



Coordination of the Agricultural Research In the Mediterranean Area

D1.3 COUNTRY REPORT

**Overview on the research system and research programmes
on Mediterranean agriculture**

FRANCE

INRA/CIRAD

*Country Focal Point: Coordination team
(Michel Dodet, Marie Ollagnon)*

2010



ARIMNET ERANET Coordination Action

Grant agreement FP7- 219262

www.arimnet.net



Coordination of the Agricultural Research In the Mediterranean Area

SUMMARY

1. GENERAL ORGANIZATION:	3
2. BACKGROUND: rationale of given information and context of data collection	5
2.1 Global context of the data collection	5
2.1.1 A trustable vision of the French effort on Agricultural research for the Mediterranean Area	5
2.1.2 The increase of the Mediterranean stake	6
2.2 Context of the data collection for INRA	7
2.3 Context of the data collection for CIRAD	7
2.4 Context of the data collection for IRD	8
3. MAPPING OF RESEARCH PROGRAMMES:	9
3.1 Description of thematic area	9
3.1.1 The Programmes thematic areas	10
3.1.2 The main objectives and topics of the programmes	
3.2 Description of the owners.....	12
3.2.1 ANR and INRA by delegation	12
3.2.2 AIRD.....	12
3.3 Description of the funding management	13
3.4 Description of the implementation procedures	13
3.4.1 Procedure of call for research proposals	13
3.4.2 Reviewing and selection process	13
3.4.3 Projects monitoring	14
3.4.4 Evaluation of the programme.....	14
4. MAPPING OF RESEARCH INSTITUTIONS.....	15
4.1 Funding mechanisms and responsibility	15
4.2 Main objectives of organizations	15
4.3 Strategic agenda	17
4.4 Description of the research activity	17
4.5 Description of the research areas	19
5. MAPPING OF RESEARCH FACILITIES:	21
6. MAPPING OF TRAINING SCHEMES:	26
6.1 Zoom on a major Mediterranean actor of training: Montpellier SupAgro	26
6.1.1 An International Centre for Higher Education in Agricultural Sciences	26
6.1.2 A leading institution in teaching and research, widely open to the international exchanges and especially to Mediterranean and Tropical Environments.....	26
6.1.3 Various modalities of the Mediterranean collaborations.....	27
6.2 The International opening as a priority goal for Higher Education Centres to foreigner students	28
6.3 Master courses	
6.4 PhD courses	
6.5 Fellowships	
6.6 Young researcher grants	
6.7 Senior researcher grants	
6.8 Other.....	31

2



ARIMNET ERANET Coordination Action

Grant agreement FP7- 219262

www.arimnet.net



Coordination of the Agricultural Research In the Mediterranean Area

1. GENERAL ORGANIZATION:

The general organization of the agricultural research in France, a description of the mechanisms of funding and of the main actors of the agricultural research is detailed in Annex 3. Nevertheless, the figure below synthesizes the global architecture of the agricultural research system in France.



ARIMNET ERANET Coordination Action

Grant agreement FP7- 219262

www.arimnet.net

Agricultural research system in France

Ministries

Ministry for Agriculture and Fisheries

Ministry for Higher Education and Research

Ministry of Cooperation

ANR

French National Research Agency

EU

Regions and other Public territorial organizations

Economical and industrial actors Companies

Associations Foundations

The main actors of the funding of the research (any thematic fields)

The main operational actors of the agricultural research

Training and research institutes, Higher education institutions « Grandes écoles », Universities

- **CIHEAM**, International Centre for Advanced Mediterranean Agronomic Studies
- **Montpellier Supagro**
- **INAPG AgroParisTech-ENGREF**
- **Universities**
- ...

Research organisations : multidisciplinary or targeted

- **INRA**, French National Institute for Agricultural Research
- **CIRAD**, French Agricultural Research Centre for International Development
- **CEMAGREF**, Agricultural and environmental engineering research
- **IRD**, Institut de recherche pour le développement
- **CNRS**, National Center for Scientific Research
- ...

Technical institutes

- **CTIFL**, Interprofessional technical center of fruits and vegetables
- **ITAB**, Technical institute of the organic farming
- **CETIOM**, The Technical Center for Oilseed Crops
- **ACTA**, Network of the institutes of the animal and vegetable sectors
- **Institut de l'élevage**, Institute of the breeding
- **IFV**, the French institute of the vineyard and the wine
- ...

Companies

- **Limagrain**
- **BAYER**
- ...

▪ **Agropolis Foundation**, French scientific foundation established in 2007 to promote and support high-level research and higher education (training-through-research) as well as to broaden international research partnerships in agricultural sciences and sustainable development research.

It is the legal support of the **RTRA**, a world-class scientific network within the Montpellier scientific community (31 research units, about 800 scientists and 400 PhD students, covering a wide range of disciplines, i.e., from bio-technical to social sciences...)

▪ **National Consortium for the agriculture, the food, the animal health and the environment, "AGREENIUM"** (INRA, CIRAD, AgroParisTech, AgroCampus Ouest, Montpellier SupAgro, ENV Toulouse)

A.E.R.E.S, Agence d'évaluation de la recherche et de l'enseignement supérieur
Research and Higher Education Evaluation Agency



Coordination of the Agricultural Research In the Mediterranean Area

2. BACKGROUND: rationale of given information and context of data collection

2.1 Global context of the data collection

2.1.1 A trustable vision of the French effort on Agricultural research for the Mediterranean Area

Due to the **concentrated organization of the agricultural research in France**, few organisms are covering almost the whole field:

- INRA- <http://www.inra.fr/>
 - CIRAD- <http://www.cirad.fr/>
 - CEMAGREF- <http://www.cemagref.fr/>
 - IRD- <http://www.ird.fr/>
- + Montpellier SupAgro, a major actor of Mediterranean training- <http://www.supagro.fr/>

The estimated agri-med budget (full costs) of these organisations is about **131 226 667€**, shared between:

- CEMAGREF : (1 500 000€) about 1,14%
> about 1,4% of the global budget of CEMAGREF
- CIRAD : (11 960 000€) about 9,11%
> about 5,9% of the global budget of CIRAD
- INRA : (100 700 000€) about 76,74%
> about 13% of the global budget of INRA
- IRD : (17 066 667€) about 13,01%
> about 7,4% of the global budget of IRD

This budget should represent about 85% of the total of this public agri-med research.

Cf. 2.2, 2.3, 2.4 Context of data collection for INRA, CIRAD ad IRD

That means that 15% (very fragmented research) has not been taken into account in the survey. To investigate this very scattered research and the institutions concerned, the survey should have been more at the scale of the research units than at the scale of an organism and would have required means of investigation out of proportion with the potential added value. The research activities which have not been collected represent part of scientific activities from CNRS (<http://www.cnrs.fr/>) and universities research units (that are moreover sometimes joint units with INRA, CIRAD or IRD and, as such, partly taken into account) working in fields of biodiversity, some aspects of environmental research, plant biology, ...

As the survey has excluded the extension services, we have not investigated technical institutes which have a little research production (very often linked with INRA).

The national research strategy is not based on a geographical approach.

Each organism builds his own scientific strategy through a dialogue with Ministry (ies) under aegis of which it is placed and budgets are allocated on the basis of a four year contract of objectives (large scientific objectives, orientation on scientific policy and partnership, management). Within the contract, each organism is therefore free to propose and run its own strategy and is accountable of this policy to the ministries. It can be more flexible and able to answer to scientific emergencies or strategic collaborations opportunities.

In that context, there is **no national program of research for Mediterranean as such**. Nevertheless, through the questionnaire, it has been possible to identify research activities that are devoted to Mediterranean agriculture and to give the closest estimation possible of the reality.

The data collected **give a trustable vision of what the French national effort for agro-med research is.**



Coordination of the Agricultural Research In the Mediterranean Area

2.1.2 The increase of the Mediterranean stake

The Mediterranean stake is increasing in the policy of several main actors of agricultural research in France.

At the end of 2009, a decision has been taken to **constitute a consortium called AGREENIUM** (6 top agricultural research and educational institutions: INRA – CIRAD and 4 Agronomy and Veterinary Schools: AgroParisTech – Agrocampus Ouest – Montpellier SupAgro – ENV Toulouse).

The purpose of this consortium is to create a structure able to build a strategic research and education agenda based on a better coordination and cooperation, especially on the international arena. **The Mediterranean area is a strong priority for this new consortium.** Its purpose is also to organize a stronger response of the agro-research to the global needs and expectations of Society.

For more information <http://www.agreenium.org/>

A strategic reflection on the Mediterranean agricultural research has been launched in some of those research institutions. It is the case of **GIP IFRAI** (INRA/CIRAD) which had the mandate to seek complementarities and synergies in target geographical zones such as the Mediterranean or emerging countries. For more information http://www.gip-ifrai.fr/gip_ifrai_eng

Another example is the elaboration by INRA, CNRS-INSU and IRD of a global programme gathering various scientific departments concerning the impact of climate and human activities on Mediterranean eco-anthro-systems **SICMED**. For more information: <http://www.agropolis.org/gcard/pdf/sheet-10.pdf>

This Mediterranean stake has also been identified by the National Agency of Research (**ANR**) which has launched a **foresight workshop to identify the research areas to develop to respond to Mediterranean ecosystems and societies needs (PARME ARP)**. The French National Research Agency has selected Agropolis International to coordinate this workshop, from mid-January 2010, on the theme «Which research and which partnerships for the Mediterranean? ». The main topics are health, food and agriculture, water and energy, and culture and civilization ...)

