Prospects for Farmers' Support:
Advisory Services in European AKIS

AKIS and advisory services in Italy

Report for the AKIS inventory (WP3) of the PRO AKIS project

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Executive summary

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

This report represents an output of the PRO AKIS project (Prospects for Farmers' Support: Advisory Services in the European Agricultural Knowledge and Information Systems'). It is one of 27 country reports that were produced in 2013 by project partners and subcontractors for compiling an inventory of Agricultural Knowledge and Information Systems. AKIS describe the exchange of knowledge and supporting services between many diverse actors from the first, second or third sector in rural areas. AKIS provide farmers with relevant knowledge and networks around innovations in agriculture. Findings from the 27 country reports were presented at three regional workshops across Europe in February and March 2014, discussed with stakeholders and experts, and subsequent feedback was integrated into the reports.

The agricultural sector in Italy is characterised by extreme differentiations across the local farming systems, presenting clear distinctions between the two extremes with, on the one hand, areas and sectors producing mainly public goods, and at the other extreme, areas and sectors which are producing for the market at highly competitive rates. The majority of Italian farms fall somewhere these two extremes and express a need for differentiated and integrated policies and services.

As a result of decentralization Italian agriculture is now subject to the jurisdiction of 21 Regions and Autonomous Provinces (Trento and Bolzano). Each region has its own Department of agriculture and its own unique organization for and of research and advisory services. Due to this we can reasonably claim that there are 21 different AKISs in Italy. In addition, the national framework is even more complex due to the coexistence of several institutional levels which are responsible for the different AKIS components. States and regions have concurrent competence over the R&D policies. Secondary and higher education establishments are under state control, whilst vocational education is under the control of regional administration. Finally extension, as mentioned, is under regional control. In Italy agricultural advisory services are provided by a diverse group of suppliers that have different objectives and organizational patterns. The quality and quantity of advisory services provided differ hugely from one region to another, due to historical political choices and different structural configurations.

Regarding the public sector, 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 to 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 present trends highlight greater pluralism and also a privatization of Italian extension services, emerging new players and a different organization/configuration of the traditional actors.

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List of Acronyms

Acronym	Explanation
AIA	National Breeders' Association
AKIS	Agricultural Knowledge and Information/ Innovation Systems
ANVUR	National Agency for the Evaluation of Universities and Research Institutes
APA	Provincial Breeders Association
ASSOCAP	*Consorzi agrari* Association
AWUs	Annual Work Unit(s)
CAA	Agricultural service centre
CAF	Tax assistance centre
CIA	Italian farmers confederation
CIDA	Interregional Committee for Agricultural Advisory
CIFDA	Interregional Training Centre for Agricultural Advisory
COMPAG	National Federation of Agriculture Products Traders
CNR	National Research Council
FAS	Farm Advisory System
HNV	High Nature Value Farming Systems
INEA	National Institute of Agricultural Economics
ISMEA	Institute of Services for the Agricultural and Food Market
ISTAT	National Institute of Statistics
GAEC	Good Agricultural and Environmental Conditions
GDP	Gross domestic product
MIPAAF	Ministry of agriculture forestry and food policies
MIUR	Ministry of Education, University and Research
NGO	Non-Government Organisation
POs	Producer Organisations
PROAKIS	Prospects for Farmers' Support: Advisory Services in European AKIS
R&D	Research and Development
TAA	total agricultural area
UAA	Utilised Agricultural Area
UNIMA	National Union of Agricultural Mechanisation Companies

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1. Main structural characteristics of agricultural sector

The heterogeneity of climatic and soil conditions[1], together with the extreme differences of the local institutional arrangements, market opportunities and socio-economic factors have resulted in a highly diverse Italian farming systems. This variety goes beyond the classic dualisms of North/ South[2] and "beef"/"bone"[3]. Although the discrepancies between the North and South in terms of income are still apparent, as well as differences in the farming systems between the fertile and productive lowlands (such as Pianura Padana in the North and the Piana di Metaponto in the South) and the marginal internal areas, mountainous and hilly.

The Italian farms also differ in that their objectives are not always consistent with the aims of a business enterprise. Italian agriculture includes a myriad of "non-enterprise" farms (36% produce only for self-consumption) next to a much smaller number of entrepreneurial farms (Arzeni, 2013). The product mix adopted by framers is very complex, and includes traditional agricultural commodities and non agricultural commodities, such as the provision of care farming, agritourism, education, direct selling, landscape or biodiversity conservation[4]. In addition, farm household resources are progressively devoted to off farm activities (pluriactivity, green energy, etc.).

There is also an increasing focus on local and high quality food production[5]**.** In 2012 1.167.362 hectares were under organic agricultural management, representing about 9% of the total agricultural area (TAA) and involving 40.146 farmers (Sinab 2013).

According to the 2010 census, the TAA is 17.1 million hectares and around 12.9 million is utilized (UAA). Between the last two censuses (2000 and 2010), the number of farms fell by about a third, resulting in a reduced total of 1,620,844 agricultural holdings in 2010. The decrease in farm numbers is not evenly distributed across the country. The reduction mainly affects the small and medium farms (less than 30 ha). In the mountains there was an almost 40% decrease, which was coupled with a relatively strong reduction, around 20%, of the total agricultural area, which has led to the problems associated with land abandonment to the area.

On the other hand, the last census also highlighted that farm size is increasing (by +44,2%). The average farm size is 7.9 hectares of UAA with geographical differences (14.4 ha of UAA per farm in the North West, 9.8 in the North East, and 5.1 in the South). The number of farms

[1] The "hilly" land represents 41.6% of the national territory, the share classified as "mountainous" is 35.2% and "lowland" is 23.2%.

[2] It refers to the gap in terms of productivity and modernization, between the agriculture of Northern Italy and the rest of the country.

[3] In 1958 Rossi-Doria described the dualism of agriculture in Southern Italy as "la polpa e l'osso" (the "beef" and "bone"). "Beef" represents the modern agricultures insisting on fertile and productive lands, while "bone" includes marginal areas (Rossi-Doria 1958).

[4] As indicated the FADN data, the 57% of total farms in 2007 is involved in at least one of the so called "multifunctional activities". The most representative are on-farm processing (39% on total), direct sales (23%) and origin and traditional certification (13%) (Aguglia 2011). In 2010 there were around 20,000 agritourism farms (over a third of them managed by women) and 2225 teaching farms.

[5] In 2012, 248 Italian agro-food specialities (excluding the wine sector) obtained the specific Pdo, Pgi and Tsg certifications– the highest number of certifications at the Eu level. Moreover, since 1998, Italy is the European country with the largest area proportion of organic farmed land (8,6% of total UUA) as well as with the highest number of organic farms (2,59% of holdings).

with more than 30 hectares is also increasing, representing 5.3% of Italian farms and cultivating 53.8% of the total UAA.

The contribution of agriculture to GDP is 1.9% (in line with that of major European countries), while the contribution to employment is 3.8%. Farms in the Northern Regions show the best production performance and profitability, the net income ranges from 41,928 euro in the North West to 15,053 euro in the South (2010 FADN)[6]. More than half of national UAA is devoted to arable crops (54.5%), followed by permanent grasslands and pastures (26.7%), and tree crops, including olive trees, vines, citrus and fruit trees (18.5%).

The livestock, which is prevalent in northern regions, experienced a concentration of livestock, presenting a sharp decrease in farm numbers (-41.3% compared to 2000) and a modest reduction in livestock units (-0.6% LU).

Family farming is prevalent, with 96.1% of farms being individual or family run enterprises. The quota of female labour is 37% and 33.3% of the agricultural farms are managed by women. According to official data, in 2010 regular migrants carried out 23.6% of the total work (in terms of regular working days) in the agricultural sector (Caritas/Migrantes 2011). However, the official statistics do not capture the migrants' irregular work[7].

The ageing farming population is a relevant problem in the Italian agriculture. For every farm holder younger than 35 years, there were 10 farmers above 55 years in 2010. There are about 152,000 farm holders younger than 40 (10% of the total), whilst holders above 55 represent 60% of all Italian farms, and those over 65 represent nearly 38% of the total.

Environmental indicators highlight that there has been some progression in the reduction of the negative impacts of agriculture**,** especially with regards to soil and water pollution[8]. According to the OECD classification, 15% of the total Italian farms and 24% of the total UAA in Italy have the potential to be High Nature Value Farming Systems **(**HNV) (Trisorio 2012).

Finally, there is a huge amount of multifunctionality of agriculture in Italy, covering the entire range of possible associated functions (services, safety, cohesion, etc.), which demonstrates that the traditional definitions of urban and rural fail to capture the complexity of the land uses and their interconnections in Italy. Thus in the political debates the multifunctional agriculture is becoming increasingly crucial to promote sustainable local development within the new conception of the rural-urban relationship.

