ITALY

1. Organisational issues

- What is the organisational structure of AKS (and its components: Higher education, Research, Development and Extension)? What major changes have occurred over the last decade?
- Who is responsible at government level for the AKS and its individual components? Please describe and comment on any major changes made during the past decade or currently being proposed.
- In what manner is AKS (and its components) financed both from public and private sources? What changes in funding the AKS activities have occurred during the past decade?

1. The Italian Agricultural Knowledge System (AKS) is characterized by different organisational models, contents, working methods in all the three segments (or macro-components) recognized by OECD: Higher Education, Research and Development (R&D) and Extension Services.

2. Higher education is under the State’s (national) responsibility, R&D is under the responsibility of both the State and the Italian regions, and extension falls within the competence of the Regions.

3. Higher Education - This component is represented essentially by universities, which are financed by the Italian Ministry of Education, University and Research (MIUR), which in turn responds to directives defined by the Italian Government.

4. The Italian university system is organized around faculties, for the agricultural field, there are 24 agriculture and 14 veterinary medicine (animal health) faculties, with a staff of 927 full professors, 908 associate professors, and 1 326 researchers. These faculties are located throughout Italy (at least one for each region). However, other faculties may implement agricultural education and training research activities in their own curriculum (i.e. the faculties of life sciences, economic science, medicine, engineering, etc.).

5. Following the 2001 reform, the old 4-5-year degree is almost phased out, and universities may now grant two different degrees: a three-year degree (1st level, Bachelor) and a two-year specialist degree (2nd level, Master degree).

6. Higher education activities are implemented in Italy through University courses, post-graduate (i.e. grants, masters, etc.) and Ph.D. courses in different fields related to agriculture and natural resources management. The Ministry of Agriculture, Food and Forestry Policies (MIPAAF) also contributes to scientific education (and research training) by financing fellowships, grants and PhD grants.

7. It is worth noting that a small number of other organisations (agri-food firms, local institutions and associations) promote post-graduate courses regarding specific issues; this, however, can be considered a marginal activity if compared to the same activities promoted by Italian universities, especially in terms of prestige.
Research and Development

8. Both the state and the Italian regions are in charge of this component. The Ministry of Education, University and Research (MIUR) and the Ministry of Agriculture, Food and Forestry Policies (MIPAAF) are the principal sources of funds. Some research activities are funded, managed and carried out by other national ministries that support studies on topics related to their core mission, such as food safety, human health, labour etc. (i.e. the Ministry of Health, the Ministry for Economic Development - MEF, the Ministry of Environment and Land Protection - MATT).

9. The national research bodies are grouped in three different structures (Figure 1):

- University, funded and supervised by the Ministry of Education, University and Research (MIUR);
- National Research Council (CNR), funded and supervised by the Ministry of Education, University and Research (http://www.cnr.it). The CNR is devoted to carrying out research in all fields of knowledge, included agriculture. It has a role of research manager.\(^1\) In particular the planning, co-ordination and control activities managed by the Agrifood Department of CNR are performed in 20 institutes located throughout Italy involving (in 2008) 900 staff with a permanent contract, including 340 researchers and 260 staff with a temporary contract; and
- Public Research Institutes funded by the Ministry of Agriculture, Food and Forestry policies. The principal structures, with agricultural research as an institutional mission, are the following: the National Institute of Agricultural Economics - INEA; the National Research Institute for Food and Nutrition – INRAN; the Council for the Research and Experimentation in Agriculture — CRA (a manager/research body\(^2\)); the Institute of Food Services for the Agricultural Market — ISMEA; the Institute L. Spallanzani (animal science).

10. The 20 Italian regions and two autonomous provinces (Bolzano and Trento) fund agricultural research either directly or indirectly. Some regions have their own research structures (i.e. Piemonte, Emilia Romagna, Abruzzo, Sicilia, Sardegna), others have their own research programmes implemented through national structures (universities and other public institutions) located in their territory. A few examples of regional or local research centres are:

- CRPA — Research Centre for Animal Production (Emilia Romagna, http://www.crpa.it);
- CRPV — Research Centre for Fruit and Vegetable production (Emilia Romagna, http://www.crpv.it);
- Experimental research Centre and Safe Crop Centre of S. Michele all’Adige (Trento Province, http://www.ismaa.it); and
- Laimburg Research Centre for agriculture and forestry (Bolzano Province, http://www.laimburg.it).

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1. In the past, CNR could act as funding agency supporting agricultural research, but nowadays it uses almost exclusively external funds, from its supervising Ministry or others.

2. The CRA, which recently aggregated at national level the Italian Experimentation Institutes for agriculture under MIPAAF tutoring, can fund research projects but acts essentially as manager and a research body dealing with all agricultural and food-non food production chains.
In Italy, the private agricultural research is estimated to be approximately 25% of the total (65% in the United Kingdom, 10% in Germany and in Spain).