Agreenium now participates in PARME ARP and will suggest operating structures and ways of facilitating cooperation in research, training and development. ARIMNet is a member of the Steering Committee of this Foresight Workshop.

For more information, <http://www.agropolis.fr/gestion-projets/atelier-reflexion-prospective-mediterranee.php>

Furthermore, the reinforcement of the capacities of the ANR (financing agency) and of calls which have thematic and geographic criteria could have in the future a role of influence on the scientific strategy of the organisms and could lead to a national framework for developing research in the Mediterranean.

Besides, a new Research Act, passed in the Parliament in 2006¹, provided the possibility to establish a **few highly competitive 'advanced research campuses' (RTRA: 'Réseau Thématique de Recherche Avancée')**: 13 such 'campuses' have been selected in 2006, **Montpellier being the sole one in the field of agri-food research** (with INRA, CIRAD and Montpellier Sup-Agro as the founding organizations). This RTRA of Montpellier has as legal support « Agropolis Fondation » based in Montpellier and represent a scientific network of 31 research units, involving about 800 scientists and 400 PhD students and covering a wide range of disciplines, i.e., from bio-technical to social sciences and with **recognized expertise** in temperate, tropical but also **especially in Mediterranean regions. It is an important advanced structure that concerns for a part the Mediterranean capacities of agricultural research.**

For example, the call for Proposals 2009 was concerning the Mediterranean Area: "Promoting and supporting partnerships in the Southern Mediterranean Region".

www.agropolis-fondation.fr

¹ Objectives of the new Research Act : to increase the performance, visibility and international influence of French research



Coordination of the Agricultural Research In the Mediterranean Area

2.2 Context of the data collection for INRA

This global French organization of the agricultural research had consequences on the method used for the survey and its relative bias.

> **« Mediterranean » / « Non Mediterranean »**: it was considered that the totality of the research activities and programs of the INRA Centers located in the Mediterranean area (Montpellier, Avignon-Provence Alpes Côte d'Azur, Corsica) was participating in agro-Mediterranean research. Due to their geographical localization in a Mediterranean area, the research activities of these centers are naturally oriented to address Mediterranean agriculture challenges, even if they have no exclusive regional vocation and are able to mobilize on those challenges scientific capacities outside their own remit, in INRA at large. That was the better way to properly evaluate, with few human resources and time, the potentiality of INRA's agri-med research.

Lacks of this method/ bias:

As a consequence of the chosen method, one should note that a part of this research doesn't concern directly the Mediterranean area challenges and stakes and that a part of the research of the others French INRA centers could concern Mediterranean challenges and is not included in this survey. It was considered that one was balancing the other.

It is especially the case for the facilities: we have identified only the research facilities directly linked to the three regional and "Mediterranean" INRA centers. They are not specifically dedicated to Mediterranean agriculture issues. **Each INRA center is an open door on the global potential of INRA.** In this way, the real number of facilities available is actually much more important than the one that we have described above.

> **Mapping of the « research addressing Mediterranean issues» and not mapping of the actual collaborations between INRA and Mediterranean countries and organisms or mapping of actual Mediterranean projects.**

The level chosen did not permit to focus on the level of the Mediterranean projects and collaborations. Nevertheless, a lot of collaborations do exist, often at the level of a researcher's team. They are not described in this report but are taken into account globally in the description of the budget and staff of the research unit they belong to.

> **Amounts declared at the level of AGROVOC items:** they are estimations, i.e. use of average costs, use of average number of employees

> **Lack of data from the ANR (French National Research Agency, French funding agency):** INRA has among others a role of financing on behalf of the ANR.

Only a part of the budget mentioned in the questionnaire, managed by INRA on behalf of the ANR, has been actually attributed to research concerning Mediterranean topics. We have nevertheless indicated the total amount considering that this budget can be potentially available for the agri-med research, as far as it concerns generic research.

2.3 Context of the data collection for CIRAD

Main difficulties to collect the data:

> The accounting system or the affectation of the CIRAD researchers based in mainland France is not made on a geographical basis but on the basis of disciplines or scientific themes. As CFP, Michel Trebel has used a rate method to estimate the Mediterranean part of the Research of the CIRAD:

1. Identification of the researchers working into a thematic area
2. Calculation of an average cost (wage cost + cost of functioning): about 100k€/per year

> With these elements, he has been able to calculate the cost per thematic area. He has considered that about 25% of these activities had a Mediterranean interest. For the PHD and young researchers, he has



Coordination of the **Agricultural Research In the Mediterranean Area**

considered that 10% among them are working on Mediterranean subjects. He had no other tool available to estimate it.

> It is also the more trustable **estimation** possible.

2.4 Context of the data collection for IRD

The data collection for IRD has been complicated and slowed down by the internal reorganization of the institution. Therefore, the data is incomplete and may give an underestimated image of the IRD effort for agri-med research.

It is specifically the case for AIRD (funding agency managed by IRD).

>Agri-med budget

As the other agri-med research actor, IRD does not have a global agri-med research program. For the survey, an estimation of this effort has been given.

The estimated agri-med budget (5 120 000 € of budget of the mediterranean programmes and activities + 11 946 667 of salaries = 17 066 667€) is the amount of expenses made in the Mediterranean area. It may include non-agro expenses (social sciences, health, etc.) without including all the expenses of agro-research that are not directly realised in the Mediterranean area but that could be mobilised for the agro-Mediterranean stakes. It is therefore only estimation.



Coordination of the Agricultural Research In the Mediterranean Area

3. MAPPING OF RESEARCH PROGRAMMES:

Two organizations have, among others, a role of funding of the agricultural research: INRA through its collaboration with and on behalf on ANR and AIRD (The IRD was entrusted with the founding and management of the agency).

Six programmes have been **identified in INRA in 2008²**.

1. Animal genomics
2. Plant genomics
3. Large-scale microbial genomics (Génomique microbienne à grande échelle)
4. Trilateral KBBE, "Knowledge Based Bio-Economy" (Germany, Spain, France), Franco-German-Spanish cooperation in plant genomics, plant biotechnology and molecular breeding
5. Food and food industries (ALIA, Alimentation et industries alimentaires)
6. Ecosystems, territories, living resources and farmings (SYSTERRA) (Ecosystèmes, territoires, ressources vivantes et agricultures)

5 are national programmes, 1 is international, related to an area (trilateral KBBE).

The data from **AIRD** has been incompletely collected. The Mediterranean stake does not represent today the essential part of the activity of the agency. Nevertheless, **6 programmes are running and 3 could concern the Mediterranean area** and its actors:

1. RIPIECSA (Interdisciplinary and participative researches on the Interactions between the Ecosystems, the Climate and Societies in western Africa): Maghreb countries (Algeria, Morocco, Tunisia) are concerned, they can be partners of the research projects.
The budget was 3,5M€ for four years 2007-2010
2. AIRES-Sud (Integrated support to reinforce southern Scientific teams): 3 research teams among 32 are from Maghreb (other are from West Africa)
The budget was 3,5M€ for four years 2007-2010 . 32 projects have been chosen among which two concern the Maghreb and only one concerns strictly agronomy. Both have received 90 000€
3. Systerra (Ecosystems, territories, alive resources and farmings): Open to all countries
This last one is an ANR project but AIRD is associated to it and will co-finance projects that have a collaborative dimension with research teams of South countries.
This co-financing was 450 000€ in 2009 and 257 000€ in 2010.

One can note that AIRD as a real international vocation.

AIRD is also launching other calls for proposal as the one described below.

The IRD is launching its first call for proposals with the Egyptian Science and Technology Development Fund According to its mission of conducting research in the South for the South and with the South, and in the framework of the implementation of scientific cooperation with Egypt, the IRD launches a joint call for proposals with the Egyptian Science and Technology Development Fund (STDF).

3.1 Description of thematic area

We have not been able to gather in due time the data concerning AIRD. The data for this part will only concern INRA.