The objectives of the regional agricultural policies (and consequently the needs of agricultural advisory services) are diverse with extreme differentiations across the local farming systems,

6 The results are mainly due to a greater presence in the North of large scale farms with intensive farming (industrial pig, poultry businesses) and of large farm size.

7 Different studies stress the existence of widespread labour exploitation, including wages below minimum standards, arbitrary reductions, delays or non-payment of wages and long hours of work. Amnesty International demonstrates that Italian migration policy increases the vulnerability of migrant workers to labour exploitation (Amnesty International, 2012).

8 The growing involvement of organized crime groups in the agricultural sector (more than 34,000 environmental crimes in 2012 - Legambiente 2013) creates the most severe environmental damage through unauthorized building, illegal waste dumping, timber selling, agricultural workforce exploitation and illegal water supply extraction.

presenting clear distinctions between the two extremes with, on the one hand, areas and sectors producing mainly public goods, and at the other extreme, areas and sectors which are producing for the market at highly competitive rates. The majority of Italian farms fall somewhere these two extremes and express a need for differentiated and integrated policies and services.

2. Characteristics of AKIS

2.1 AKIS description

“Italy is a hugely varied and thus very complex country, both in respect of its territorial characteristics and its modes and institutions of governance” (OECD 2009). The organization of the Italian AKIS is no exception. Following the decentralization process, agriculture is subject to the jurisdiction of 21 Regions and Autonomous Provinces (Trento and Bolzano). Each region has its own Department of agriculture and its own unique organization for and of research and advisory service. As a result, we can reasonably claim that there are 21 different AKISs in Italy. Within each system there are three components: the public and the private sectors, which are almost always clearly separated, and the farmers associations which are in charge of specific publically funded extension services in several regions.

In addition, the national framework is even more complex due to the coexistence of several institutional levels which are responsible for the different AKIS components. States and regions have concurrent competence over the R&D policies. Secondary and higher education establishments are under state control, whilst vocational education is under the control of regional administration. Finally extension, as mentioned, is under regional control.

Interestingly, in theoretical and political discourses, and also in many dedicated regional laws, agricultural extension, research and education have, for many years, been considered an integral part of the "services for agricultural and rural development" system or more recently the "agricultural knowledge system". This idea proposes that advisory services are not only an integral part of AKIS, but could also be a tool to go beyond the problems of the singular farm to include the broader development aims of the rural communities. However, the experts interviewed suggested that this idea has never been put in practice.

2.1.1 Education

The Italian educational system is mainly public and is coordinated by the Ministry of Education, University and Research **(**MIUR**),** which is in charge of all education, from elementary school to university level, and research at all levels. Since 2008, the education system has experienced an important reorganisation with regards to both secondary and higher education (the so called Gelmini Reform). Within the university, the reform also affected the governance, decentralisation, research careers and the status and functioning of professors and researchers (law 1/2011, law 240/2010 and following regulations).

The Italian education system is based on primary, junior secondary school and upper secondary school. The primary level starts at the age of 6 until the age of 11. After primary school secondary school follows until 14 years of age. Access to university is possible for holders of an upper secondary school diploma.

Upper secondary education in the agriculture field is provided through five year courses at technical and professional institutes specializing in agriculture (including 11 Technical Institutes specialized in oenology). Professional institutes offer a more specialized training and practice compared to the technical institutes. Higher education is provided by universities that organize different degree programs through the faculties. In 2013, there were 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, involving 43 different Faculties, are registered in the Agronomy professional association**.** However, extension service was never been included in the curriculums of Italian universities, until the recent reform which introduced a specific course on "agricultural and rural development extension services" in the vocational schools.

Whilst it still remains a niche field, in recent years there has been an exceptional rise in agricultural and related sciences[9] students. In general, farmer training is closely connected with the field experience rather than with the formal education system: 71.5% of farm holders have an educational level equal or lower to the junior secondary school (70.8% for men and 73% for women). Only 6.2% of farm holders have a degree and only 0.8% of these are in studies related with agriculture. In addition, the use of ICT in the farms is still low (less than 4% of the total) (ISTAT 2010). The positive correlation between higher levels of education and better economic performance is clearly evident in the FADN survey in which the average farm income[10] for the farm holders with primary school is considered to be 45,313 EUR while for the farm holders with university degree it is 132,633 EUR.

2.1.2 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 (Esposti et al. 2010).

In 2010, the total R&D spending in the agri-food sector was more than 780 Million euro and the R&D devoted to agriculture is only 21% of the total (ISTAT 2013). The role of private companies in funding agri-food research and development is increasing. In 2010 the private spending on agri-food R&D was the 46% of total.

Looking at only the agricultural sector, the incidents of investments funded by private companies is really low at around 167 Million euro (equal to the 1.6% of total private spending in R&D).

The share of public investments in agricultural R&D has declined over time, especially in staffing capacities and equipment, while the EU funds assume an increasing in importance of the financing of the Italian R&D system. The Government incentives for the private R&D investments include public funds for innovative projects and tax reduction.

The employed in the agri-food R&D in 2010 are 14,715 units (including researchers and administration). The most relevant share is in public research institutes (36%), followed by the universities (34.2%) and then by the private system (27.5%). The number of researchers is considerably lower: 5,837 units. 30.2% of researchers work in public research institutes,

[9] From 2008 to 2013, the number of students enrolled in the Agriculture Faculties increased by 45% (as opposed to in all Italian Universities in which they have reduced by 12.5%), the students enrolled in Professional Institute have grown by 29% and in Technical Institutes specialized in agriculture, agribusiness and agro-industry by 13%.

[10] The average income is calculated as the average for the period 2008-2010.

47.1% in universities, 20% in the private sector and 2.7% in non-profit organizations (INEA, 2011).

The Italian public research system is headed by three main institutions: the Ministry of Education, University and Research **(**MIUR**)**[11]**,** the Ministry of agriculture forestry and food policies **(**MIPAAF)[12] and the Regions and Autonomous Provinces. To a lesser extent, other institutional actors plan and fund research activities which are more or less related to agricultural fields such as the Ministry of Health, the Ministry for Economic Development, the Ministry of Environment and Land Protection, etc. In addition, some "InterRegional 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:

- **Universities**, operating under the MIUR responsibility who are in charge of coordinating and financing the system. To a lesser extent, University funders are also regions, EU and occasionally private companies or NGOs.
- **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 is actually the biggest Italian agricultural research institute, organized in 15 Research Centres and 32 Research Units. It employees 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).
- **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 8000 employees (more than half are researchers), 11 departments and 108 institutes, located throughout Italy. The agricultural research is mainly, but not exclusively, concentrated in the Agrifood Department.

[11] The MIUR supports research using different funds, the most important are: the Investment Fond for Basic Research (FIRB), the Fund to facilitate research (FAR) devoted to industrial research, the new Fund for investment in scientific and technological research (FIRST) (established in 2013), the found for Research Project of relevant national interest (PRIN). This latter invested 119.34 million Euros for agricultural research in the period 2001-2009 (INEA). Strategic plans and priorities are outlined in the triennial National Research Program (PNR) 2011-2013 and in Horizon Italia 2020, HIT2020.

[12] The MIPAAF is in charge of defining, funding and managing the agricultural research included in the National Research Programs, recording the strategic objectives and actions agreed with the stakeholders and Regions consultation groups. These funds are manly used by universities and research institutions under the direct MIPAAF supervision (for their institutional activity and salaries). The MIPAAF invested 356.21 Million Euros for agricultural research in the period from 2001-2010 (INEA). The Ministry of agriculture is a member of EU SCAR and works as a partner in many coordinated actions under FP7 (ERANETs) and ERA (JPIs).

- **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 programmes 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:

- directly carrying out the research through their institutions, centres or regional agencies (i.e. Bolzano)
- participating in a research consortium, company or association (i.e. Val D'Aosta, Lombardia, Trento, Veneto, Friuli, Liguria, Marche, Abruzzo, Sardegna, Basilicata);
- out-sourcing research activities to public or private institutions (Toscana, Molise, Umbria, Lazio, Puglia e Calabria).

Several regional research centers 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 the Bolzano Province.

Diverse regional research centres, as well as some agricultural universities, have experimental farms. Looking only at organic agriculture, a recent survey identified 39 experimental farms spread all over Italy (ARSIA, FIRAB 2010).

At the regional level, in 2009 R&D was concentrated in some regions, as highlighted in the Table 1 (see Appendix), mainly in Lombardia, Piemonte, Sardegna and Abruzzo.

2.1.3 Extension services

Each Italian region (including the autonomous Provinces of Trento and Bolzano) has a singular extension services framework, which includes 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 differ greatly from one region to another, depending on historical political choices and different structural configurations (see par 4.1.4).

2.2 Governance and coordination structures

The Italian AKISs involve a huge number of actors, and degree of fragmentation, operating at different levels. As is clear from the interviews**,** the diverse components are typically separate entities which are not well connected and lack the structures or pathways to bridge the gap between them. According to the experts, this creates a high risk of gaps and overlaps in research programmes 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 often both of these are not well linked to the real needs of the farmers. Only in a few cases, at the regional level, are there formal mechanisms to connect research and advisory services planning.