11. The Italian research system consists of a multiple organisations with no central co-ordinating agency.

**Figure 1. The Italian National Agricultural Research System (NARS)**

12. The Italian agricultural extension system consists of two very different parts in terms of objectives, methods and evolution: the complex organisation connected with the firms that produce fertilisers, seeds, chemicals, animal feeds, human food, and the system of public services for farmers connected with regional agricultural institutions.

13. The first has the principal objective to keep its own share of the market, the second wants to promote the development of agriculture and rural territories. Both try to meet farmer needs concerning: innovative and more rational productive processes that improve agricultural products, decrease costs and lower the negative impact of agricultural processes on the environment. These two “sections” of the Italian agricultural development services are separated and seldom, if ever, work together.

14. In Italy, there is another group of organisations that supplies services to farms: the farmers’ professional associations (i.e. trade unions or agricultural products associations), that are private bodies but often cooperate with public institutions or receive public funding.

15. Since 1972, almost everything concerning agriculture has been under the responsibility of the regions. The supply of public services for farmers is managed exclusively by the regions, but with the consequence that there are almost 20 different organizations for the system of extension and adult training. All the regions have their own legislation in this field and they allocate funds to the different organisations independently of each other.
**AKS Funding**

16. The Italian AKS is supported mainly by public sources; the role of the private sector is less relevant and noticeable. The contribution by private enterprises is also more difficult to assess because no official statistics exist.

17. The Italian Ministries (MIUR and MIPAAF) fund almost all the fixed costs of the national structures that focus on research and development (staff, instruments, offices, etc.) and issue calls to promote specific research projects. These Ministries support R&D directly or through national financial instruments (for example, the National Research Programme, PNR, defined by MIUR and including strategic priorities and actions for agriculture and rural development proposed by MIPAAF)\(^3\). The regions and provinces have the same praxis often with regard to specific regional laws. In fact, they can identify research programmes and autonomously fund research projects tailored to the specific requirements of their local agriculture and agro-industry system (Constitutional Law No. 3, 18/10/2001).

18. The regions support extension services for farms using European, national and their own funds. Since more than ten years, they have promoted public calls (for public and private bodies) that are specialized in different services to the farms. The northern and central regions involve the same number of private bodies and public institutions\(^4\), while the southern regions involve more public institutions (64%). Compared to the 1990s, the situation has changed, although another survey has emphasized the major role of public organizations both in the northern and southern regions. Another aspect to highlight is the type of private bodies involved; the organisations connected with agricultural trade unions are decreasing in favour of the agricultural products associations or/and of groups of private advisers.

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3. See the text below for more details about these financial instruments.

4. The information used in this paragraph is collected in a research (2004—2006) of the Interregional program “Agricultural development services”, funded by the Ministry of Agricultural, Food, Forestry policies; the results regarding the Northern Regions overestimate the number of public institution because they do not include the situation of Emilia-Romagna, the Italian Region that has chosen to fund only private bodies.
Major changes over the last decade

19. The principal changes occurred in the Italian AKS and regarding the system organization concern:

- The national law (D.L. 204/98) on the reorganization of the whole public research system has provided instruments and established rules to programme, finance and evaluate research and to reorganise the public research structure.

- The reorganization of the public research institutes (D.L. 454/99 – Law No. 137/02) resulted in fusions, new structures and new competences. For example, the Institutes for Research and Experimentation of the Ministry of Agriculture, Food and Forestry policies have been reduced from 23 to 1, named “Council for the research and experimentation in Agriculture” (CRA).

- In 2001, the Italian Constitution was - in part - changed (Constitutional Law n. 3/01) in favour of a more recognized and a more active role of the regions in the agricultural research field, in order to take account of the diversity of local situations and problems.

- In the 2000-2006 period, the European Commission decreased the funds generally assigned to the development services but many regions did not replace them with their own funds, only assuring the functioning of the public structures and the basic services; as a consequence, services’ supply was reduced.

- Some reforms of the university system concerning the reorganization of the structures and the evaluation of outcomes. These reforms required a number of changes by universities that are still in place but that have created some confusion among the users of educational services.

- The reorganization of public institutes and the university reform are on-going.
2. **Objectives, priorities, and outcomes**

- What is the government policy regarding the nature, scope and role of AKS (and its components)? What major policy developments have occurred during the past decade?

- What are the main objectives of AKS (and its components)? How have these changed during the past decade? What are the main instruments to achieve those objectives? How have these been developed during the past decade?

- How are priorities set for AKS as a whole (and for its components)? What major changes in priorities have occurred during the past decade?

**AKS policy**

20. In Italy it is possible to identify a specific policy for each AKS component, with different roles and objectives.

**Higher Education**

21. In the last decade, the national policy for higher education in agriculture has had a twofold objective:
   - to provide theoretical and specialized skills, and
   - to rationalize the expenditure for the University structures and their organization.