² Annual report 2008, Agence Nationale de Recherche



Coordination of the Agricultural Research In the Mediterranean Area

3.1.1 The Programmes thematic areas

Classification of the thematic areas

Genetic resources / genomics (11 items/ 4 programmes concerned)

Genomics : 4
Animal genetics : 1
Genoms : 1
Genetic diversity as resource : 1
Microbes : 1
Pathogenic microorganisms : 1
plant genetics : 1
Plant genetic resources : 1

Sustainable agricultural / sustainable development (9 items /2 programmes concerned)

Agricultural development : 1
Sustainable agriculture : 1
Sustainable livelihoods : 1
Ecosystems : 1
Living resources : 1
Farming systems : 1
Agroecology:1
Integrated development:1
Natural resource management:1

Food safety/ Nutrition (4 items/ 2 programmes)

Food : 1
Food industry : 1
Nutrition : 1
Food safety : 1

Plant production (4 items / 2 programmes)

Plant production : 1
Plant quality : 1
Biotic stress : 1
Yields : 1

Bioproducts (3 items /2 programmes)

Bioconversion : 1
Bioenergy : 1
Bioproducts : 1

Description of the programmes managed by INRA on behalf of ANR (2008) : budget per programme and thematic areas

Programme Title	The Programme thematics areas	Average annual budget 2008 per project
Animal genomics	Genomics animal genetics Genoms Genetic diversity as resource	133 333.33 (Total amount attributed for the program - call for proposals 2008 = 4,4 Millions of €)
Plant genomics	Plant genetic resources genomics Biotic stress Yields Tools	166 666 (Total amount attributed for the program - call for proposals 2008 = 10,9 Millions of €)
Large-scale microbial genomics (Génomique microbienne à grande échelle)	Genomics Microbes Pathogenic microorganisms Bioconversion	23 333.33 (Total amount attributed for the program - call for proposals 2008 = 4,9 Millions of €)
Trilateral KBBE	Genomics plant genetics Bioenergy Bioproducts Food safety Plant production Plant quality	133 333.33 (Total amount attributed for the program - call for proposals 2008 = 4,6 Millions of €)
Food and food industries (ALIA, Alimentation et industries alimentaires)	Food Food industry Nutrition Agricultural development Sustainable agriculture Sustainable livelihoods	142 000 (Total amount attributed for the program - call for proposals 2008 = 8,5 Millions of €)
Ecosystems,	Ecosystems	254 333.33



Coordination of the Agricultural Research In the Mediterranean Area

territories, living resources and farmings (SYSTERRA) (Ecosystèmes, territoires, ressources vivantes et agricultures)	Living resources Farming systems agroecology Integrated development Natural resource management	(Total amount attributed for the program - call for proposals 2008 = 11,5 Millions of €)
		852 999.32 (44,8M)

3.1.2 The main objectives and topics of the programmes

A/ Genetic resources and genomics (Animal genomics, Plant genomics, Large-scale microbial genomics)

Animal genomics

- > To take the best advantage of the genetic variety and of the regulation of the genes of interest for the animals with economic interest
- > to improve the knowledge of the structure and the functioning of the genome
- > to create and develop tools and resources
- > to encourage genomics approaches

Plant genomics

- > To contribute to the improvement of the productivity of the cultivated species and to the quality so environmental as sanitary of the consummate vegetables

Large-scale microbial genomics

- > To improve the knowledge of the extreme biodiversity in bacteria/germs and in microbiomes

Trilateral KBBE

- > to improve the establishment and accordingly continuation of transnational research projects between France, Spain, and Germany in order to further deepen the already existing cooperation between economy and academia in these countries, in the field of plant genomics, plant biotechnology and molecular breeding.

B/ Food safety and nutrition (ALIA)

- > To improve the access to quality food to the poorest, to improve the well-being of populations
- > to develop evaluation methods of the nutritional characteristics of the food
- > to encourage a more dynamic economy of the food productions and a sustainable system of food production

C/ Sustainable agricultural development (SYSTERRA)

- > To face the new stakes of intensive agriculture (to reduce energy consumption, the use of agricultural fertilizers, the use of phytosanitary products, to have a sustainable management of the natural resources,)
- > The ecological intensification
- Biomimetism



Coordination of the Agricultural Research In the Mediterranean Area

3.2 Description of the owners

3.2.1 ANR and INRA by delegation

ANR, the National Research Agency

The creation of the National Research Agency ('Agence nationale de la recherche', <http://www.agence-nationale-recherche.fr>) in 2005 (as an anticipation of the 2006 Research Act) marked a major shift in the French research landscape. It was created to fund fundamental research on a project basis. In 2005 the primary beneficiary of the National Agency for Research funding was the CNRS (30%) followed by enterprises (18%). From an institutional point of view, the National Agency for Research is under the aegis of the ministry in charge of research, but the Ministry of Education, the Ministry of Health, the Ministry of Budget and the Ministry of Industry are represented in the executive board. With an annual budget of ca. 825 M€ in 2007, ANR plays a central role and is in charge of funding large scientific and technological research programmes. The funds are allocated to projects on a competitive basis. These projects are proposed by teams from research organizations and universities.

Some of these programmes directly address agricultural issues: Agriculture and sustainable development, Animal genomics, Plant genomics, GMO, Food. Several other programmes deal with agriculture-related topics: biodiversity, climate change and environment, bio energy, emerging diseases, etc.

The nature and orientation of these programmes provide an indirect way of appreciating the national trends and needs in agricultural research as well as its relative weight as compared to other research sectors.

The National Research Agency has chosen, for the scientific and administrative management of its projects, to lean on existing bodies, among which the National institute for agronomic research (INRA).

3.2.2 AIRD³

The Inter-Establishment Agency for Research for Development was founded in 2006 to intensify and coordinate the French policy concerning the development of Southern country through research.

It is tasked with amplifying French research efforts for development by:

> mobilising the potential of the French research teams: universities (CPU), CIRAD, CNRS, Inserm, Institut Pasteur, IRD

> pooling various types of financing: French, European or international.

The agency is governed by a steering committee (Cora) which stimulates strategic thinking between North and South partners. The members of this committee are representatives of French research bodies, of the main multilateral* organizations and qualified personalities representing the Southern continents. The agency's programme implementation is based on calls for proposals open to the scientific community in North and South and connected with the priority themes defined by the steering committee among the relevant topics for research for development.

The Agency intends to carry out scientific activities and develop related training including:

- training through research
- support for Southern research teams
- regional research programmes
- scientific supervision for regional technology platforms

The priority themes:

> Governance and public policy

> Health

> Nutrition and food security, agricultural and aquaculture products

> Impact of climate change and societies adaptation:

³ <http://www.aird.fr/>



Coordination of the Agricultural Research In the Mediterranean Area

- Population and sustainable development
 - Sustainability of ecosystems, biodiversity and anthropisation
 - Management of natural resources
 - > Energy for the South: new and traditional forms of energy
- http://www.aird.fr/presentation/aird_eng.pdf

3.3 Description of the funding management

We have not been able to gather in due time the data concerning AIRD. The data for this part will only concern INRA.

INRA/ANR :

There are two types of funding models: one for the private companies and one for public bodies and research foundations. For the first one, a full cost model is used, while, for the public bodies, a « marginal cost model” is used (direct costs excepted from the salaries of the permanent staff).

The legal framework of projects is the “decision of attribution”. The type of funding mechanism used to put the programme into practice is the call (100% of the programmes funds are distributed through competitive procurement mechanisms.)

The results are property of the research organisation.

3.4 Description of the implementation procedures ⁴

3.4.1 Procedure of call for research proposals

INRA/ANR :

The programme owner (ANR) and scientific panels select the main topics for the calls. These topics are decided through a prospective workshop of research, an expert's consultation. A prioritisation analysis is used to decide the main topic of the calls. The main criteria are scientific excellence and social relevance.

Guidelines are provided for applicants. The applications procedures used are usually “full-proposals” ones but it can also be a two steps proposal (pre-proposals + full proposals).

3.4.2 Reviewing and selection process

INRA/ANR :

A first scientific committee makes a first selection among the projects. Each project is evaluated by at least two experts who do not belong to the scientific committee and who prepare a report.

Then the steering committee does a second selection, with other criteria: interest and conformity to the call. The evaluators are selected *intuitu personae* and nominated by the director of the ANR on the basis of their experience on the sector. They are both from national and international origin (1st committee: 1/3). They are anonymous to the applicant. The evaluation of procedures used is both internal and external. It is not possible for the applicants to comment on the evaluation.

The main evaluation criteria used are:

- Relevance to objectives of the programme/call
- Scientific quality
- Innovation
- Expected benefits and use of results

> General information on programmes timeframe:

- From call opening to closing date for applications : < 5 Months
- From application's closing date to end of evaluation process : < 5 Months

⁴ Inspection générale de l'administration de l'Éducation nationale et de la Recherche, 2006. La Gestion par l'INRA de certains programmes de l'Agence nationale de la recherche, Rapport à monsieur le ministre de l'Éducation nationale, de l'Enseignement supérieur et de la Recherche à monsieur le ministre délégué à l'Enseignement supérieur et à la Recherche, Rapport - n°2006-099, décembre 2006.



Coordination of the **Agricultural Research In the Mediterranean Area**

- From end of evaluation process to final decision making : < 5 Months
- From final decision to project start: < 5 Months

3.4.3 Projects monitoring

INRA/ANR :

The projects within the programmes are monitored through financial issue control and scientific work progress control. They are monitored on going and at the end. Both the funding body and the management organisation monitor the projects.

It is possible to extend the deadline of the projects final report/outputs. If the project does not comply with its objectives or if the final report is late, there are no penalties.

3.4.4 - Evaluation of the programme.

INRA/ANR : The INRA has among others a role of evaluation ex-post of the programmes.