The experts interviewed also emphasized that the tools, languages and methodologies of communication are not usually 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 advisors (including those formed thanks to the Reg. 270/79) are increasingly being consumed by bureaucratic tasks. They are also demotivated by the lack of financial resources and career incentives, which affects the advisors working on the ground in direct contact with the farmers.

Regional authorities indicate that the economic crisis radically impacts the AKIS, reducing the public resources available, limiting the possibility to hire new research personnel, and pushing toward more efficient and effective performances.

The complexity of the Italian AKIS requires particularly effective governance instruments, working at different levels. However, the AKIS governance suffers from a lack of a global vision, shared strategic objectives and plans (existing only for specific components, such as the MIUR research programmes or in some regions). The system also lacks effective continuous monitoring and evaluation processes. Despite the implementation of numerous evaluation procedures in recent years, these tend to only relate to the formal spending and implementation of activities implementation, and do not look at their effectiveness (CAGGIANO et al 2008).

In 1998 to improve the coordination of agricultural research systems some regions established the Regional Referents Network of agricultural research, an interregional organisation which was officially recognised in 2001. The Network created also a searchable database, with the INEA scientific support**,** to disseminate and integrate the regional research.

In 2002 the Regional Referents Network of extension services was established to deal with common challenges and promote the exchange of discussions and experiences. The proposal to merge the two networks is currently under discussion to better coordinate the whole AKIS.

INEA play an important role in the Italian AKIS system. Since 1988, the National Institute of Agricultural Economy has had a study group which specialized in agricultural knowledge systems, and combines research activities with scientific support to public administrations, and 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 with regards to the evaluation processes and moreover maintaining the importance of the agricultural knowledge system (http://www.inea.it/web/inea/sistemaconoscenza).

2.3 Overview of AKIS actors in Italy

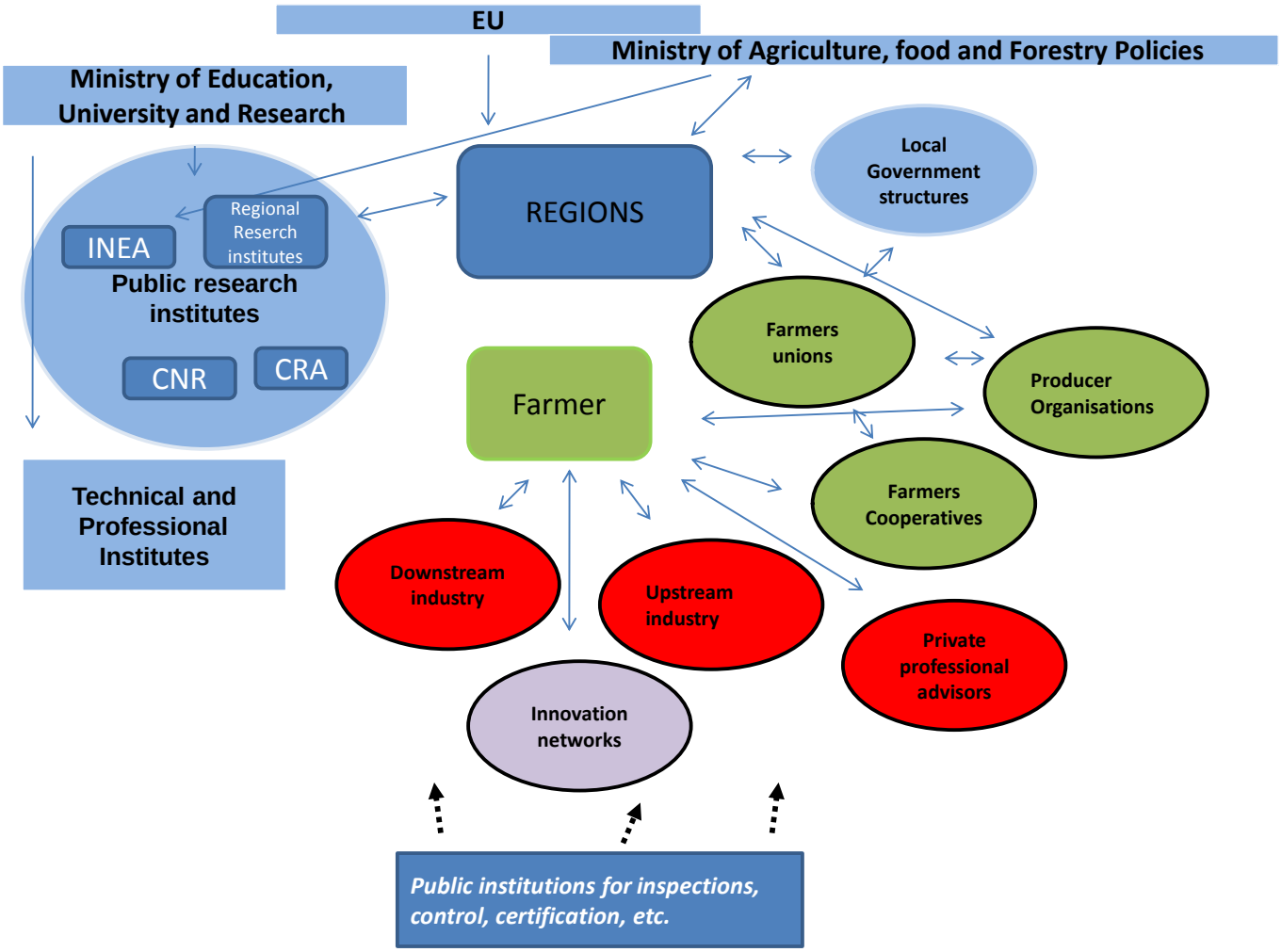

Figure 1. Overview of AKIS actors in the Republic of Italy

3. History of advisory system

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 it was only launched in 1977 (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 which sustained the development of agricultural advisory services in Italy thanks 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 3500 extension agents (60% in the South and in the Islands). To access these funds regions had to establish their own regional law on advisory services which defined their organisations, 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 been specifically supported by the Multiregional Operating Programmes (ECC Reg. 2052/88 e seguenti1989-1993, 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 included around 50% of private bodies and public institutions, while the Southern regions included more public institutions (64%). Compared to the 1990s, the involvement of public organisations 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 farmer trade unions (very strong in the past) decreased and the importance of other farm based organisations and private advisors increased (Vagnozzi, 2010).

Pluralism and privatization have also continued to grow in recent years, as well as the participation of farmers in funding and planning of 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 this millennium, regions invested €350 million globally in extension systems, which was about half of the total 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's objectives were to promote networking and share debates about advisory services (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 the Italian advisory system. In actual fact, the regions are still involved in the implementation of RDPs FAS measures.

This brief history highlights that the Italian service system suffers from a heavy dependence on European funds. According to several experts that were interviewed, this dependency has resulted in a lack of continuity without a coherent medium or long-term strategy. Moreover, the interviews underline that in recent years the economic crisis has led to further cuts in public spending with a downsizing of human resources and facilities dedicated to services, creating further disparities between the regions.

4. The agricultural advisory service(s)

4.1 Overview of all service suppliers

In Italy agricultural advisory services are provided by a diverse range of suppliers presenting different objectives and organisational patterns. The following section presents an overview of the most important providers, differentiating between the private sector, farmer based organisations, the public sector and other actors.

4.1.1 Private sector

- **The upstream industry**

The upstream industries such as seed, fertiliser and pesticide industries have an important role in the diffusion of innovation to farmers and are also increasingly involved in R&D activities with high potential market returns.

The upstream industries have a widespread network of retail and wholesale stores and technicians working on the ground in direct contact with farmers.

It is extremely difficult to make an accurate estimate of the number of advisors working in the upstream industries, because usually all the employees that work in direct contact with farmers also have a guiding role in giving technical support. An INEA study published in 2008 estimates that there are 5000 advisors working in agricultural upstream industries in the sectors of seeds, fine chemicals, veterinary medicines, agricultural machinery, irrigation, greenhouses and animal feed (Vagnozzi, 2008).

The high number of actors involved and their wide geographical spread is also due to the distinctive fragmented supply of some sectors. For instance, the Italian structure of pesticide distribution is really fragmented with regards to the European context which is characterised by higher concentration. It includes approximately 4300 distribution companies and around a 2.93 billion euro turnover. The pesticide distribution consists of 60% private traders companies**,** 25% *Consorzi agrari* (see par 4.1.2) and 15% cooperatives (COMPAG 2013).

The private traders companies are mainly associated with 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 organisation, however it also supplies advice on fertilizers and pesticide regulation, work safety and food security.