22. While the educational activities continue to use traditional instruments (i.e. university courses, post-graduate courses, such as masters and Ph.D. courses), the reorganization of the system was planned by national law (Law N°240, 30 December 2010) with respect to the following in particular:
   - a new role for decision-making bodies,
   - the participation of society in these bodies, and
   - a reduction in the number of chairs and specialisations.

**Research and development**

23. For this component, there co-exist:
   - a national policy, aimed at promoting both basic research (carried out mainly by the Ministry of Education, University and Research) and applied research (carried out mainly by the Ministry of Agriculture, Food and Forestry policies), through national programmes (often pluri-annual, as in the case of the National Research Programmes, PNR) or specific sectoral plans; and
   - a regional policy, aimed at promoting applied research and testing of innovations at local level through planning and implementation of regional programmes.

24. Agricultural research is funded through:
   - public calls that are defined by a specific set of rules indicating eligibility criteria for applicants, evaluation criteria for the proposals, funding scheme, and issued on the basis of European and national regulations;
• direct assignment, used for relevant research actions of public interest and carried out by specific expertise; and
• negotiated procedures, according to the above-mentioned pluri-annual programmes.

25. The role of European policy and its instruments and funds for the 2007–2013 period is also particularly relevant.

26. The Ministry of Education, University and Research (MIUR) is responsible for the National Operative Programme (PON) about “Research and competitiveness”, consisting in research and technology transfer activities, including also agri-food issues. This programme is aimed at supporting the convergence regions (i.e. territories with a lower level of development). The programme has a budget of approximately EUR 6 billion and EUR 200 million, half of which will be established by the European Regional Development Fund (FESR).

27. The regions are responsible for Rural Development Programmes (RDPs), including a specific measure aimed at improving the innovation diffusion (Measure 124 “Cooperation for development of new products, processes and technologies in the agriculture and food sector and in the forestry sector”).

28. The total amount of resources allocated to the measure is more than EUR 175 million for all of Italy.

Extension

29. Every region has a specific extension policy which is regulated by regional laws regarding applied research in agriculture (according to an integrated approach generally developed and introduced in the regional legislation since 2000). The main objectives of the regional extension policy are:

• technological transfer,
• farm competitiveness,
• cross-compliance,
• rural animation,
• diversification,
• food safety, and
• environmental impact.

30. In recent years, the extension policy is more closely connected with the objectives of the Common Agricultural Policy (CAP), in particular regarding the last three points mentioned above. For the 2007–2013 period, the extension policy is financed by the European Union (EU) which has instituted the Farm Advisory System (FAS) with Regulation (EC) No. 1782/2003. In particular, the European Agricultural Fund for Rural Development (EAFRD) has financed some measures of the regional RDPs regarding:

• vocational training and information actions including diffusion of scientific knowledge and innovative practices (111),
• use of advisory services by farmers and forest holders (114);
• setting up farm management, farm relief and farm advisory, and forestry services (115);
• a training and information measure for operational economic actors (331);
• a skills-acquisition and animation measure with a view to preparing and implementing a local development strategy (332).

**Recent changes**

| **What major changes have occurred in programmes, staff numbers and funding levels of AKS and its components during the past decade?** |
| **What changes have occurred in student intake by area of study within AKS and level of degree/diploma? How do these changes relate to existing or expected future employment opportunities?** |

**Higher education**

31. The most important initiatives implemented by the university system regard organisation, governance and instruments.

32. The system of higher education, especially in the last two years, has undergone further changes aimed at reducing public spending and, in part, at rationalizing the system as a whole.

33. The more recent reform of the “Education system” (Law N. 240, December 30, 2010) also affects the organization of the faculties of agricultural sciences. Reductions in the number of degree courses, of departments and of faculties continue today.

34. Students enrolled in the Faculty of Agriculture for the academic year 2009/10 totalled 27,672 (for the academic year 2005/06, they were more than 40,000), while new students registered were 8,277. For almost 6,000, it was the first time they had registered for a University course.

35. With respect to the previous academic year, there has been seen a slight decrease in total enrollment (-1.2%), reflecting the general decline of students enrolled in Italian universities in recent years.

36. However, it is worth emphasizing the increase (+5.2%) of students registered. In 2009, in the Faculties of Agriculture, 3,921 students graduated (1.3% of the total number of graduates), showing a decline from the previous year of about one percentage point.

**Research and Development**

37. This component has undergone important general reforms following the implementation of the national law (D.L. 204/98) that introduced a more structural process for the research governance. It provided the research system with planning, co-ordination and evaluation instruments.