Coordination of the Agricultural Research In the Mediterranean Area

4. MAPPING OF RESEARCH INSTITUTIONS

The annex 3 presents the research institutions. The four surveyed organisations are all, fully or mainly, research institutions.

4.1 Funding mechanisms and responsibility

The surveyed organisations are **responsible of their research**.

They are mainly funded by the State (from 64% for CIRAD to 75% for CEMAGREF to 80% for INRA and 85,67% for IRD). The second origin of the funding are the public contracts (23%for CIRAD, to 12% INRA) and the third are the private contracts (13% for CIRAD to 8% for INRA).

We can note the **importance of the budget dedicated to the permanent staff in all of these institutions**, even for those who are less supported by public financing : **between 50 and 75% of the budget**.

All of these four research institutes finance/manage agriculture research activities via a diversity of mechanisms. The four institutions finance/manage agriculture research activities mainly via structures but also begin to finance these research activities via programmes, projects and cooperation activities. Only two have also a role of funding or participate in a competitive financing.

4.2 Main objectives of organizations

...in Agro-Med research only (per thematic area, all institutions together/ (N)= Number of answers)⁵ :

SUSTAINABLE NATURAL RESOURCES MANAGEMENT (12 ITEMS)

Biodiversity conservation and use : 1
Natural resources : 1
Sustainable natural resources management : 1
Water resources and management : 2
Bioenergy , energy: 2
Natural resources :2
Soil erosion, conservation and reclamation : 1 ; Soil fertility : 1; Soil science : 1

AGRICULTURE (2) + PLANT & ANIMAL Production (8) + Pests (3) :

Agriculture - General aspect : 2

Crop production systems management : 1
Plant production and protection : 3
Animal production: 1 ;
Aqualculture Fisheries, fisheries and aquaculture management and conservation :3

Pest of animals : 1
Diseases and pests of animals and plants : 1
Plant pathology and disease management : 1

GENETICS (2)

Genetics : 1
Plant Genetics : 1

⁵ The titles in red color are agrovoc terms that have been used to designate thematic subsets re-built when analysing the survey. In black police, the agrovoc terms declared by the surveyed organizations. Each institution has chosen nearly the same number of items (4 or 5) : it suggests that the number of termes AGROVOC in each thematic area gives an idea of its relative importance.

FOOD/ NUTRITION (4)

Food quality and safety : 1
Food science : 1
Diet and nutrition : 1
Rural livelihood and food security : 1

CLIMATE CHANGE (1)

Climate change : 1

HYDROLOGY (1)

Hydrology : 1

FORESTRY : Production/protection (2)

Forest injuries and protection : 1
Forestry : 1

These institutions cover a large diversity of agricultural thematic areas. CIRAD and INRA seem to be those with the biggest diversity. We can identify three main areas: sustainable natural resources management, agriculture/plant and animal production, food and nutrition. We can note some specificities: Hydrology for the CEMAGREF, forestry for CEMAGREF and CIRAD, Climate change, biodiversity, soil and bio energy for IRD...

Presentation per institution :

- INRA : Food quality and safety ; Agriculture - General aspect ; Sustainable natural resources management ; Diseases and pests of animals and plants ; Rural livelihood and food security
- IRD : Bioenergy ; Biodiversity conservation and use ; Climate change ; Diet and nutrition ; Soil erosion, conservation and reclamation, Soil science, Soil fertility, Water resources and management, Diet and nutrition, Plant production, Plant Genetics, Plant pathology and disease management, Fisheries and aquaculture management and conservation
- CEMAGREF : Water resources and management ; Hydrology ; Forest injuries and protection ; Crop production systems management
- CIRAD : Plant production and protection ; Animal production ; Food science ; Natural resources ; Forestry

The main research lines foreseen by organizations in the future ⁶

AGRICULTURE- SYSTEMS/ PRODUCTION/ DISEASES (4+2)

Agriculture - General aspect (Agriculture) : 1
Plant Production : 1
Crop production systems management : 1
Farming practices and systems : 1

Animal diseases and control : 1
Plant diseases : 1

SUSTAINABLE NATURAL RESOURCES MANAGEMENT (8)

Biodiversity conservation and use : 1
Ecosystems management : 1
Energy resources and management (Energy) : 1
Environment : 1
Nature conservation and land resources : 1
Sustainable natural resources management : 1
Water resources and management : 2

HYDROLOGY : 1

FOREST INJURIES AND PROTECTION : 1

LAND ECONOMICS AND POLICIES: 1 (LAND RESOURCES)

CLIMATE CHANGE : 1

FOOD QUALITY AND SAFETY : 1

There is no important difference between the main objectives declared by the organizations in Agro-Med research and the main research lines declared to be foreseen by these organizations: that suggests there is **a continuity between Mediterranean and global objectives of the institution**. Nevertheless, we can note that the "Food" items at this level have only been chosen by INRA : Food (Food security and food safety, nutrition) could be a specific Mediterranean stake. Each institution confirms its specificities :

⁶ The titles in red color are agrovoc terms that have been used to designate thematic subsets re-built when analysing the survey. In black police, the agrovoc terms declared by the surveyed organizations.



Coordination of the Agricultural Research In the Mediterranean Area

Hydrology and forestry for the CEMAGREF, forestry for CEMAGREF and CIRAD, Climate change, biodiversity and bio energy for IRD...

Presentation per institution :

- INRA: Food quality and safety ; Agriculture - General aspect ; Sustainable natural resources management ; Farming practices and systems ; Environment
- IRD: Biodiversity conservation and use ; Climate change ; Energy resources and management ; Ecosystems management ; Water resources and management ;
- CEMAGREF: Water resources and management ; Hydrology ; Forest injuries and protection ; Crop production systems management
- CIRAD: Nature conservation and land resources ; Plant production (selection of varieties adapted to dryness and salinity) ; Animal diseases and control ; Plant diseases ; Land economics and policies

4.3 Strategic agenda

The four organisations have a strategic agenda in place which is translated in the four year contract that each institution is running (cf chapter 1- four year contract established through a dialogue with Ministry (ies) under aegis of which these organizations are placed). **Ministries** (Agriculture, Higher Education and Research, Cooperation) **have an important role in the presentation of the options for setting the priorities of the strategic agenda.**

Method declared per institution:

- IRD : public consultancy with ministry
- CIRAD : public consultancy with ministry, local authorities, research councils, scientific experts
- INRA : Each four year, through a negotiation, inside the organization, between research departments (vision elaborated for their own field of responsibility) and the global strategy which is defined by the general directorate of INRA after consultation of stakeholders
- CEMAGREF : public consultancy with ministry, public service operators, scientific national experts

4.4 Description of the research activity

Thematic area per type of research and institution

Basic research	Applied research	Adaptive research	Demonstration plans	Technology development	Knowledge dissemination/transfer	Training
2	4	1	0	3	3	4

- Basic research:

INRA: Genomics, Biotechnology, Models

CIRAD: Water resources, Plant genetics and physiology, Animal diseases

- Applied research

INRA: Agriculture, Environment, Food, Nutrition

IRD: Plants, Soil fertility, Land use, Governance, Ecosystems

CEMAGREF: Sustainable natural resources management, Water management/Water use efficiency, Hydrology, Forest Fire Management, Geographic information systems and remote sensing

CIRAD: Food sciences and technology, pests of plants, plants diseases, weeds, fertilization, plant propagation



Coordination of the Agricultural Research In the Mediterranean Area

- Adaptive research

CIRAD: cropping patterns and system, agrarian structure, development economics and policies

- Technology development:

INRA: Biotechnology, Food processing

CEMAGREF: Sustainable natural resources management, Water management/Water use efficiency, Hydrology, Forest Fire Management, Geographic information systems and remote sensing

CIRAD: Veterinary science, food processing and technology

- Knowledge dissemination /transfer:

INRA: Agriculture, Environment, Food, Nutrition

IRD: Plants Soil fertility, Land use, Governance, Ecosystems

CEMAGREF: Sustainable natural resources management, Water management/Water use efficiency, Hydrology, Forest Fire Management, Geographic information systems and remote sensing

- Training:

INRA: Agriculture, Environment, Food, Nutrition

IRD: Plants Soil fertility, Land use, Governance, Ecosystems

CEMAGREF: Sustainable natural resources management, Water management/Water use efficiency, Hydrology, Forest Fire Management, Geographic information systems and remote sensing

CIRAD: Water use efficiency, plant genetics, Food processing, Food safety, Animal diseases

Users/beneficiaries

These organizations produce public goods: the whole society is beneficiary.

Nevertheless, the **main users /beneficiaries** declared by the institutions are first public bodies, local authorities, communities and policy makers. These answers seem to draw a major role of these institutions as **advisor of the public policy makers** (4/4), more than a direct role towards the agricultural actors. Nevertheless, the second public of users /beneficiaries declared is the public of **farmers (4/4) and technical assistance services** (3/4).

Various methods of information and dissemination are in place to promote the research activity outputs. The main tool at the level of researchers are the journals, workshops and conferences but also internet. At the level of institutions websites and specialized publications are the most used instruments. INRA has closed links with extension services and organizes workshop on innovation in agriculture attended by professionals (Innovation at crossroads). We can also cite IRD who has a real action of scientific dissemination and who organize for example scientific exhibitions in the south countries, partnerships with associations or high schools, trainings etc...