Regarding the farm machinery, the advisory services are provided both by the sellers and by the companies processing under contract, such as the service companies in soil working equipment. For instance, the UNIMA, the National Union of Agricultural Mechanisation Companies, represents more than 85% of Italian agro-mechanical companies, and includes 45 local associations, the 17 provincial structures of National Union Olive oil mills (UNFOs), 5 regional federations and represents more than 8,000 professional firms with 40,000 employees and 10,000,000 processed hectares.

- **Downstream industry**

The downstream industries may provide agriculture advisory services 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 there are 94,980 farms under contract farming with commercial companies, which equates in total to 134,229 farms (ISTAT 2007). 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 advisors work in the downstream industries of poultry, pig, meat, fruits and vegetables for canning, sugar beet and wheat for beer (Vagnozzi, 2008).

The weight 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 fragmented nature of agricultural production the contract farming is usually conducted through farmers associations, and often includes the entire supply chain[13].

- **Private professional advisors**

In Italy, the agronomists or veterinarians working as professional advisors must be registered with a professional order. In 2010, there were 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 the Veterinary professional order (ISFOL 2012)[14]. However in practice not all those enrolled in the professional orders work as advisors.

Usually the medium and large farms have a private advisor to rely on either 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 services experienced a great increase, specifically 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), which has been very successful in Italy.

[13] Among the most represented industries there is Barilla, which for example in Emilia-Romagna is engaged in the project "High quality durum wheat". This project promoted by the region involves the entire supply chain, as well as the seeds companies, different Producer Organisations and the local Consorzio agrario. The latter are those who enter into a contractual agreement with the individual farmer, with the technical specifications and options for enhancement the durum wheat quality. In the sugar industry, the three major industrial groups (Eridania Sadam, CoProb-Italia Zuccheri and Zuccherificio del Molise) sign interprofessional agreements with the farmer association Confederazione Generale dei Bieticoltori Italiani, including 20,000 associates, or about 80% of all Italian beet growers.

[14] Normally the difference between agronomists, agro-technicians and land surveyors/experts depends on the level of the education qualification, resulting in a different sphere of action (especially with respect to building), although in practice the distinction is less clear because several graduates of agriculture universities are enrolled in the Agro-technical professional order.

There is a growing demand for highly specialised experts in soil, animal health, etc., next to the need to operate in a 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 the Emilia Romagna, exclude the accreditation to individuals for the measure 114 of RDPs. In 2007 the three professional orders created Fondagri (Fondation for agricultural advisory services), a network of freelance advisors working across all Italian regions, with the main objective of participating in the FAS measures of RDPs. By 2012 Fondagri provided advisory services to livestock farmers, mobilizing 159,687 Euros of the 114 measure of RDPs (Fondagri 2013).

4.1.2 Farmer based organisations

Farmer organisations can be grouped into different types: farmers' unions, farmers' cooperatives and producer organisations.

- **Farmers unions**

The three main farmers unions are Coldiretti, CIA (Italian farmers confederation) and Confagricoltura. They claim to represent and uphold the economic, social and civil interests of both farmers and (claim to for) people living in rural areas. Historically the adhesion to 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 million of farmers, with approximately 10,000 offices in the most important agricultural areas. It is traditionally allied with the Christian Democrats/centrist parties.

As well as Coldiretti, the CIA represents mostly small and medium size farms, while the Confagricoltura represent the largest Italian farmers. These three organisations have local offices dispersed across all off Italy. 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 centers) they carry out tax assistance for employees, pensioners and project contractors. Through the CAAs (Agricultural service centers) they take care of activities 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 offer also 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 north and centre of the country. The most recent data observing Italian agricultural cooperation (Nomisma 2013) indicated that there were 5901 agricultural cooperatives in 2011[15], including almost 993,400 farmer members[16], with approximately 94,000 employees and revenues exceeding 35 billion euros. The study provided data on "services cooperatives", a category that includes 1827 units, with 246,497 members (25% of the total) generating about 17% (5.9 billion) of the cooperative revenue.

Service cooperatives provide various services to their members**,** mainly the supply of farm inputs (e.g., seeds, feedstuffs, agrochemicals, etc.) and the storage and selling of farm products-primarily cereals. To a lesser extend, the service cooperatives work within the sectors 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 *Consorzi agrari* - have played a very important role as advisory services. In the late nineteenth century they were created to operate mainly as buying groups (especially of chemical fertilizers and agricultural machinery), but their activity soon began to be extremely important for improving farmer knowledge and innovations[17]. In 1991, after the financial collapse of Federconsorzi (the National Federation of Conzorzi agrari), many consortia were placed under compulsory administration and winding-up proceedings. Over time different consortia were able to reorganise their business, and actually they are federated in ASSOCAP, which includes 38 Consorzi agrari with ordinary administrations, 7 Consorzi agrari into compulsory liquidation and one managed by a government commissioner. The agricultural advice is provided through a capillary network of agencies, about 1200, spread all around Italy (ASSOCAP 2013)[18].

- **Producer Organisations (POs)**

In recent years the POs 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 POs adopt actions to improve the production quality and safety

15 The study adopts other sources compared to ISTAT, according to which in 2010 there are only 3007 agricultural cooperatives in Italy.

16 "Farmer members" means that a farmer can join more than one cooperative.

17 "Their success was so great and stimulating that were 405 Consorzi in 1905 and 953 in 1924". After WWII, for several decades Federconsorzi "was Italy's major agri-business at all levels: from processing to output marketing; it had the largest network of agricultural stores all-over the country and the biggest storage facilities (..). In 1979 its technical personnel amounted to at least 3000 persons, out of which about 1500 were in direct contact with farmers" (Santucci 1994).

18 In 2009, 23 agricultural consortia (representing nearly one-third of Italian farms) set up a national holding company (Consorzi Agrari d'Italia) for trading cereals (it includes 20% of cereal production in Italy) and for providing services mainly related to credit and insurance, technical equipment (representing 25% the tractor market), gardening, processing and distribution food, agro-energy, unites.

(such as disciplinary, traceability systems, certifications) and offer expert advice for achieving this goal. The POs role in innovation and knowledge transfer processes could be crucial, however it is highly variable depending on the sector and geographical area.

4.1.3 Others actors

In recent years, the Italian AKISs are emerging in numerous new innovation networks. Next to the traditional players these new players also include several informal actors delivering advisory services. Usually these networks aim to preserve and enhance 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, members of the public organisations or the classical AKIS are also 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 programs, the Community supported agriculture initiatives, the networks to preserve local seeds and agricultural production, the Slow Food Presidia, the care farming associations, etc. (Brunori 2013).

4.1.4 Public sector

As already mentioned, the regions have control of agricultural extension services. Each region establishes, through a regional law, the organisation of regional agricultural extension, the actors involved, the competence fields and the allocation of funds. 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 organisations, to private organisations or to 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, in Toscana, to 220 in Calabria which deal mainly with administrative tasks. In some cases the regional advisors have the real possibility to work on farms. For instance in the Trento province about 70 experts offer daily technical advisory services reaching more than 8000 farms (out of 16,428 total). The regions usually also provide technical support services, such as agro-meteorological service, soil analysis, etc. They utilise 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 also organise training activities for the private advisors carrying out the services that they fund (such as in Piemonte).

4.2 Public policy and key issues of public funded advisory services

The structure of public advisory services is still influenced by the effects of the already mentioned Reg.270/79, so the role of public actors in the south and islands is more important

than in the rest of Italy. Fig. 2 refers to an INEA survey about the delivering of advisory public funded services. It covers the period 2003-2007 and at the state it is the last systematic survey on the topic. However, as highlighted in the report, since then there have been important changes with the role of private advisors increasing (Vagnozzi, 2007).