38. In particular, the evolution of the Italian public research system has focused on two objectives:

- the evaluation of research in terms of scientific output (as well as organisation and management), and
- the promotion of a functional and more effective link between research activities and policy guidelines.
As a result of this new approach:

- three National Research Plans (2001-2003, 2005-2007, 2010-2012) have been issued,
- some official committees have been constituted (experts committee for research policy, science and technology council etc.),
- a research evaluation committee has been founded and the first evaluation exercise carried out (in 2004), while another has been started.
- some official committees are constitute (experts committee for research policy, science and technology council etc.), and
- new ways of funding research activities have been promoted, increasingly linked both to:
  - the possible forms of cooperation: partnerships aimed at the submission of projects; permanent consultation groups to define the research question; and
  - the thematic priorities identified by the policy.

The agricultural research system is involved in all these initiatives.

The Ministries involved (MIUR and MIPAAF) have promoted several initiatives to encourage research institutes to work on specific topics.

- Projects of Relevant National Interest (PRIN), that involve only university structures on free research topics,
- Investment Fund for Basic Research (FIRB), that involves all Italian research structures on general research topics promoted by specific public calls,
- Additional Special Fund for Strategic Research (FISR, D.L. 204/98), that involves all Italian research structures on applied research promoted by specific calls, and
- Fund to Facilitate Research (FAR, D.L. 297/99), that involves enterprises on applied research promoted by specific calls.

The Ministry of Agriculture, Food and Forestry (MIPAAF) has financed essentially specific initiatives that are dedicated to applied research.

In recent years, calls have been issued on specific topics such as: organic farming (18 projects for EUR 24 million), nursery (30 projects for EUR 5.5 million), bio-energies (31 projects for EUR 10 million), or on topic different at the technical level but with a specific target such as the calls opened to small and medium enterprises (SMEs) operated by young entrepreneurs (53 projects for EUR 4 million).
Table 1. Agricultural research public funding (thousand EUR) per Ministry

<table>
<thead>
<tr>
<th></th>
<th>PRIN</th>
<th>FIRB</th>
<th>FISR</th>
<th>TOTAL (a)</th>
<th>DG policies</th>
<th>DG fishery</th>
<th>TOTAL (b)</th>
<th>TOTAL (a+b)</th>
</tr>
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<tbody>
<tr>
<td>2001</td>
<td>7 225</td>
<td>16 060</td>
<td>-</td>
<td>23 285</td>
<td>16 338</td>
<td>4 264</td>
<td>20 602</td>
<td>43 887</td>
</tr>
<tr>
<td>2002</td>
<td>8 567</td>
<td>-</td>
<td>24 031</td>
<td>32 598</td>
<td>28 308</td>
<td>4 264</td>
<td>32 572</td>
<td>65 170</td>
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<tr>
<td>2003</td>
<td>9 423</td>
<td>5 490</td>
<td>-</td>
<td>14 913</td>
<td>26 603</td>
<td>4 264</td>
<td>30 867</td>
<td>45 780</td>
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<tr>
<td>2004</td>
<td>9 534</td>
<td>-</td>
<td>-</td>
<td>9 534</td>
<td>30 465</td>
<td>4 264</td>
<td>34 729</td>
<td>44 263</td>
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<tr>
<td>2005</td>
<td>8 625</td>
<td>-</td>
<td>-</td>
<td>8 625</td>
<td>54 739</td>
<td>2 400</td>
<td>57 139</td>
<td>65 764</td>
</tr>
<tr>
<td>2006</td>
<td>5 471</td>
<td>7 686</td>
<td>-</td>
<td>13 157</td>
<td>13 478</td>
<td>2 031</td>
<td>15 509</td>
<td>28 666</td>
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<tr>
<td>2007</td>
<td>1 127</td>
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<td>2008</td>
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<td>0</td>
<td>58 206</td>
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<td>58 206</td>
<td>58 206</td>
</tr>
<tr>
<td>TOTAL</td>
<td>49 972</td>
<td>29 236</td>
<td>24 031</td>
<td>103 239</td>
<td>257 718</td>
<td>21 487</td>
<td>279 205</td>
<td>382 444</td>
</tr>
</tbody>
</table>

* The FISR funding for projects was also supported by MIPAF, that in the period 2001-2004 has contributed with more than EUR 15 000.

Source: INEA (several years).

44. With regard to the data in Table 1, it is important to specify that they do not coincide with the total cost of the Italian system of public agricultural research as they do not include ordinary financing, nor the fixed costs of management and research activities of public institutes (so-called “institutional research”).

45. The MIPAAF also played a relevant role regarding to the Interregional Programmes funded by a national law (L 499/1999). Through these funds, it was possible to support co-operation between regions having the same type of agriculture.

46. For the period 2003-2009, 11 interregional research projects were completed covering 11 topics: vegetable proteins, seeds, fruit farming, organic animal husbandry, olive growing, horticulture, flower growing, grass-land and animal husbandry, cereal farming, no food productions, wine growing.