In all cases, the results produced are **property** of the research institution.

In all cases as well, there are centralized facilities or services in support of the management of the projects/research activities, mainly administrative and methodological consultancy.



Coordination of the Agricultural Research In the Mediterranean Area

4.5 Description of the research areas

Organization	Topic	Human resources Scientists (pm)	Human resources Students, PhD, M.sc (pm)	Human resources Others (pm)	Budget
INRA	Biology Plant physiology and biochemistry	783.5	180.7	558.6	9 197 367,00
	Sustainable natural resources management, Ecosystems management	717,81	170,52	681,74	8 138 571,00
	Food processing and preservation Food science and technology	662,38	195,21	820,90	8 765 750,00
	Plant genetics and breeding	601,76	109,56	983,07	7 785 012,00
	Biodiversity conservation and use	642,75	80,13	651,35	7 466 417,00
	Economics, development and rural sociology, Economics and policy, Development, aims, policies, programmes	447,3	99,32	337,62	4 532 348,00
	Animal husbandry Animal products Agricultural Extension	96	96	72	1 194 504,00
	Citrus Fruits Biotechnology Plant Genetics Biodiversity conservation and use	36	60	96	958 070,00
	Citrus Fruits Plant physiology - Growth and development	48	48	48	661 066,00
	Plant physiology - Nutrition Plant structure Integrated plant production	168	120	336	4 500 000,00
	Plant Genetics Plant genetics and breeding Integrated plant production	180	132	960	4 500 000,00
	Cropping patterns and systems Integrated plant production	108	84	300	2 000 000,00
	Food science and technology Integrated plant production	264	192	444	6 000 000,00
	Plant diseases Integrated plant production	108	84	360	2 000 000,00
	Mathematical and statistical methods Integrated plant production	60	48	72	1 000 000,00
	Natural resources Forestry	180	132	612	5 000 000,00



Coordination of the Agricultural Research In the Mediterranean Area

	Soil science and management Climatology	360	276	756	10 000 000,00
	Land economics and policies Rural sociology	132	96	408	4 000 000,00
	Mathematical and statistical methods Natural resources Development economics and policies Rural sociology Forestry	48	36	60	1 000 000,00
	Protection of plants - General aspects	540	480	1200	12 000 000,00
TOTAL					100 699 108€
CIRAD	Plant production - Plant protection	561	264	264	6 540 000,00
	Animal production	176	165	55	2 100 000,00
	Natural resources	132	99	44	1 540 000,00
	Food science - Food and agriculture policy	176	220	99	1 780 000,00
TOTAL					11 960 000€
CEMAGREF	Water Management, Water use efficiency, Irrigation, Agricultural practices				500 000,00
	Hydrology, Climate change, Remote Sensing				150 000,00
	Forest protection				450 000,00
	Crop management				450 000,00
TOTAL					1 550 000€
IRD	Water management/ water resources management				
	<ul style="list-style-type: none"> - <i>Dynamiques sociales de l'irrigation égyptienne</i> - <i>Développement des sociétés méditerranéennes et des territoires hydrauliques</i> - <i>Accord cadre de coopération dans les domaines de l'eau liés à l'agriculture la forêt</i> - <i>Transition nationale gouvernance urbaine et gestion de l'eau potable en ville au Maroc</i> - <i>Gestion intégrée de l'eau sur le bassin versant du Merguellil (MERGUSIE 2)</i> - <i>Urbanisation décentralisation et gouvernance des services collectives urbains. l'eau potable dans les métropoles urbaines</i> - <i>Analyses comparatives de développement agricole dans les systèmes irrigués à forte anthropisatio</i> 				
	Forestry				
<ul style="list-style-type: none"> - <i>Forêts rurales au Maroc et médiation autour du développement durable</i> - <i>Recherche/capitalisation sur les dispositifs de gestion concertée des ressources naturelles au Maroc</i> 					
Livestock products					
<ul style="list-style-type: none"> - <i>Valorisation des ressources locales du Sud Tunisien par l'élevage</i> - <i>Mutations des sociétés agro-pastorales et usages des ressources naturelles : recompositions socio-territoriales et stratégies de développement en zones rurales du Maghreb (recherche comparée sur l'oriental marocain et le sud-est tunisien)</i> 					



Coordination of the Agricultural Research In the Mediterranean Area

5. MAPPING OF RESEARCH FACILITIES:

All the organizations have research facilities or access to common facilities.
Most of these facilities are multi-owners or at least **multi-users**,

Concerning INRA, only the research facilities directly linked to the three regional and "Mediterranean" INRA centers have been identified but each INRA centers is an open door on the global potential of INRA. In this way, the real number of facilities available is in fact much more important than the one that we have described above.

5.1 Shared equipments

N° : 8

Owners : 5 INRA (PACA), 1 INRA (Montpellier)/CIRAD, 1 CIRAD, 1 IRD

Main subject areas :

- Climatology & Meteorology: 1 (INRA)
- Food composition : 1 (INRA)
- Plant diseases : 1 (INRA)
- Plant Genetics, Genetics : 1 (INRA)
- Plant structure, Plant morphology ;Plant histology; Plant tissue analysis : 1 CIRAD + 1 INRA/CIRAD
- Soil Management/ Soil science : 1 (INRA)
- Microbiology, Biotechnology, Plant genetic resources and breeding, Plant ecology :1 (IRD)

Only a restricted access is possible.

The majority of the shared equipments are located on and tightly linked to the technology platforms (the thematic are therefore the same)

Details/Description :

CIRAD :

- Histocytology and Plant Cell Imaging Platform:in situ and in vivo visualization of the main molecules of living organisms, Photonic microscopy (video microscopy, multiphotonic microscopy, real time microscopy), Plant tissue observation (INRA/CIRAD)
- Phenotyping Platform (PhenoArch) - Montpellier , High-throughput phenotyping of cultivated plants

INRA PACA:

- Climatology (& Meteorology)
- Food composition
- Plant diseases
- Plant Genetics, Genetics
- Soil Management/ Soil science

IRD: International mixt laboratory LBMV : Laboratory of microbial and plant biotechnology (LBMV) with the university of Mohamed V – Agdal (Rabat, Maroc)

5.2 Experimental stations

N° : 8

Owners : INRA, CEMAGREF, CIRAD

- INRA : 6 stations INRA : 3 stations in INRA PACA (plant genetics; plant diseases; forestry) and 3 stations in INRA Montpellier (Wines in Pech Rouge; Soils in Roujan; Cereal and genetics in Mauguio))
- CEMAGREF (1) : Test facility for irrigation systems
- CIRAD (1): Technology hall for agro and agrofood processing



Coordination of the **Agricultural Research In the Mediterranean Area**

Main subject areas :

- Forestry production: 1 INRA
- Genetics Cereal crops : 1 INRA (Mauguio)
- Irrigation : 1 CEMAGREF
- Plant diseases : 1 INRA (PACA)
- Plant Genetics and breeding : 1 INRA (PACA)
- Soil; Soil water INRA (Roujan)
- Wine Wines ; Vineyards: 1 INRA (Pech Rouge)
- Food processing equipment CIRAD
- Food processing CIRAD
- Food technology CIRAD
- Technical development CIRAD

5.3 Animal research facilities

N°:2

Owner : CIRAD

Main subject area :

- Animal diseases ;
- Animal pathology;
- Animal viruses

Details/Description :

CIRAD :

- “Regional Automatic Animal and Zoonotic Disease Diagnosis Platform” - Montpellier
- “Animal Feed Analysis Platform” - Montpellier

5.4 Engineering prototypes

N°:1

Owner : CIRAD

Main subject area :

- Food processing ;
- Food processing equipment

Details/Description :

CIRAD :

- “Agrifood technology platform”

5.5 Pilot plants

No organization have pilot plants

5.6 National Reference Centres

N°:1

Owner : INRA

Main subject area :

- Genetics,
- Plant Genetics
- Genetic resources conservation

Details/Description :

INRA :

- “Centre de ressources génétiques” : french center of management of the genetic resources for the agriculture, the environment and the industry



Coordination of the Agricultural Research In the Mediterranean Area

5.7 Renewable energy facilities

N° :1

Owner : CIRAD

Main subject area :

- Biomass ;
- Renewable energy;
- Energy production

Details/Description :

CIRAD

"Biomass energy platform that studies the biomass thermochemical conversion processes"

There is no open access

5.8 Biohazard facilities

N° :4

Owner : 2 CIRAD and 2 INRA

Main subject area :

- Biology , Environment, environmental biology, plant biology: 1 CIRAD
- Pest Control, Pests of plants : 1 CIRAD
- Plant diseases : 1 INRA
- Plant Genetics , Genetics : 1 INRA

Details/Description :

CIRAD :

- Biology and genetics for plants integrated protection platform
- Laboratory of tropical and mediterranean symbioses

5.9 Database services

N° :4

Owner : 2 CIRAD and 2 INRA

Main subject area :

