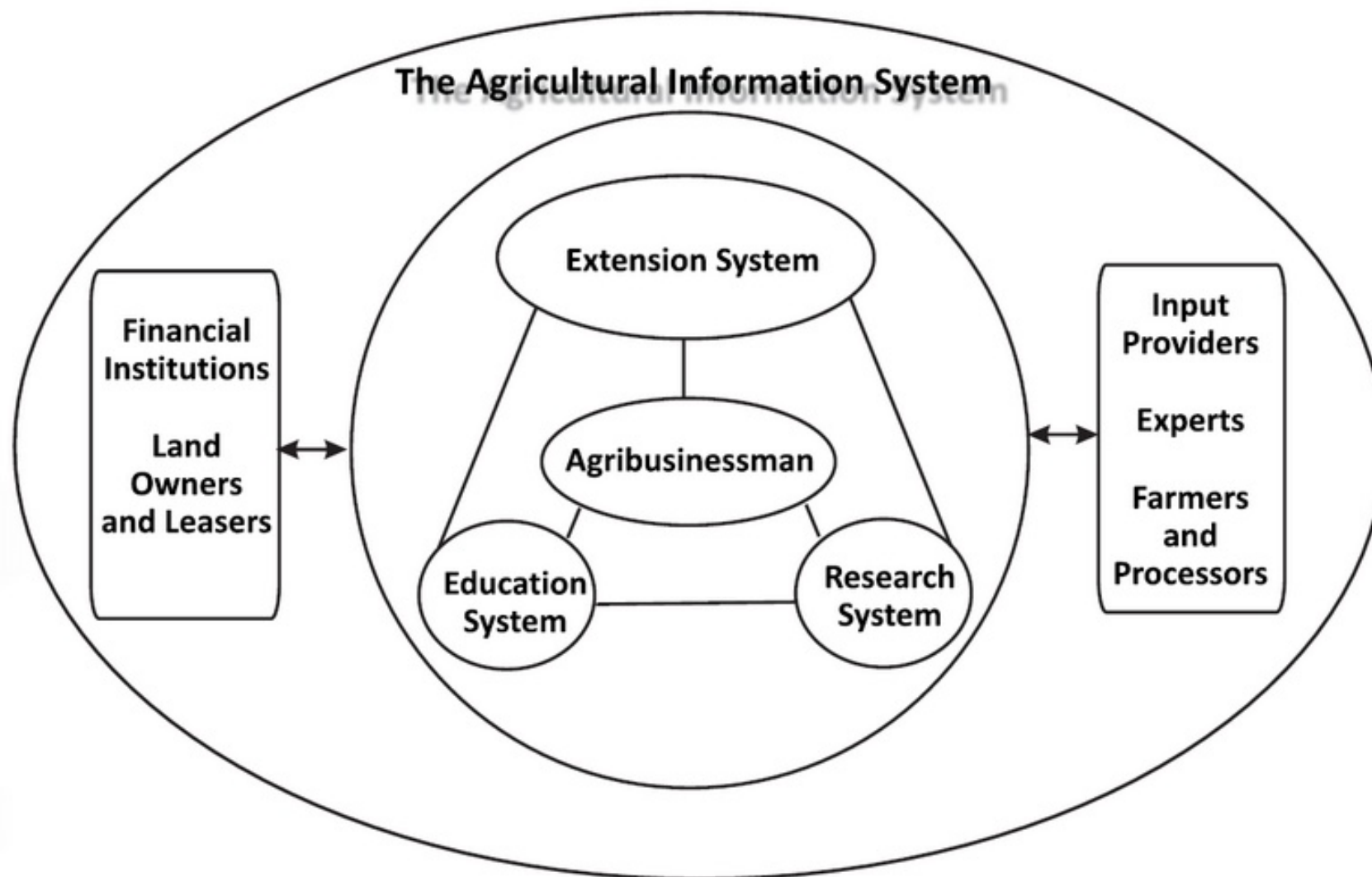


**Figure 59.** Diagram of AKIS in Portugal  
*Source: Country report, Portugal 2013*

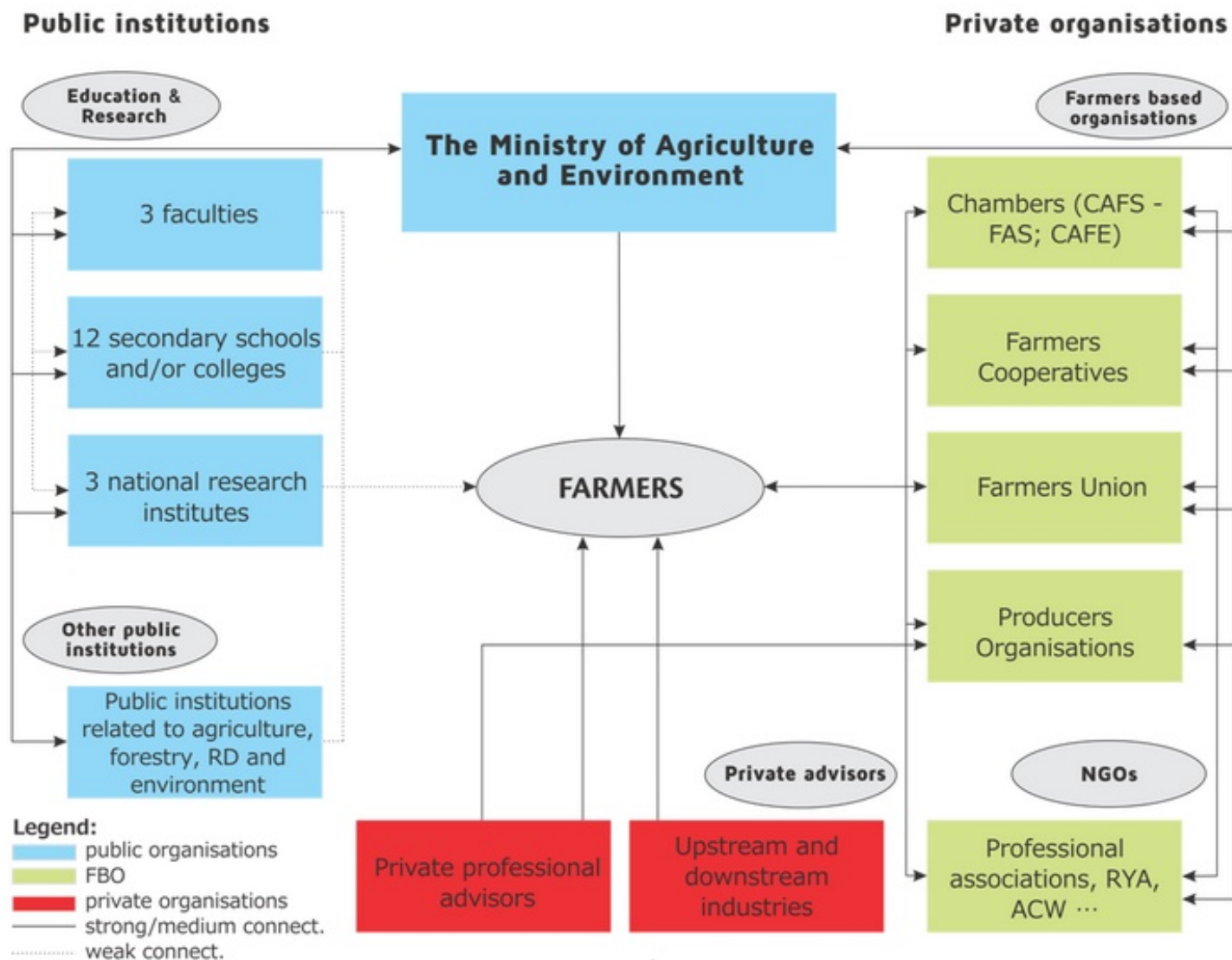