47. These complex projects were co-financed and co-ordinated by the Ministry of Agriculture, Food and Forestry policies and directly managed and implemented by the regions. The overall cost was more than EUR 9 million.

48. The Regions finance research in particular though regional laws; their role has increased to reach a funding level comparable to the national amount of financial resources (in terms of average expenditure per year and per region). In fact, in 2004-2008 the expenditure for agricultural research projects of 12 regions was about EUR 140 million (with a regional average of EUR 2.3 million per year).

49. Since 2002, a relevant interregional initiative has been implemented, funded exclusively by the Regions involved: the creation of an “Information system on the agricultural regional research”.

50. It consists of a network system — a database which can be consulted and updated directly on-line — for collecting and diffusing information on regional research activities in agri-food and agri-

5. Data are available only for 12 regions for the entire period 2004-2008. The sources are: a specific survey on regional research system carried out by the National Institute for Agricultural Economics (INEA) in 2009; the database of the same Institute on agricultural regional researches.
environmental sectors, created and managed by the National Institute for Agricultural Economics (INEA), on behalf of the Regional Referents Network of agricultural research, which is an interregional coordinating organization recognized by the Conference of Presidents of the Regions and the Autonomous Provinces.

51. The initiative started thanks to the Italian regions’ interest to co-ordinate their efforts to achieve wider dissemination of knowledge and experience in the above mentioned fields.

52. The overall aim of this project is to provide regional policymakers with a multimedia information system (an on-line database) on the main aspects of agricultural research that are financed and promoted by the regions (institutions involved, projects, objectives, main contents, financial resources) in order to start a co-ordinating process aimed at the appropriate allocation of the financial resources available.

53. Over time, other operational objectives have been added, such as:

- to promote the active participation of research institutes; and
- to find a more efficient meeting point between agricultural research supply and demand.

54. At present the on line-database contains the synthetic information on more than 1 600 regional research areas (financed, as of 2000, by the majority of regions involved) and produces statistics and analysis which are useful to policy makers, researchers, etc., for verifying the evolution of regional agricultural research in terms of funds, objectives and contents.

Extension

55. The main fields of extension services funded by public institution are: specialized technical supports (33%), basic extension services (32%), specialized extension services (14%), information services (6%).

56. The first two fields represent the most traditional extension services in Italy. “Technical supports” are those activities collecting and processing data useful to the agricultural processes by means of advanced level technical instruments (for example, the meteorological networks and chemical laboratories). They are usually funded by public institutions because they involve high investment costs and the extension organizations cannot afford them. These services are expensive also for the public, but their funding is not discussed since these technical supports are extremely useful for surveys and investigations on environmental impact or food quality.

57. The “Basic extension” is a kind of all-purpose assistance given to farmers, but today its use has decreased since farms are often specialized and need expert advice.

58. However, when taking account of all the regions, the areas of interest for publicly supported extension is broad and varied and, as the following pattern shows, they have a complex system of classification in order to include everything.

6. To date, 15 Italian Regions (Piemonte, Lombardia, Veneto, Friuli Venezia Giulia, Liguria, Emilia Romagna, Toscana, Umbria, Abruzzo, Lazio, Campania, Puglia, Basilicata, Sicilia e Sardegna) have taken part to this project. At present, over 1 600 regional researches, financed by the majority of these regions starting from the year 2000, have been registered in the above-mentioned database, which can be consulted and updated directly on-line. For further information, go to the database site (http://www.bancadatiregioni.inea.it:5454/index.html).
EXTENSION SERVICES CLASSIFICATION

First level services (target: farms and local territories)

<table>
<thead>
<tr>
<th>a. Information</th>
<th>b. Basic and local services</th>
</tr>
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<tbody>
<tr>
<td>a1. Technical magazines</td>
<td>b1. Cultural activities</td>
</tr>
<tr>
<td>a2. Fairs and exhibitions</td>
<td>b2. Basic farm advises</td>
</tr>
<tr>
<td>a3. Conferences and seminars</td>
<td>b3. Technical advices</td>
</tr>
<tr>
<td>a4. Other</td>
<td>b4. Marketing advices</td>
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<td></td>
<td>b5. Customer advices</td>
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<td></td>
<td>b6. Other</td>
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</table>

c. Advanced level support services

<table>
<thead>
<tr>
<th>c1. Network of environmental monitoring</th>
<th>d. Product specialized services</th>
</tr>
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<tbody>
<tr>
<td>c2. Specialized supports</td>
<td>d1. Test</td>
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<tr>
<td>c3. Marketing promotion</td>
<td>d2. Technical advices</td>
</tr>
<tr>
<td>c4. Networks, data base and multimedia</td>
<td>d3. Marketing advices</td>
</tr>
<tr>
<td>c5. Other</td>
<td>d4. Farm advices</td>
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<td></td>
<td>d5. Other</td>
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d. Product specialized services