- Climatology, Meteorology : 1
- Soils Pedology: 1
- Bioinformatics: 2 CIRAD

Details/Description :

CIRAD :

- Platform for studying and safeguarding biodiversity
- Plantnet: collaborative network and informatics platform for botany tool and knowledge sharing

INRA :

- Meteorology (INRA PACA)
- Soils : "Infosols-BD-Sol, database containing a pedological study of the soils of the "Région Languedoc-Roussillon" (INRA Montpellier)

Access :

INRA

The platform dedicated to meteorology is in open access,

Part of the database BD sol is in open access (synthetic and partial data) but the other part is given on the basis of a contract,

5.10 Technology platforms

N° :17

Owner : CIRAD and/or INRA and other users

(4 CIRAD, 3 CIRAD/INRA and other users, 10 INRA and others users (5 PACA + 5 Montpellier))

Main subject area :

- Climatology Meteorology: 1
- Food composition : 1



Coordination of the Agricultural Research In the Mediterranean Area

- Food processing : 1
- Forest protection : 1
- Genetics, Phenotypes: 1
- Molecular biology
- Plant Genetics Plant breeding, Genotypes, Cloning, Genomics, Transgenic plants : 2
- Pollution Pollution control, Biotechnology : 1
- Water Management Water resources: 1
- Imagery, Biology, Cells : 1
- Software development, Decision support tools, biodiversity: 1
- Proteins, 1
- Polyphenols, 1

Details/Description :

INRA PACA :

- Plant genetics;
- Food composition;
- Water resources;
- Meteorology and climatology;
- Forest injuries and protection

INRA Montpellier :

- "Protéomique" : Proteomics ; Dynamic characterization of the active forms of proteins in phase post reduction INRA (CNRS/UM1)
- "Polyphenols" : analysis of the phenolic composition of products of vegetable origin, in connection with their food valuation or not (INRA/SupAgro)
- Biotechnologies of the pollution control (INRA)
- Software platform as tool to support the strategy definition, for the study and the protection of the biodiversity (INRA)
- "From the gene to the integrated phenotype" : analysis and modelling of the adaptative answer of plants in environmental suboptimal conditions (INRA/ CNRS/Sup Agro,,)

INRA/CIRAD & others :

- Division of the plant products and capacities of raw materials in the processing (INRA /CIRAD/SupAGro) (*Fractionnement des végétaux et aptitude des matières premières à la transformation*)
- "RIO Imaging" : Confocal imaging for the integrative biology, histology and vegetable cellular imaging (INRA/CIRAD/,,)
- Regional Genotyping-Sequencing-Cloning Platform, Structural genomics and identification of molecular polymorphisms for plant conservation and genetic improvement, Development of Mediterranean and tropical plant genetic transformation methods, Functional analysis of genes, Structural analysis of the genomes of the plants and research for the polymorphism (CIRAD/INRA/IRD,,)

CIRAD

- Platform for Polyploidization and Flux Cytometry Applied to Plant Biodiversity , Polyploidization, determination of ploidy levels, AT-GC base content and DNA content using cytometry
- Organic Matter Characterization Platform - Montpellier , Characterization and determination of the potential of organic products: agricultural value, environmental risks
- Water, Soil and Plant Analyses - Montpellier , Analyses, leaf analyses
- Phenotyping Platform (PhenoArch): high-throughput phenotyping of cultivated plants

Only a restricted access is possible,

5.11 Others

N° :3

Owner : 1 CEMAGREF, 1 INRA Corsica, 1 CIRAD



Coordination of the **Agricultural Research In the Mediterranean Area**

Main subject area :

- Information (*information system, monitoring*), Remote Sensing: 1 CEMAGREF
- Citrus; Genetic resources conservation : 1 INRA
- Detection and diagnostic of diseases, purifying, transfer of vegetal material : 1 CIRAD

Details/Description :

INRA : The San Giuliano (Corse INRA centre) research unit is the national research centre on the citrus (INRA and CIRAD) and hosts the CRB Citrus

CEMAGREF : Remote Sensing Center (Maison de la télédétection)

CIRAD : Plant quarantine

Access for the national research centre on the citrus : scientific use; collaboration programmes open access



Coordination of the Agricultural Research In the Mediterranean Area

6. MAPPING OF TRAINING SCHEMES:

The training scheme is described in the Annex 2 (main actors...).

Apart from CIHEAM, one other actor has been identified to have a Mediterranean specificity: Montpellier SupAgro. In order to illustrate how can be built the collaboration with Mediterranean area, we propose to make a special focus on this institution, below.

6.1 Zoom on a major Mediterranean actor of training: Montpellier SupAgro

6.1.1 An International Centre for Higher Education in Agricultural Sciences⁷

Montpellier SupAgro has been created in January 2007 as a single unit combining the four former institutions,

- Montpellier National Superior School of Agronomy
- The National Center for tropic and sub-tropic environments
- The National Superior School of Agro Food Industry's Division for tropical and subtropical regions
- Florac Pedagogical Teaching Experimental Center

This institution is under the trusteeship of the ministry of agriculture and fisheries.

It gathers about:

- 100 teacher- researchers among 350 academic staff,
- 1250 students,
- 21 Associated Joint Research Units (UMRs) with a wide range of high-level scientific skills

The thematic areas are comparable to the ones of CIRAD and INRA as long as SupAgro is associated through UMR (Joint Research Units) to these institutions,

The **activity of training** is constitute by a full training course program, three engineering degrees, a significant amount of preliminary and permanent courses registered to the European referential framework (Bachelor, Master, PhD), two institutes offer a joint study course and an expertise graduate education : University Institute for Tropical Agrofood Industries and Rural Development (IRC) and Institute of Higher Vine and Wine Studies (IHEV),

Montpellier SupAgro also enhances the development of activities destined to the **transfer of technologies, the assessment of cognizable research, support to the innovation and creation of businesses and firms, dissemination of technical and scientific knowledge**, A preferential association to the INRA (French National Institute for Agricultural Research) and CIRAD (French Agricultural Research Centre for International Development) is committed to a more fair trade and sustainable development,

6.1.2 A leading institution in teaching and research, widely open to the international exchanges and especially to Mediterranean and Tropical Environments⁸

This institution is especially opened to foreigner students: in 2008-2009, 300 foreigner students were registered in Montpellier SupAgro, which represents 27% of the total number of students of Montpellier SupAgro. The international mobility is therefore very important: the national average percentage in the

⁷ <http://www.supagro.fr/web/pages/?idl=20&page=455>

⁸ Michèle Issaly, Jérôme Thonnat, 2009. Rapport Bilan sur les étudiants étrangers inscrits à Montpellier SupAgro, année universitaire 2008-2009, Direction des relations internationales. nov. 2009



Coordination of the Agricultural Research In the Mediterranean Area

universities for example was in 2007-2008 of 16%.⁹ They came from 66 different countries. Among the 300 foreigner students, 123 are native of non French-speaking countries. About a third part of them study in master, 28% in Phd, 26% in Engineer programme and 14% long life learning certificates. More than one half of this global number of foreigner students (59%) comes from Africa and 37% from West and Central Africa. These special relationships are probably linked to the History and the specificity of the institutions which founded Montpellier SupAgro (CNEARC and ENSIA-SIARC).

Among the 300 foreigner students, 74 were coming from Mediterranean countries (about 24,67%):

- Algeria 17
- Tunisia 16
- Morocco 14
- Italy 10
- Spain 6
- Greece 4
- Portugal 1
- Lebanon 3
- Syria 3

6.1.3 Various modalities of the Mediterranean collaborations¹⁰

University partnerships with the Maghreb

The relationships between Montpellier SupAgro and the agricultural centres for higher education of Maghreb countries are old and plentiful. Special collaborations exist:

- in Morocco, with the IAV Hassan II, Ecole nationale d'Agronomie de Meknès, Ecole forestière de Salé, SupAgro Casablanca, Universities of Agadir and Marrakech
- in Algeria, with the Institut national d'agronomie d'Alger-El Harrach, Universities of Tizi Ouzou, Blida, Briska et de Bejaia, ENS of Koulba
- in Tunisia, with the Institut national agronomique de Tunis, Ecole polytechnique of Tunis, Institut supérieur agronomique of Chott Meriem, University of Tunis El Manar, of Sfax.

For several years, Montpellier SupAgro has been practicing cooperation with the Tunisian academic and scientific environment (Universities, Education centres, Research institutes).

In the area of plant biology for example (physiology, ecophysiology, ecology, microbiology of soils), at least 9 professors of Tunisian high education had been trained in the laboratories of SupAgro. In this only area, the quantity of actions towards Tunisia these last few years involved about 20 Tunisian students per year as well as 5 to 6 Tunisian teacher-researchers.