**Figure 60.** Diagram of AKIS in Romania  
 Source: Country report, Romania 2013



**Figure 61.** Diagram of AKIS in Slovakia  
*Source: Country report, Slovakia 2013*



**Figure 62.** Diagram of AKIS in Slovenia  
 Source: Country report, Slovenia 2013

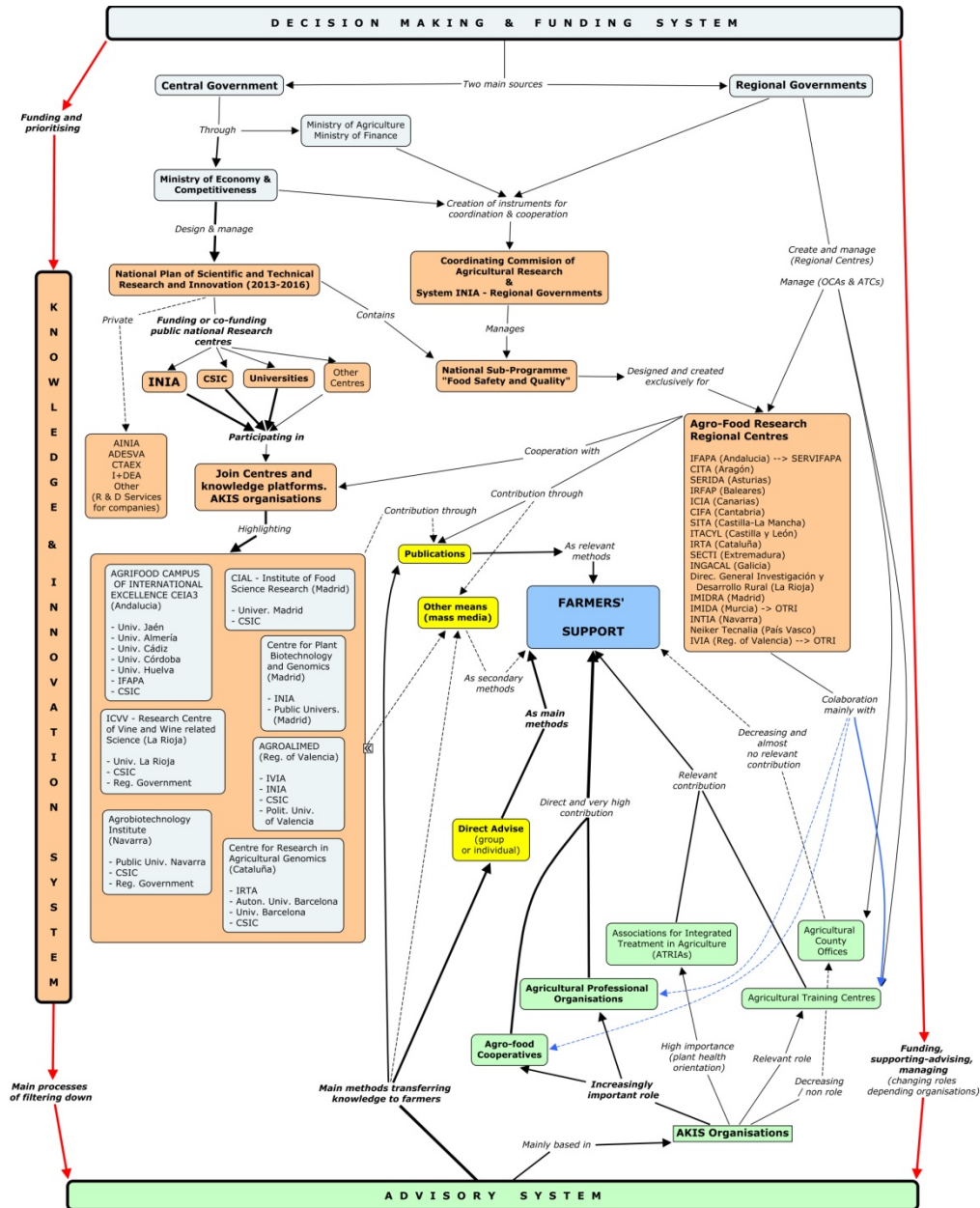
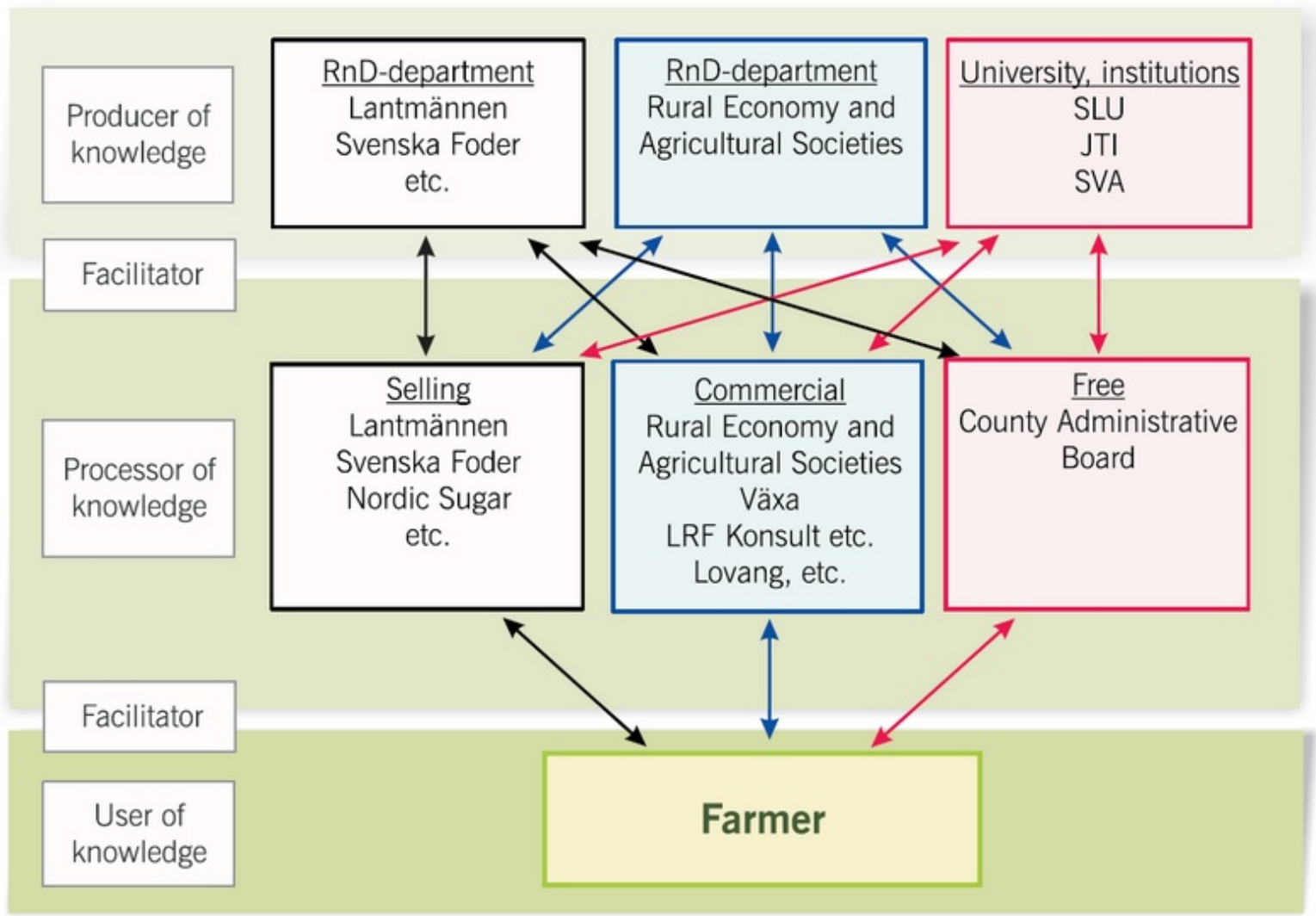


Figure 63. Diagram of AKIS in Spain  
 Source: Country report, Spain 2013



**Figure 64.** Diagram of AKIS in Sweden  
 Source: Country report, Sweden 2013



**Figure 65.** Diagram of AKIS in United Kingdom

Source: Country report, United Kingdom 2013