<table>
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<th>d1. Test</th>
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<td>d2. Technical advices</td>
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<td>d3. Marketing advices</td>
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<td>d4. Farm advices</td>
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<td>d5. Other</td>
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e. Managerial services

<table>
<thead>
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<th>e1. Accounting</th>
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<tbody>
<tr>
<td>e2. Managerial and financial advices</td>
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<tr>
<td>e3. Support to implement policy</td>
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<td>e4. Other</td>
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Second level services (target: technical organisations)

<table>
<thead>
<tr>
<th>f. Planning and management advices</th>
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<tr>
<td>g. Analysis of innovation demand</td>
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<td>h. Other</td>
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</table>

Source: National Institute of Agricultural Economics

59. In 2004-2007, the same national law (L. 499/1999) funded another interregional programme regarding the agricultural development services aimed at:

- providing training for the agricultural extension technicians on the main topics dealing with the rural development policy; and
- testing new models, methodologies and instruments for agricultural Extension (information, training and advisory in rural areas) with a multiregional approach for the respective activities.

The overall cost of these activities was EUR 5 million and involved directly all regions.

60. Currently, the regions are highly involved in the implementation of the RDPs measures mentioned above; the total amount of resources for the three measures on Extension services (111, 114 and 115) is more than EUR 460 million.

61. In particular, the public expenditure planned for Measure 114 (use of advisory services by farmers and forest holders) is almost EUR 210 million and the expenditure planned for Measure 111 (vocational training and information actions including diffusion of scientific knowledge and innovative practices) is more than EUR 230 million.

- What has been the impact of developments in the agricultural sector, markets, and policies, and consumer demand on priorities and functioning of AKS during the past decade?
• How has AKS contributed to agricultural and food policy formation, to public understanding of policy issues and to policy implementation during the past decade?

62. Every component of the Italian AKS adapts its own strategy and priorities to changes in the agri-food sector. In the last decade, the main consequences have been:

• the enlargement of topics towards other areas of expertise, areas considered non-traditional for the agricultural sector, like environment, climate, tourism, social issues, etc.;
• the increase of interdisciplinary works;
• the need to promote training activities for researchers, technical and administrative staff, advisors, etc.;
• the risk of creating a mix-up between the roles of different organizations and a decrease in specialization, especially where research institutions are concerned;
• the great expansion of the applied research versus basic research; and
• the difficulty of advisory bodies to adapt to farm needs that change very quickly.

63. In Italy there is no institutional procedure that directly links agricultural and food policy with the AKS. For instance, there is no institutional committee in which are represented the AKS components (one of these or all) or sharing processes to define the contents of the development projects.

64. However, when public institutions must promote a specific change or implement European policy, they use the outcomes of research and consult the experts in order to promote meetings, white papers, specific committees and so on. Traditionally, research and development are the components that are most involved; the role of extension and higher education is less important.

65. With regard to extension services, the problem of the services system isolation is much debated in Italy because Italians often are not able to organise their own structures in such a way as to interact more effectively and efficiently with policy makers.

66. This difficult situation is caused by the lack of commitment of Italian public institutions to the extension system. For example, for the period 2000-2006, European policy neglected the extension field and many regions did not replace European funds with their own, only ensuring the functioning of the public structures and the basic services. This situation does not allow for the structural solidity of the system, especially with regard to management and organization of bodies that offer specialized services to farmers.

3 Relationships and networking

• How does AKS relate to the general scientific/educational community? How does AKS relate to any general science policy? How does AKS relate to the general higher education policy? Are there separate research institutes and higher education institutes dealing with agriculture or do AKS activities occur in general institutions?

• What opportunities for co-operation between AKS and other possible partners (e.g., the private sector) have been developed in research, extension and higher education?

• How have relationships between AKS and various client groups, (e.g., the public, consumers, food processors, farmers, input suppliers, public agencies) evolved during the past decade? Have new kinds of networks emerged? Have different kinds of networks emerged to address different issues?
67. The relationship between AKS and general science policy is governed by public official institutions (Ministries and Regions), joined by committees and/or agreements that concern general planning (National Research Programmes - PNR, Operative National Programmes – PON, etc.) and defining general strategy or priorities. The AKS components relate to the general scientific/educational community through the specific research projects that are carried out.

68. As mentioned above, topics that have involved the agricultural sector (i.e. food, environment, climate, tourism, social subject) have also encouraged research and educational interdisciplinary co-operation.

69. Since the first National Research Programme (2001), the Ministries have decided that higher education should be connected with research and that the projects funded at the national level should include post-graduate (i.e. grants, masters, etc.) and Ph.D. courses.

70. The Ministry of Agriculture, Food and Forestry Policies also allocates financial resources in favour of higher education through a specific budget chapter used by the CRA that promotes research training, fellowships for graduate students, Ph.D. grants in collaboration with the University. This funding amounts approximately to EUR 1 million per year.