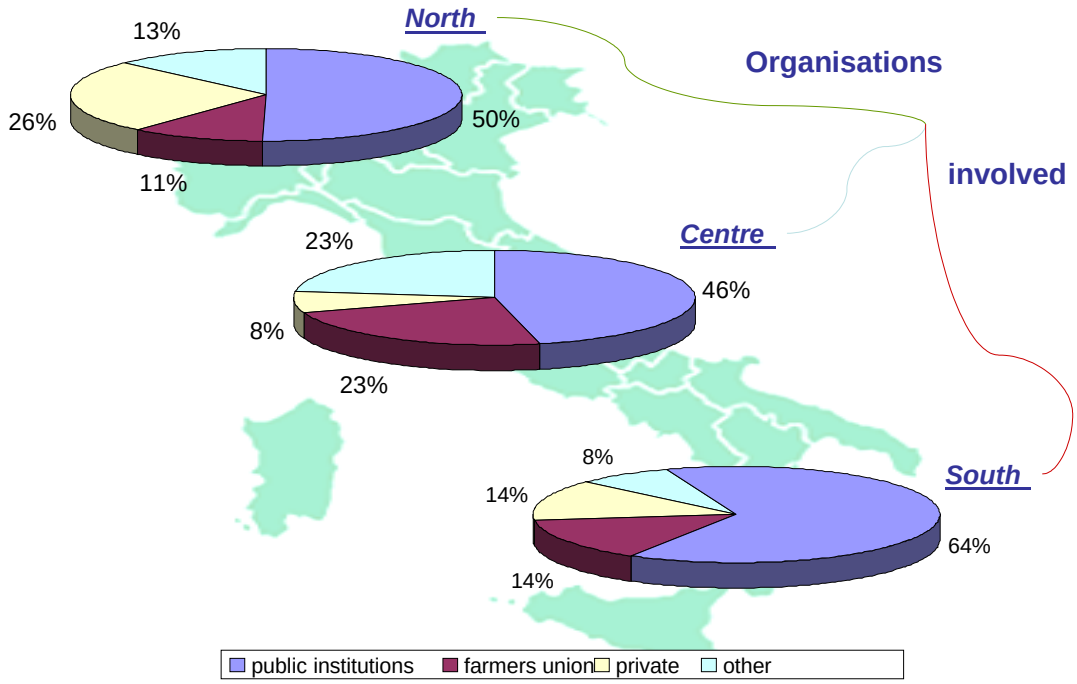

Figure 2. The delivering of advisory services public funded

Source: Vagnozzi 2007

The publically 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 specialised 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 (De Rosa 2011). The study carried out a multivariate analysis to identify homogeneous clusters of regions with regard to their governance structure. The key elements of the governance analysed used a set of indicators: decentralization, privatization, pluralism (the degree of involvement of different potential actors in the organization), completeness of the regional law in indicating the advisory governance, participation (to check 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 contractualization (calculated as the share of RDPs expenditure in measures 111 and 114).

The analysis indentifies four clusters of regions sharing the same level of governance[19]:

- I cluster: Regions with prevailingly public structures of governance (Abruzzo, Prov. Bolzano, Calabria, Campania, Piemonte, Puglia, Toscana, Sardegna) and a low level of pluralism.
- II cluster: Regions with decentralized structures of governance (Basilicata, Friuli V.G., Lombardia, Molise, Trento, Umbria) with a high level of different actors' participation and a reduced level of contractualization.
- III cluster: Regions with prevailingly centralized governance and mainly nonpublic structures and a low level of contractualization (Lazio, Liguria).
- IV cluster: Regions with private and pluralistic structures of governance (Emilia Romagna, Sicilia, Marche, Veneto). The last cluster is characterised by high pluralism and participation in the structure of governance. The relatively high incidences of measure 111 and 114 demonstrates a growing level of privatisation connected to the pluralism of the actors participating to the supply of extension services.

The methods and instruments used to deliver advisory services are numerous and their typologies differ. A study of INEA organises them into four groups: information activities, advice for small groups, individual advice, multimedia and high technology. In 2007 the most frequently used communication channels were very traditional: informative materials (13.3%), technical meeting (11.9%), and field visits (11.1%). However, there are also methods considered more innovative, such as laboratory tests (8.1%) and communications on web (6.7%).

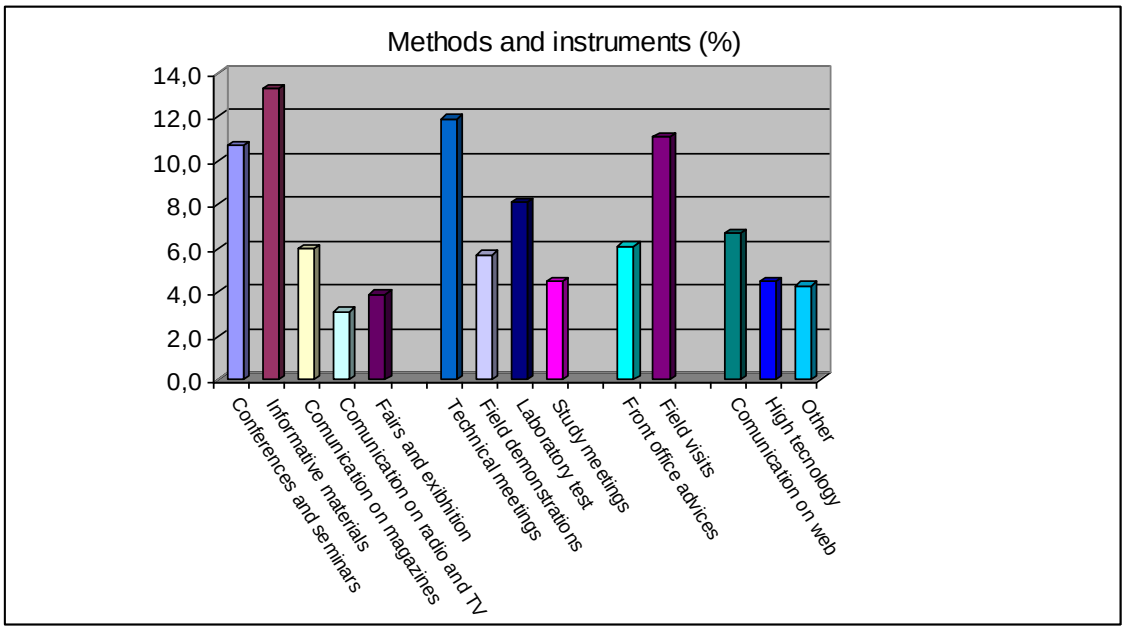

Figure 3. The methods and instruments used to deliver public advisory services

Source: Vagnozzi 2007

[19] The study doesn't include the Val d'Aosta Region.

In the past the advisory services adopted a top down approach which aimed to improve farming methods and techniques specific to increasing production efficiency.

In recent years, the vision of services for rural development has been put into practice more frequently. In addiction there have been several attempts to introduce innovative and more participative methodologies in the delivery of advisory services, like the use of ICT (the Veneto experience is a very interesting example) or the communities of practice (such as the communities promoted by the Agritransfer-In-Sud project) (GIARE' 2013).

5. Characteristics of Farm Advisory Systems

The Farm Advisory System (FAS) in Italy reflects the complexity of the regional organisation of agriculture advisory services. The regions are the authority responsible for setting up the FAS, consequently there are 21 regional FAS (19 Regions +2 autonomous Provinces) with different organisational frameworks. The first difference concerns the source of funding: 17 regional FAS are funded through the use of EAFRD measures (including measure 114, measure 115 and measure 111), whilst other regional FAS use different resources (regional/provincial or national funds). *Trento, Valle d'Aosta, Friuli Venezia Giulia and Bolzano*[20] do not use the RDPs funds for various reasons, such as they have regional advisory services that are already covered by cross-compliance, they focus the RDP funds on a few measures to avoid excessive bureaucracy or as they want to have the possibility to give advice for free.

According to INEA, the contribution of the RDPs' measures to the FAS financing are as follows:

- in *Lombardia, Umbria, Abruzzo and Emilia-Romagna* the measure 114 finance 100% of FAS; in *Veneto, Sicilia, Toscana* the measure 114 and the measure 111 finance 100% of FAS;
- *in Molise, Basilicata, and Marche* the measure 114 finance 80 % of FAS;
- *in Calabria* the measures 115, 114 and 111 finance 80% of FAS;
- in *Piemonte* the FAS is founded by 52% measure 114, by 0.026% measure 115 and by 44,87% measure 111,
- in *Liguria and Puglia* the FAS is financed by measures 114 and 111 (the contribution is not specified);
- in *Lazio* the FAS is financed by measure 114, 115 and 111 (the contribution is not specified).

Many regions used measure 111 to complement other measures to reach different target beneficiaries.

Usually the region is the authority responsible for the coordination, the designation/certification and the control of FAS operating bodies, in same case the authority responsible for the control is the Paying Agency. Different regions implement the measures trough their Regional Agency for extension service and innovation, while the service providers are mainly private operators, including farmers' associations and cooperatives.

The measure 114 which supports the use of advisory services at farmers' level is the most important tool used to finance the FAS. It has been mobilized by 17 regions. Four regions have not contracted it at all. The total volume of funds mobilized is 231,223,236 euros (Dec 2009), which is around 3% of Axis 1 and around 1% of total RDP founds. After the 2008 CAP health check the total funds mobilized showed a reduction of 4.6%. The amount of funds

[20] In Bolzano the measure 111 finance only the 0,12% of FAS.

varies significantly between regions, in absolute value, the Puglia allocates the higher funds (34,921,255 euro) and the Liguria is at the opposite with 1,345,338 euro. In relative terms, Lazio and Piemonte mobilised for the measure114 more than 2% of the total RDP founds. In all regions the public support covers 80% of the total unit cost of advice for a maximum amount of €1500 (except Sicily considering a maximum amount to €1000 for advice).

In addition to a "basic package" of advice (including SMR/GAEC and the other compulsory issues), many regions have created an "advanced package," which covers additional themes such as innovation and ICT, support for the trade of products, participation in quality systems and certification, landscape conservation, energy saving and energy production from renewable sources, etc.