Several activities of collaboration:

- Relocated collective training courses: co-organization of training programs associating students coming from North and South of the Mediterranean (2 courses per year in Morocco; Thematic area: Social management of water)
- Individual training courses for master students in Morocco and Tunisia (6 months)> 3 to 5 courses per year; Thematic area: Social management of water)
- Co-supervision of or collaboration on PhD (15 to 20 PhD on going each year among which the half is co-supervised, in Algeria, Morocco or Tunisia)
- Relocated long life learning training for local actors (1 or 2 weeks, once a year, in Morocco; Thematic area : Tools of analysis and diagnosis of the systems of production)
- Missions of expertise, from 1 to 3 weeks, in Algeria or Morocco, twice a year; Thematic area : Social management of water, engineering of training, analysis of the systems of production
- Punctual missions of teacher-researchers of Montpellier SupAgro in Algeria, Morocco or Tunisia (about 40 missions per year, from 230 to 250 days of mission)
- Support to system of training

⁹ Source : Rapport DGER coordonné par Jean Metge-juin 2009

¹⁰ Source : Note de synthèse sur les partenariats de Montpellier SupAgro, Formation- Bassin Méditerranéen, Jérôme Thonnat, 2009



Coordination of the Agricultural Research In the Mediterranean Area

Montpellier SupAgro is also the main partner of Averroes program (External Cooperation Window) coordinated by the University Montpellier II: it finances student and researcher mobilities between institutions of Europe and Maghreb (67 mobilities from Maghreb and 3 to Maghreb realized in this context for the past two years in these three countries),

University partnerships with South of Europe

The main partnerships with universities are with:

- in Spain, ETSIA Madrid, Valencia, Cordoba, Universidad de Almeria, Universidad de Lleida
- in Italy, Università degli Studi Bologna, Udine, Catania
- in Portugal, UTAD Vila Real, University of Porto

Via "Erasmus", European program of student's exchange, 11 students came from Spain over 5 years, and 31 French students went to Spain.

Montpellier SupAgro also coordinates two European Masters certified "Erasmus Mundus":

- Master Agris Mundus (30 students per year), within the framework of a consortium of universities including the Universidad Politécnica de Madrid (3-6 students per year) and the University of Catania (3-7 students per year)
- Master Vinifera (20 students per year), within the framework of a consortium of universities including the Universidad Politécnica de Madrid (2-4 per promotion), Universities of Udine and Turin (1-2), University of Porto (0-7)

6.2 The International opening as a priority goal for Higher Education Centres to foreigner students

The International cooperation is one of the missions of the French Agricultural Centres for Higher Education. All of them declare in their institution's communication (website...) that this opening is a priority, for the quality of the training of the students as well as for the international visibility of their institution, especially of their research activities. They all have engaged a diversity of partnerships with foreigner (among which Mediterranean) institutions.

For example:

- AgroParistech hosts 250 foreigner PhDs and students (20% of the total). It has among its partners in 2008: 23 Higher Education centres of North and South Mediterranean, 9 of Spain, 1 of Greece, 6 of Italy, 2 of Portugal, 3 of Lebanon, 1 of Morocco (IAV Hassan II) and 1 of Tunisia (Exchange agreement, Erasmus exchanges...),¹¹

- In the ENSAT about 15 % of the students come from other countries (from nearly 40 different nationalities). The ENSAT propose for example three Graduate Programs in English. Concerning their research activities, it has special relations with some Mediterranean countries such as: Morocco (Marrakech and Fès Universities), Algeria (Ecole Normale Supérieure d'Alger), and Spain (CSIS / Universidad Politecnica de Valencia).

Bias of the survey concerning training schemes

INRA:

For INRA, numbers of grants declared in the database give an "underestimated estimation" of the number of foreigner students coming from the Mediterranean area to work in INRA.

The global number of fellowships and grants given to foreign students and researchers for 2009 in INRA is 1820 (it covers pre-PhD, PhD and post- PhD). Among this 1820 persons, 616 are coming from the Mediterranean area (that represents 33,85% of the total numbers of foreign grant holders):

- Mediterranean countries inside of Europe (Countries lining the Mediterranean coast): 243 grant holders (205 are coming from Spain and Italy and the others from Cyprus, Greece, Malta and Portugal)

¹¹ Source: http://www.agroparistech.fr/IMG/pdf/Accords_echanges_AgroParisTech_07-08_INTERNET.xls.pdf



Coordination of the **Agricultural Research In the Mediterranean Area**

- North and South Mediterranean countries outside of Europe (not only littoral countries): 373 grant holders (110 are coming from Algeria, 56 from Morocco and 115 from Tunisia; the others are coming from Albania, Croatia, Egypt, Israel, Jordan, Lebanon, Serbie-Montenegro, Syria and Turkey)

6.3 Master courses

The research organizations contacted do not organise master courses: they host students during their training course and the researchers often contribute to educational contents, teach for master students, As only one high school institution has been contacted, the data is not representative of the national training scheme; this data has been difficult to gather.

Nevertheless, this higher education school has in France an important role in the Mediterranean collaborations regarding training.

Beside, IRD participate to projects to improve implementation of master courses and gives master courses (1240h)

Main subject area (IRD) :

- Biology
- Agricultural engineering
- Geography
- Environment
- Land cover and land use

Position's N :

SUPAGRO :

25 (on 96 foreigners students and on 209 students)
12 (Morocco, Tunisia, Algeria) + 13 (Spain, Greece, Italy)

IRD : NR

6.4 PhD courses

Main subject area

- Irrigation : 1
- Water Management Water use efficiency: 2
- Ecosystems management,
- Biotechnology
- Biology

Per institution:

CEMAGREF: Water management, Water use efficiency, Irrigation

IRD: Ecosystems management, Biotechnology, Biology

Position's N :

- CEMAGREF: NR
- IRD: 158h

6.5 Fellowships

Main subject area

CIRAD

- Animal diseases : 1
- Biotechnology : 1
- Climate change : 1
- Genetics : 1
- Pests of plants: 1



Coordination of the Agricultural Research In the Mediterranean Area

- Water resources management: 1

IRD

- Desertification/ agriculture/ development: *Valorisation de la truffe des sables (Terfezia spp.) pour lutter contre la désertification dans les zones pré-Sahariennes marocaines - MAROC*
- Participation/Irrigation/development : *Utilisation conjointe de modèles économiques et géographiques dans une approche participative de l'aménagement du territoire. Application du périmètre irrigué du Ghard – MAROC*
- Water resources and management: *Rôle de l'érosion ravinaire dans l'envasement des retenues collinaires dans la Dorsale Tunisienne et le Cap Bon – TUNISIE*
- Biological control : *Caractérisation biologique et moléculaire d'un agent de lutte biologique zoophytophage: Macrophus caliginosus - TUNISIE*

Position's N

CIRAD: 30 > Budget: 660 000€

IRD: 4 > Budget : 33 333€ per year, 100 000€ for 3 years

Total : 34 > Budget : 760 000€

6.6 Young researcher grants

Main subject area (except IRD)

- Agriculture : 1
- Animal diseases : 1
- Animal diseases and control : 1
- Biotechnology : 1
- Economics : 1
- Environment : 1
- Food science : 1
- Food science and technology : 1
- Genetics : 1
- Land economics and policies : 1
- Natural resource conservation : 1
- Nutrition : 1
- Water resources management : 1

Per institution

CIRAD: Genetics, Biotechnology, Natural resource conservation, Land economics and policies, Animal diseases and control, Food science and technology, Water resources management

INRA : Agriculture Environment Food Nutrition

IRD :

- Bioconversion/ aromatics structures: *Bioconversion de Structures Aromatiques en Milieux Extrêmes – TUNISIE*
- Symbiosis/ Mycorrhize/ Rhizobium: *Symbioses mycorrhiziennes et rhizobiennes MEDiterranéennes - ALGERIE*
- Governance/maritime environment /littoral environment: *Gouvernance de l'environnement marin et littoral en Algérie - ALGERIE*

Position's N

CIRAD : 10 > Budget : 400 000€

INRA : 107 > Budget : 3 859 832 (per one year, average cost)

IRD : 3 > Budget : 54 783€ per year, 164 350€ for 3 years (running costs, equipment, travels, conference organisations costs)

SUPAGRO : 25

17 Morocco, Tunisia, Algeria +3 (Spain) + 5 (Libanon, Syria) (on 83 foreigners students and 172)

Total : 145 > Budget : 4 314 615€ (SupAgro-no data concerning budget)



Coordination of the Agricultural Research In the Mediterranean Area

6.7 Senior researcher grants

IRD

Grants for scientific and technological exchanges

- Plant/ Lead : « *Caractérisation et valorisation des plantes hyperaccumulatrices de plomb originaires du Maroc* » MAROC

- Cistus/ shrubs/ forest ecosystems: « *Rôle des arbustes du genre Cistus en tant que plantes nurses dans les écosytèmes forestiers du Haut Atlas marocain : exemple de l'association Cistus spp/Chênes sclérophyllés* » MAROC

N°: 2

Budget: 40 000 Euros for four years

(travel expenses-1A/R par an + visa + social protection+...)