71. Until two–three years ago, research and higher education institutes dealing with agriculture were separated from general scientific institutes, but recently, as a consequence of the university reorganisation, there has been a unification of research/higher education structures on more general topics (for example: the economics of product systems, etc.).

72. Co-operation between AKS and other partners have developed through the following activities:
   - the supply chain committees that have been constituted by the MIPAAF involving private associations, institutional representatives, researchers in order to define the main problems of the different agricultural sectors (cereals, viticulture and wine, oil, agro-energy, sugar beet, tobacco, horticulture, floriculture, animal husbandry, dairy products, nuts);
   - Italian Bio-Economy Technology Platforms that result from the European Technology Platforms, having the same objectives of the above committees but more aimed to the technology innovation in industrial processes;
   - the public-private laboratories that have been promoted by the MIUR to develop co-operation between public and private research; and
   - the orientation (tendency) of the MIPAAF to fund research projects that have farm representatives and other private bodies into the project group.

73. These initiatives regard mainly the Higher Education and the Research components, less the Extension one.

4 Internal AKS co-operation

- How do the components of AKS relate to one another? What developments have occurred during the past decade?
- What opportunities for increased cooperation among the components of AKS have been identified and what mechanisms have been developed to encourage AKS cooperation during the past decade?
74. The debate on the importance of the relationship between the AKS components has been a distinctive Italian approach for the last twenty years. If in the 1990s the subject matter was the agricultural services system, in the last decade it has been the agricultural knowledge network, an approach less constraining that enhances all the components and allows for some flexibility in roles played and competences.

75. The internal AKS co-operation has been a strength of the extension services that has the task to connect farmers with the research world. The "Extension services" is an expression which encompasses many activities that all contribute to farm development (information, demonstration, advisory, testing, divulgation etc.) which are the task of different bodies and institutional levels.

76. Consequently, the regional laws on AKS are laws that:
   - specify the roles and tasks of the different components, and
   - try to promote the relationship between them funding the extension projects when they include different extension activities.

77. In the first years of the last decade the MIPAAF with the Regions implemented some important initiatives to connect the Research and the Extension with regard to technology transfer projects. The advisors and the researchers worked together into 77 innovative projects that spent more than EUR 50 million.

78. However, in the last years the attention on the links between the AKS components has been reduced at all levels, also in connection with the Farm Advisory System and the other Extension initiatives promoted by the European policy for rural development. In fact, this European action is fragmented because it provides many different measures with extension objectives that are not connected to each other and does not provide the research activities.

79. Deregulation, typical of the network, is getting the upper hand over co-ordination. The MIPAAF and the regions are working together to deal with specific initiatives to counter this.

5 Cross-country co-operation

- What have been developments in international cooperation among developed countries and emerging economies, and with developing countries?
- What were the drivers of recent developments and is there scope for further co-operation?

80. In Italy there are two levels of cross-country co-operation: the institutional level and the AKS structures level. The public institutions more involved are national: MIUR and MIPAAF. In the last ten years, their presence at international initiatives has been strengthened in two directions:
   - actively participating in some programming bodies like the Standing Committee for Agricultural Research (SCAR, MIPAAF is the Italian - IT delegate) and the Joint Programming Group (GPC, MIUR is the IT delegate); and
   - increasing the direct involvement of research funding bodies in the co-ordination of research at international level (ERANETs and JPIs).

81. Since 2005, 17 Collaborative Working Groups (CWGs) have been set up by European countries engaging voluntarily and on a variable-geometry basis in the definition, development and implementation
of common research agendas in the field of agricultural research. MIPAAF has ensured the participation of IT in most of them, five evolved in ERA-NETs scheme.

82. Italy has taken part in 80 ERA-NETs: 15% of them deal directly with agriculture, food and forestry issues while another 11% concern agri-environment and related issues (biodiversity, water, renewable energy, climate change, biology, and biotechnology infrastructures).

83. The Ministry of Agriculture, Food and Forestry Policies (MIPAAF) is the main participant in the agricultural-related ERA-NETs (75%), being present in:

- CORE Organic (I and II) on organic food and farming; two calls have already been launched with a total budget of EUR 2.4 million (virtual common pot) available for the Italian research community to participate in transnational research consortia;
- EUPHRESO (I and II) on plant health; one call has been issued with a mixed financial mechanism (virtual and real common pots, depending on topics) and a budget of EUR 290 000 available for IT researchers participating in transnational projects;
- EMIDA on animal health; MIPAAF jointly participate in this ERA-NET with the Ministry of Health and they have made available a budget of EUR 3 million for the participation of IT researchers to the transnational call launched in 2009;
- ARIMNeT on Mediterranean agriculture; the first joint transnational call will be launched in summer 2011;
- WoodWisdom-Net2 on forest based materials; two calls have already been launched and in the second one MIPAAF has made available to the researchers involved in transnational projects a budget of EUR 300 000;
- ICT-AGRI on ICT and Robotics in agriculture; a joint call has been issued in 2010 and a budget of EUR 650 000 has been made available by MIPAAF for the participation of IT researchers to transnational research projects;
- RURAGRI on rural development; the set up of a common strategic research agenda on the basis of which to start joint activities is ongoing.