In the selections of beneficiaries, a significant number of regions identify some priority categories of farmers that have access to the farm advisory system. Some regions have planned to address the measures to young or female farmers, others to organic farmers, to farms in marginal or Natura 2000 (SIC e ZPS) areas, five regions to farms in Nitrogen Vulnerable Zones (NVZ). Others define very specific target groups such as the case of Piemonte which required finalized programmes to have priority conditions about environmental issues or animal pathologies. Some regions integrate the measure 114 in a measures' package dedicated to a single farmer (i.e. 112 + 114; 111+112+114; 112+114+121) or in integrated partnership projects (i.e. integrated projects production chain).

The advisors selection process differs greatly from one region to another and it is still ongoing. The FAS advisors must be entities but not individual people (with the exception of the Emilia Romagna). For the accreditation procedure the regions defined the criteria to highlight the advisory bodies' competency and reliability (e.g. staff qualifications, administrative and technical facilities, experience, etc.) and also the incompatibilities.

The Measure 115 **(**providing an incentive for farm advisory services to be set up, including support for investments to strengthen institutional capacity) is only mobilised by 8 regions. The total volume of mobilized funds is 25,900,366 euros (Dec 2009), which reduced by 13% after the 2008 CAP *health check.* The service providers can be individuals or associated entities, in some cases, farmers' associations (in Piemonte, Campania o Calabria) or the public administrations (Piemonte).

The FAS implementation in some Italian regions has occurred extremely late (and in different cases is not yet complete), due to the difficulties related to the measure 114 applications. As it is clear from Table 3 which describes the implementation in May 2013, that the funds which have been spent are much lower than what was initially planned for. First the lack of a national framework provoked a multiplication of effort and a weakness of the regional administrations also in EU negotiations. Each regional FAS is individually programmed, although some regions used the Referents network of extension services to organise and coordinate their actions. For instance, initally the European commission did not agree with the approaches of many regions which extended both the aims and the contents of measure 114 including advice on environmental impact and business management. As a consequence the regions renegotiated their RDPs giving more importance to cross compliance issues. In

addition, in many regions the private professional orders (who felt penalized respect to the farmers based associations) take legal action against the regulation for accreditation.

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 believe that the access constraints are too rigid and the bureaucracy too costly with regard to the modest contribution and they expressed a need for advisory services on the global performance of the farm holdings and considering the cross compliance as part of the whole farm strategy.

The regions express also the need for:

- 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);
- integrating the FAS better into the wider AKIS knowledge system.

In fact, a separation between the measures for advisory services and other interventions put in place for rural development emerges once again (Vagnozzi 2012). Although, some rRegions (such as Campania, Veneto, Emilia Romagna) achieved successful experiences in integrating the FAS with the regional advisory services or with the other measures of the RDPs 2007-2013 (RRN 2011).

6. Summary and Conclusions

The Italian AKIS presents a great structural complexity and high heterogeneity, due to the administrative decentralization and the 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 the system fragmentation even further.

The regional organisation of the public advisory services responds to the wide range of 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, and as result 21 different systems that rarely interact with each other have been developed. 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 a local basis could be an important prerequisite in devising a system that fits the specific needs and situations, according to the theoretical framework that supports a shift from a "best practice" or "one-size-fits-all" to a "best fit" approach in the reform of public advisory services (Birner 2006).

In reality, however, the actual AKIS framework produces a great variety of local systems with different quantities and qualities of service, poor coordination, a duplication of efforts and limited funding, which penalizes some regions. As is clear from the 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, which often emphasises the traditional weakness such as bureaucratic inertia, low levels of effectiveness and efficiency, not much responsiveness to citizens' demands, etc.

Some recent studies highlighted different deficits and gaps within the Italian advisory services. The paradigm of multifunctional agriculture in Italy finds full expression both as farm diversity and as farm diversification, but different research shows that the public extension services do not adequately respond to the farmers need for diversification (Aguglia 2011) and also they do not cover the needs of different kind of farms, especially the smaller ones. "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" (De Rosa 2012).

Of course, there are also several good examples of the public AKIS effectively providing advisory services even for the emerging needs (such as agritourism, care farming, etc.). However, as was highlighted by the interviews, an important AKIS bottleneck is not to be sufficiently demand oriented, especially with regards to the agricultural research which all too often considered to be self-referent and not adequately linked to the real farmers' needs. Moreover the research results are not communicated properly and on a large enough scale to

the parties concerned. As demonstrated by several studies, the farmers express demands of innovation which are already available but clearly not yet well known (MIPAAF 2013).

In the last period Italy experienced numerous successful cases of bottom up innovations led by local networks mainly related to the quality production which allowed new figures covering advisory functions to emerge (Slow food, Consorzia, CSA etc.). These innovation networks however remain limited, they fail to cover all the farmers' needs and especially to those most in need such 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 including the small and marginal farmers. This issue is in line with the ongoing debate about the regeneration of AKIS (Dockès et al. 2011, SCAR 2012, Cristovao et al. 2012).

The present trends highlight greater pluralism and also privatisation of Italian extension services, emerging new players and a different organisation/configuration of the traditional actors. However, if these trends positively impact the supply of the services then the public advisory services remain crucially important to meet the knowledge needs of Italian agriculture. In fact, the structural characteristics of the Italian agricultural sector (there is a large presence of small and medium-sized farms which are rarely competitive on the global markets, providing significant public-good emphasized by the political dominant narrative of rural development) are not always able to express a willingness to pay for advisory services.

To provide an appropriate, positive and effective response to the farmer's needs, the Italian AKIS clearly requires 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 cuts of human and technical resources. An exemplary case is the ARSIA (Region agency for agricultural development and innovation) suppression in Tuscany, which took place in 2011 without the creation of any alternative option. The Tuscan Regional Administration absorbed the ARSIA employees, assigning them to other tasks, predominantly bureaucratic activities, losing experiences, relationships and investments accumulated over the years. In despite of its deficiencies, the Agency in the past played an important role in linking policy, research and extension. Among other things, ARSIA also worked as innovation broker for the construction of local innovation networks, in some respects, anticipating the experience of the EIP.

The recent measures to cut the public extension system have further compromised the quality of services offered and have meant that the main problems of the Italian AKIS have not been addressed, while according to the interviews the most critical aspect is the absence of effective and inclusive governance.

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 and working to their own agendas exist. Moreover there are also different combinations of these actors involved in the delivery process at local levels, leading to problems of both vertical and horizontal integration.

It is even very difficult to roughly explain the resulting organisational complexity.

The requirement of more system integration is widely stressed, but it does not give concrete expression to solve the fragmentation of policies and practices. Co-ordination is clearly hard to achieve but more formal methods need to be employed to ensure better governance. 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 recognises the importance of local specificities and the emergance of bottom up innovation processes. It might be useful for this purpose to implement an open organisation structure that facilitates dialogue, adopt a shared plan 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. Currently a common monitoring and evaluation system of AKIS policies or of its individual components is not available, but different experiences and situations exist. Generally there are more structured evaluation mechanisms for the education and research than for advisory services (Materia 2012).

The European Innovation Partnership (EIP) for Agriculture Productivity and Sustainability could be useful to help improve the linkages in the Italian AKIS which also operates to better sustain the already existing innovation bottom up networks.

Anyway, the effectiveness of this and other specific instruments is limited without a comprehensive AKIS reform which is able to strengthen the whole governance structures and long term strategic planning processes, and also end the excessive dependence on European Union funding. For instance different regions use the FAS measures to replace their own funds.

Because of this dependence, the regions place a lot of expectations on the new PAC to revive the whole Italian AKIS. For instance the expansion of FAS, proposed by the EU for the future CAP is considered very positively, as well as the previsions regarding the measures beneficiaries and the possibility of training opportunities for advisors.

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 improving the system and for supporting the policy makers.

7. Acknowledgement of partners, information sources, gaps etc, reflection on methodology

It is very difficult to explain the organisational complexity of the Italian AKIS. To have a very accurate analysis, the presence of extremely different regional frameworks would require the creation of 21 different reports. Moreover, as already mentioned in the report, the Italian AKISs suffer from 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", a common language etc.

However, in the present report we try to describe, within reason, this complexity and to give a general vision of the different regional organisations in a common framework. In addition, at the academic level, the theme of agricultural knowledge is very marginal and just a few researchers are interested in the field. A very important source of information is the National Institute of Agricultural Economy (INEA) which since 1988 has had a study group which specialised in agricultural knowledge systems, combining research activities with scientific support to the public administrations. However, the last INEA systematic survey on the public advisory services dates back to the InterRegional Project 2003-2007 and since then there have been considerable changes.

We integrate information from multiple data sources**,** collecting direct (primary) data as far as possible. In fact we contacted all the most significant players to collect the updated data from the original source.