84. Under the 7th Framework Programme (FP7), another instrument was launched at the end of 2008; it is “Joint Programming”, a voluntary partnership between Member states (and associated countries). Two of the three JPIs (“first wave”), adopted by the Council in 2010 deal with agriculture and food:

- Agriculture, Food security and Climate Change (FACCE), jointly co-ordinated by France and United Kingdom; and
- Health, food and prevention of diet-related diseases, co-ordinated by Netherland (NL).

85. The MIPAAF Research Office is participating in both initiatives, jointly with MIUR in the first one and with MIUR and the Ministry of Health in the second one.

86. The AKS structures which have the highest number of working relations at the international level are research institutions. Indeed, many Italian research groups have continuous connections with colleagues in other countries on specific topics related to their field of research. Such contacts have increased due to European initiatives to finance research, especially within the Framework Programmes.

87. A good experience of cross-country cooperation in Extension Services regards the involvement of the Italian regions in the debate on the reform of the Farm Advisory System (FAS) after 2013. The
regions prepared a proposal that was submitted to the European Commission and to the other countries at official meetings (organized by JRC), and this proposal was very appreciated.

6 Toward the future

- Please describe the outcome of any self assessments or evaluations of changes which have occurred in AKS and its components during the past decade? What lessons have been learned in order to guide the activities of AKS in the coming decade?
- What major challenge is your AKS expected to face during the coming decade?
- Please give a general overview of experience/proposals for greater cooperation/coordination/integration among research/higher education/extension and suggest any conclusions from your country experiences, which you would wish to bring to the attention of the Joint Conference

88. The Italian AKS consists of a great number of decisional levels, structures, initiatives and human resources. The main objectives of the last decade were to:

- connect Research and Higher Education to the development policy with the instruments of planning, evaluation and co-ordination,
- connect Research to Extension through experiences gained by working on common projects,
- promote competition between public institutions, public and private, private bodies by means of public announcements and other procedures,
- promote co-ordination between regions,
- implement European policy, especially with respect to new agricultural functions and environmental impact,
- take part in international initiatives, and
- reorganise higher education.

89. These activities have incremented the products and the actors of the system, have improved the relationships between the components, but have reduced the level of general co-ordination and the effectiveness of these activities.

90. The major challenges today are threefold:

- the implementation of an institutional co-ordination that commits both public institutions and research structures,
- a major commitment in the demand analysis and evaluation impact, and
- a strong investment in the expertise and skills of human resources.

91. In reference to the first point, the institutional co-ordination can be useful to define common priorities, and to approach these with a greater number of initiatives. This is necessary, especially in the current period of financial crisis.

92. In reference to the second and third points, it is important that the public initiatives become more connected to the more structured system of monitoring and evaluation, and that the researchers and technicians can use a more efficient system of “on-going training” especially for the choice of the correct work methods.
93. These conclusions are also sustained by two studies that were promoted by two Italian regions. The first had the objective to check the diffusion (to farms) of research results and was financed by the Piemonte Region. The second had as an objective to evaluate the efficiency and the effectiveness (in terms of impact on the territory) of regional spending on agricultural research; it was financed by the Emilia-Romagna Region.

94. According to the results of the Piemonte’s study, the innovations had a major diffusion when some essential requirements were present at the same time:

- a lively and dynamic production background,
- rigorous scientific activity,
- a local agricultural knowledge network connected with the farm system and the other rural bodies, and
- a regional governance of research/extension activities supporting processes and monitoring results.

95. The task of the policy would be to remove the causes that obstruct this positive coincidence of situations to apply it to actions connected with development policy, including AKS. The AKS policy and structures should co-ordinate these actions and ensure the application of the best methods in every situation.

96. The need of co-ordination within the AKS system and between the supply side and the demand side of research also emerges from the study conducted for the Emilia-Romagna Region. The study focused on the analysis of agricultural R&D co-financing carried by the region between 2001 and 2006, according to the pluri-annual programme established by regional law LR 28/98.

97. The principal messages derived from the analysis can be summarize as follows:

- it is necessary to create and improve a “unique control room” as the only national leader inter-regional task forces (this is already the case, but needs to be recognized);
- a stronger collaboration and more effective co-ordination between regions are desirable for the purposes of defining common practices:
  - a common methodology to assess the impact of research; and
  - experiment new forms of innovative financing and co-operation methods between research structures.
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