With the valuable help of The James Hutton Institute **(**UK), we implemented an online version of the survey in Italian. At October 2013, 205 entities (individuals or organizations) filled out the questionnaire. From July to September 2013 we interviewed 17 stakeholders including, representatives of research centres (Universities and public research institutions), of Farmers' Unions (Coldiretti and CIA), private advisors, public advisory services and innovation networks (Slow food, Legambiente Campania).

In addition we submitted a brief survey to all regions in order to gain more detail and update the information on the key issues of the regional public advisory services. By October 2013 14 out of 21 regions and autonomous provinces had replied.

We would like to thank the INEA colleagues and specially Anna Vagnozzi, Ines Di Paolo, Francesca Giarè and all the stakeholders that contributed to our survey, and also those actors who responded to our questionnaire.

List of interviewed stakeholders:

1. Anna Vagnozzi, INEA July 2013 Roma
2. Francesca giare, INEA July 2013 Roma
3. Simona Cristiano, INEA July 2013 Roma
4. Fabio Ciannavei, AGER July 2013 Roma
5. Matteo Ansanelli, Agricoltura è Vita, CIA July 2013 Roma
6. Raffaella Cantagalli, Campagna amica Coldiretti July 2013 Roma

7. Stefano Leporati, Coldiretti July 2013 Roma
8. Marco Minucci, Regione Toscana July, 2013 Firenze
9. Laura Bartalucci, Regione Toscana July 2013 Firenze
10. Maria Grazia Mammuccini, Ex ARSIA Director, August 2013 Firenze
11. Gianluca Brunori, Università di Pisa, July Firenze
12. Marcello De Rosa, Università di Cassino July 2013 Firenze
13. Giuseppe La Rocca, Lazio Regional Agency, September 2013 Latina
14. Gianluca Addimanda, professional advisor, August 2013,Taurasi (Avellino)
15. Ines Di Paolo, INEA Campania August 2013 Napoli
16. Flavio Castaldo, farmer/Slow Food August 2013 Napoli
17. Michele Buonomo, Legambiente Campania September 2013 Pontecagnano (SA).

References

AGUGLIA L., DI PAOLO I. (2011), Knowledge system driving multifunctionality: a challenge for the Italian agricultural sector, Proceedings of the 20th ESEE European Seminar on Extension Education August 30 to September 3, Helsinki, Finland.

ARZENI A., SOTTE F. (2013), Imprese e non-imprese nell'agricoltura italiana. Una analisi sui dati del Censimento dell'Agricoltura 2010, Working Paper, n. 20, Gruppo 2013, Roma.

ASCIONE E., MACRI C., VAGNOZZI A. (2009); Farm advisory system as a mean to promote cross-compliance, in Paffarini C., Santucci F.M. (eds.): *Theory and practice of advisory work in a time of turbulence*, Proceedings of the 19th European Seminar on Extension Education, 15-19 September, Assisi, Italy.

BARBIERI S., FERASIN M., NORIDO F., RODINA P., MENEGHETTI G. (2010) Professional communities of extension agents in Paffarini C., Santucci F.M. (eds.): *Theory and practice of advisory work in a time of turbulences*, Proceedings of the XIX European Seminar on Extension Education, Assisi (Perugia) 15-19 September.

BIRNER R. et al. **(**2006), From best practice to best fit: a framework for analysing agricultural advisory services worldwide. Washington, DC: IFPRI.

BRUNORI, G. et al. (2013). CAP Reform and Innovation: The Role of Learning and Innovation Networks. Eurochoices.

CAGGIANO M., GIARE' F. (2008), The implementation of a participatory approach in the interregional project of agricultural extension service in Italy, in Dedieu, B. and S. Zasser-Bedoya (Eds.) Empowerment of the rural actors - A renewal of farming systems perspectives, INRA SAD.

CAGGIANO M., GIARE' F. (2007), Un laboratorio per apprendere a valutare. L'esperienza dei servizi di sviluppo agricolo, in Proceedings of the 10th Congresso Nazionale Associazione Italiana di Valutazione, Roma, 19-21 aprile.

CRISTOVAO A., KOUTSOURIS A., KUGLER M., 2012. Extension systems and change facilitation for agricultural and rural development. In: I. Darnhofer, D. Gibbon, & B. Dedieu (Eds.), *Farming Systems Research into the 21st century: A new dynamic*, Dordrecht: Springer, pp. 201–227.

FAURE G., DESJEUX Y., GASSELIN P., 2012. New challenges in agricultural advisory services from a research perspective: a literature review, synthesis and research agenda, *Journal of Agricultural Education and Extension* 18(5): 461-492.

DE ROSA M., BARTOLI L., CHIAPPINI S.(2012), The adoption of agricultural extension policies in the Italian farms European Association of Agricultural Economists Proceedings of the 126th European Association of Agricultural Economists Seminar, June 27-29, Capri, Italy.

DE ROSA M., LA ROCCA G., LONGORDO S. (2011), Organizational models in the supply of agricultural extension services: the Italian case, Proceedings of the 20th ESEE European Seminar on Extension Education August 30 to September 3, Helsinki, Finland.

DI PAOLO I., La promozione e il finanziamento della ricerca da parte delle Regioni**,** in Di Paolo I. e Vagnozzi A., "Il Sistema della ricerca agricola in Italia e le dinamiche del processo di innovazione", INEA, 2014.

DOCKES A. C., TISENKOPFS T., BOCK, B., 2011. Collaborative working group agricultural knowledge and innovation systems. WP1: Reflection paper on AKIS. Sub-deliverable of the AKIS CWG – WP1 – April 2011. Brussels: European Commission.

ESPOSTI R., MATERIA V.C., SOTTE F. (2010), Far lavorare la scienza. Le Regioni come agenti di ricerca agricola, Franco Angeli, Regione Emilia-Romagna, Associazione "Alessandro Bartola", Milano.

EU SCAR, 2012. Agricultural knowledge and innovation systems in transition – a reflection paper, Brussels.

GIARE' F., MATERIA V. (2013), Increasing knowledge flows between research and advisory system: the case of communities of practices in Italy, Proceedings of the 21th ESEE European Seminar on Extension Education 2-6 September, Antalya, Turkey.

INEA (ISTITUTO NAZIONALE DI ECONOMIA AGRARIA). Annuario dell'agricoltura italiana 2011**.** Volume LXV, INEA, Roma.

LEGAMBIENTE (2013), Ecomafia 2013 Le storie e i numeri della criminalità ambientale. Edizioni ambiente, Milano.

MATERIA V. (2012), The Agricultural Knowledge and Innovation System in Italy: dynamics, incentives, monitoring and evaluation experiences, Studies in Agricultural Economics, 2012, vol. 114, issue 2.

MIPAAF, INEA (2013), Analisi del fabbisogno d'innovazione dei principali settori produttivi agricoli, Rapporto Politiche di sviluppo rurale 2014-2020, strumenti di analisi.

OECD (2009), Rural Policy Reviews, Italy 2009, OECD Publishing, Paris.

ROSSI DORIA M., (1958), *La riforma dieci anni dopo,* in Dieci anni di politica agraria nel Mezzogiorno, Ed. Laterza, Bari.

TRISORIO A., BORLIZZI A., POVELLATO A., 2012. Italy. In: OPPERMANN R., BEAUFOY G., JONES G. (eds). *High Nature Value farming in Europe*. Verlag Regionalkultur, Ubstadt-Weiher: 263-273.

RETE RURALE NAZIONALE 2007-2013 (2010), Farm advisory system*:* buone pratiche di supporto al sistema di consulenza aziendale, MIPAAF, Roma.

SANTUCCI F. M. (1994)**,** Institutional evolution of agricultural extension in Italy**.** Medit, vol 5, n.3, (September 1994), pp. 4-11.

VAGNOZZI A. (2012), Il sistema della conoscenza in agricoltura in Italia: è in corso una

fase regressiva in *Agriregionieuropa* n.28, Associazione Alessandro Bartola, Milano.

VAGNOZZI A. (2008), Il sistema della conoscenza in agricoltura in ANNUARIO**.** DELL'AGRICOLTURA ITALIANA 2008**.** Volume LXII, INEA, Roma.

VAGNOZZI A. (2007), Il sistema della conoscenza e dell'innovazione in Italia: vecchi e nuovi problemi", Proceeding of the conference "I servizi di sviluppo agricolo in Italia: le sfide per il futuro", Bari 17-20 September 2007, Italy.

VAGNOZZI A. (2010), "Italian agricultural extension system: old issues and new ideas, in Paffarini C., Santucci F.M. (eds.): *Theory and practice of advisory work in a time of turbulences*, Proceedings of the XIX European Seminar on Extension Education, Assisi (Perugia) 15-19 September.

Appendix

Table 1. Funds allocated and total Payment for R&D in Italian Regions (2009-2010) Million EURO

Regions	funds allocated	funds allocated	% tot 2010	total payments	total payments	% tot 2010
	R&D (2009)	R&D (2010)		R&D (2009)	R&D (2010)	
Abruzzo	16 963,93	17 962,51	7,38	17 086,93	17 837,19	9,65
Basilicata	1 000,46	1 050,46	0,43	261,73	1 043,52	0,56
Calabria	3 595,09	4 996,19	2,05	611,20	820,26	0,44
Campania	7 865,43	23 598,93	9,70	5 180,55	7 511,84	4,07
Emilia-Romagna	9 626,56	10 653,84	4,38	5 133,84	6 411,38	3,47
Friuli-Venezia Giulia	8 413,58	4 886,65	2,01	6 574,29	5 131,68	2,78
Lazio	1 978,36	8 713,35	3,58	25,48	-	-
Liguria	339,49	189,49	0,08	53,50	101,50	0,05
Lombardia	18 601,61	22 499,57	9,25	13 789,65	19 247,16	10,42
Marche	3 955,79	3 147,30	1,29	1 293,07	818,75	0,44
Molise	7 470,19	7 221,47	2,97	8 151,10	6 952,33	3,76
Piemonte	44 916,39	44 278,76	18,20	45 298,28	41 226,26	22,31
Puglia	16 032,03	656,94	0,27	14 842,04	1 244,49	0,67
Sardegna	34 571,76	36 161,27	14,86	23 952,70	33 804,73	18,29
Sicilia	22 671,17	11 528,45	4,74	12 935,85	12 310,52	6,66
Toscana	6 744,52	4 761,43	1,96	5 175,82	5 635,29	3,05
Prov Trento	-	-	-	-	41,78	0,02
Prov Bolzano	10 842,86	7 542,36	3,10	7 806,72	7 980,50	4,32
Umbria	28 067,95	28 571,63	11,74	977,81	12 937,28	7,00
Valle d'Aosta	1 070,67	861,38	0,35	818,08	425,08	0,23
Veneto	4 238,16	4 046,48	1,66	13 198,46	3 297,90	1,78
Total	**248 966,00**	**243 328,42**	100,00	**183 167,10**	**184 779,44**	**100,00**

Source: our elaboration from INEA data. Total payments= Fund allocated+ Spend leftover of previous years.

Table 2. Funds allocated and total Payment for Extension services in Italian Regions (2009-2010) Million EURO

Regions	funds allocated	funds allocated		total payments	total payments	
	EXT (2009)	EXT (2010)	% TOT 2010	EXT (2009)	EXT (2010)	%TOT 2010
Abruzzo	12 825,84	19 331,02	2,79	11 616,98	17 923,46	3,18
Basilicata	23 690,97	23 872,86	3,45	18 263,35	20 840,55	3,70
Calabria	67 008,87	80 231,21	11,58	66 748,77	77 867,21	13,81
Campania	24 218,58	21 494,64	3,10	9 605,26	5 371,79	0,95
Emilia-Romagna	38 415,10	27 478,90	3,97	44 295,02	17 255,44	3,06
Friuli-Venezia Giulia	16 231,25	13 636,83	1,97	18 883,23	6 368,39	1,13
Lazio	47 387,59	30 229,91	4,36	51 129,04	27 556,34	4,89
Liguria	3 503,20	992,00	0,14	2 774,63	733,18	0,13

Lombardia	150 196,33	73 267,68	10,58	129 222,73	27 600,51	4,89
Marche	10 335,45	9 399,08	1,36	3 172,55	3 200,84	0,57
Molise	3 544,22	4 513,20	0,65	3 539,71	3 314,51	0,59
Piemonte	21 219,17	18 162,96	2,62	17 025,17	18 560,73	3,29
Puglia	32 106,54	18 581,54	2,68	31 737,70	13 833,89	2,45
Sardegna	142 940,63	161 529,19	23,32	25 780,67	145 568,37	25,81
Sicilia	87 754,01	97 038,83	14,01	69 761,45	99 526,54	17,65
Toscana	3 650,97	3 573,96	0,52	294,76	3 668,01	0,65
Prov Trento	9 325,90	2 235,61	0,32	6 277,99	2 159,74	0,38
Prov Bolzano	26 994,02	13 832,85	2,00	24 817,99	11 458,16	2,03
Umbria	1 693,55	1 573,40	0,23	1 397,84	2 817,86	0,50
Valle d'Aosta	10 687,20	4 189,45	0,60	7 429,59	3 641,76	0,65
Veneto	52 339,85	67 612,59	9,76	49 323,34	54 650,56	9,69
Total	**786 069,22**	**692 777,69**	100,00	**593 097,74**	**563 917,82**	100,00

Source: our elaboration from INEA data

Table 3. Financial resources for measure 114 PSR 2007-13 in Italian regions (EUR)

Regions	Funds allocated 2008	Funds allocated 2012	Funds spent 2013	EAFRD Funds spent 2013
Abruzzo	4 952 164	1 000 000	0	0
Basilicata	15 000 000	4 872 813	0	0
Calabria	8 000 000	4 666 666	0	0
Campania	32 513 230	3 516 102	186 804	114 475
Emilia-Romagna	11 677 014	7 837 320	3 960 345	1 742 552
Friuli-Venezia Giulia	0	0	0	0
Lazio	18 482 793	3 754 048	455 902	205 019
Liguria	1 371 429	871 429	29 960	10 486
Lombardia	15 508 743	1 791 378	13 700	6 124
Marche	7 950 000	1 353 234	40 734	17 923
Molise	2 000 000	2 000 000	0	0
Piemonte	24 772 727	11 972 727	1 217 913	535 882
Puglia	35 000 000	18 514 783	33 600	19 320
Sardegna	15 000 000	8 900 000	0	0
Sicilia	11 520 000	3 880 272	0	0
Toscana	15 000 000	19 700 000	12 608 462	5 547 723
Prov Trento	0	0	0	0
Prov Bolzano	0	0	0	0
Umbria	9 418 432	7 418 432	0	0
Valle d'Aosta	0	100 000	0	0
Veneto	13 636 364	13 636 364	5 484 394	2 412 749
Total	**241 802 896**	**115 785 568**	**24 031 814**	**10 612 253**

Source: INEA

Table 4. Public funds allocated measure 111 and 115 of Italian RDPs -December 2009

Regions	Measure 111 (euro)	Measure 115 (euro)
Valle d'Aosta	0	0
Piemonte	22 930 273	1 159 613
Liguria	4 806 780	672 669
Lombardia	5 342 467	261 171
Veneto	14 068 182	0
Provincia di Bolzano	2 343 543	507 768
Provincia di Trento	3 649 143	0
Friuli	0	0
Emilia-Romagna	14 817 007	0
Toscana	11 925 834	0
Umbria	8 608 878	5 357 313
Marche	8 191 305	0
Lazio	8 009 211	1 232 186
Abruzzo	6 480 693	0
Molise	1 500 000	0
Campania	17 982 982	8 936 253
Puglia	22 948 253	0
Basilicata	7 784 801	0
Calabria	7 379 167	4 791 667
Sicilia	35 853 667	0
Sardegna	5 135 000	0
Total	**209 757 186**	**22 918 640**

Source: INEA 2011

Table 5. Regional organisation of extension services

Regions	Inhabitants	Farms (ISTAT 2010)	Regional agency[21]	Employed for extension services[22]	EXT (2010) funds allocated (INEA)
Abruzzo	1.312.507	66.837	yes	NR	19 331,02
Basilicata	576.194	51.756	yes (extraordinary administration)	105	23 872,86
Calabria	1.958.238	137.790	Yes	220	80 231,21
Campania	5.769.750	136.872	NO	180	21 494,64
Emilia-Romagna	4.377.487	73.466	NO	50	27 478,90
Friuli-Venezia Giulia	1.221.860	22.316	NR	NR	13 636,83

[21] Data provided by Regions through in the PRO AKIS survey.
[22] Data provided by Regions through in the PRO AKIS survey.

Lazio	5.557.276	98.216	Yes	7	30 229,91
Liguria	1.565.127	20.208	NO	50	992
Lombardia	9.794.525	54.333	Yes	NR	73 267,68
Marche	1.545.155	44.866	NR	NR	9 399,08
Molise	313.341	26.272	Yes	84 (only Regional Agency)	4 513,20
Piemonte	4.374.052	26.272	NO	20 Region, 55 other public authorities	18 162,96
Puglia	4.050.803	271.754	NO	25	18 581,54
Sardegna	1.640.379	60.812	NR	NR	161 529,19
Sicilia	4.999.932	219.677	NR	NR	97 038,83
Toscana	3.692.828	72.686	NO	3	3 573,96
Prov Trento		16.428	yes (Foundation)	70	2 235,61
Prov Bolzano	1.039.934	20.247	NO	10	13 832,85
Umbria	886.239	36.244	NR	NR	1 573,40
Valle d'Aosta	127.844	3.554	NR	NR	4 189,45
Veneto	4.881.756	119.384	Yes	3 (Regional agency not included)	67 612,59

Source: our elaboration, NR= no answer