6.8 Other

The IRD finances also summer school like the training school for the study of the ecosystems of South Tunisia - TUNISIA, 3 900 Euros



Coordination of the Agricultural Research In the Mediterranean Area

ANNEXES

ANNEX 1: Sources and contacts

ANNEX 2: Agricultural research system in France

ANNEX 3: Plates-formes du dispositif agronomique montpelliérain (2008)

ANNEX 4: Links of the joint research units of Montpellier with the Mediterranean basin



Coordination of the Agricultural Research In the Mediterranean Area

ANNEX 1 : Sources and contacts

Sources

Inspection générale de l'administration de l'Éducation nationale et de la Recherche, 2006, La Gestion par l'INRA de certains programmes de l'Agence nationale de la recherche, Rapport à monsieur le ministre de l'Éducation nationale, de l'Enseignement supérieur et de la Recherche à monsieur le ministre délégué à l'Enseignement supérieur et à la Recherche, Rapport - n°2006-099, décembre 2006,

Jérôme Thonnat, 2009, Note de synthèse sur les partenariats de Montpellier SupAgro, Formation- Bassin Méditerranéen,

Michèle Issaly, Jérôme Thonnat, 2009, Rapport Bilan sur les étudiants étrangers inscrits à Montpellier SupAgro, année universitaire 2008-2009, Direction des relations internationales, nov, 2009

Rapport annuel 2008, Agence Nationale de Recherche,

Agri-Food Research in Europe: country reports, in <http://www.europartnersearch.net/eu-agri-mapping/>, Déc, 2007

Research and Innovation in France, Ministry of Higher Education and Research, www.enseignementsup-recherche.gouv.fr, juin 2008

Websites

Research Institutions

INRA- <http://www.inra.fr/>

CIRAD- <http://www.cirad.fr/>

CEMAGREF- <http://www.cemagref.fr/>

IRD- <http://www.ird.fr/> (<http://www.ird.fr/l-ird/rapports-d-activite-annuels/2009>)

Funding agencies

ANR- <http://www.agence-nationale-recherche.fr/>

AIRD- <http://www.aird.fr/>

Centres for Higher Education

Montpellier SupAgro- <http://www.supagro.fr/>

AgroParisTech-<http://www.agroparistech.fr/>

AgriSupDijon-<http://www.agrosupdijon.fr/>

Ensatis-<http://www.ensatis.fr/>

Ministries

Ministère de l'Alimentation, de l'Agriculture et de la Pêche- <http://agriculture.gouv.fr/>

Ministère de l'Enseignement Supérieur et de la Recherche- <http://www.enseignementsup-recherche.gouv.fr/>

Ministère des Affaires étrangères et européennes - <http://www.diplomatie.gouv.fr/fr/>

Others Mediterranean nets, actors or projects

Atelier de réflexion prospective sur la Méditerranée (Mediterranean Foresight Workshop)-

<http://www.agropolis.fr/gestion-projets/atelier-reflexion-prospective-mediterranee.php>

Agropolis- <http://www.agropolis.fr/>

National Consortium for agriculture, food, animal health and the environment : Agreenium-

<http://www.agreenium.org/>

Contacts

IRD

- Alexandre Rizzo, Chargé de Mission "Organisations Multilatérales et Régionales", DRI - Délégation aux Relations Internationales, Institut de Recherche pour le Développement
- Ariel Crozon, Directrice adjointe - Secteur Europe, Délégation aux relations Internationales, Institut de Recherche pour le Développement



Coordination of the **Agricultural Research In the Mediterranean Area**

- Bernard Dreyfus, Directeur du Département Ressources Vivantes, Institut de Recherche pour le Développement (IRD)
- Eloise Gransagne, Task Manager, Département Soutien et Formation des communautés scientifiques du Sud (DSF)
- Hervé Tissot Dupont, Directeur du Département sociétés et santé (DSS), Institut de Recherche pour le Développement - IRD
- Pierre Soler, Directeur du Département Milieux et Environnement (DME), Institut de Recherche pour le Développement - IRD
- Thomas Changeux, Chargé de mission secteur écosystèmes aquatiques marins et continentaux, Département Ressources Vivantes, Institut de Recherche pour le Développement (IRD)

CIRAD

Michel Trebel

INRA

- Michel Ribard, Responsable Géographique, Mission des Relations Internationales
- Jean-Paul Aguadisch, Relations Internationales
- Yves Griveau, Secrétaire général et chargé de mission Inde et Pacifique Mission des Relations Internationales
- 3 Mediterranean Centres INRA: Michel Bariteau (President), Dominique Agostini (Presidente), Philippe Vissac (President), Magali Roubieu (deputy director of the administrative services)
- Magali Lacroix, Relations avec les établissements d'Enseignement Supérieur et de Recherche, Direction de l'Action Régionale, de l'Enseignement Supérieur et de l'Europe - DARESE
- Odile Vilotte, Agreenium - Cellule de coordination

CEMAGREF

- Kocher Nevine, Chargée de mission affaires internationales/international affairs, Direction des Relations Internationales

MONTPELLIER SUPAGRO

- Jacques Maillet, Directeur adjoint, Montpellier SupAgro
- Jérôme Thonnat, Directeur des Relations Internationales, Montpellier SupAgro

ANNEX 2: Agricultural research system in France



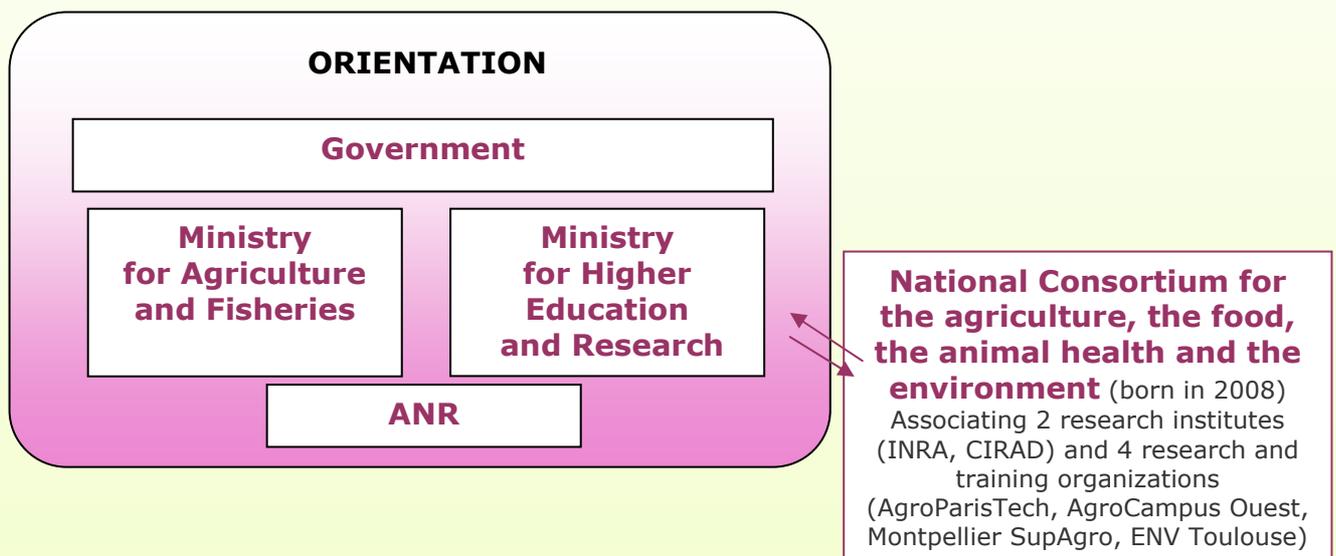
Who steers and defines the research policy?

The **Ministry of Higher Education and Research** devises, elaborates and implements the national research and innovation policy in collaboration with the **Ministry for Agriculture and Fisheries**.

The both ministries exercise the tutelage or co-tutelage of agricultural research organisms as INRA, CEMAGREF, Agricultural higher education institutions, CIRAD... (they build a four-year contract with the body, participate to the board of directors, frame their activities via the annual budget). The Ministry participates to the steering committee of the projects of the French National research Agency which concern its activity fields.. He has also a steering role on agricultural technical institutes (via "CAS DAR" funds in particular).

A **national Consortium for the agriculture, the food, the animal health and the environment** was born in 2009 and will also have a role in the agricultural research orientation collaborating with ministries to define the research policy. The Consortium associates two research institutes (INRA, CIRAD) and four research and training organizations (AgroParisTech, AgroCampus Ouest, Montpellier SupAgro, ENV Toulouse). The missions of the Consortium are the construction of strategies for common priorities to its members in the fields of development, formation and research; the improvement of the performance of the national agronomic research-formation-development device by reinforcing synergies between the members; the definition of concerted policies with the national scales

As regards private research, if the companies are autonomous in choosing their orientations, the incentive public policy can have an influence on it.



Focus on ANR, the National Research Agency

The creation of the National Research Agency ('*Agence nationale de la recherche*', <http://www.agence-nationale-recherche.fr>) in 2005 (as an anticipation of the 2006 Research Act) marked a major shift in the French research landscape. With an annual budget of ca. **825 M€ in 2007**, ANR plays a central role and is in charge of funding large scientific and technological research programmes. The funds are allocated to projects on a competitive basis. These projects are proposed by teams from research organizations and universities.

Some of these programmes directly address agricultural issues: Agriculture and sustainable development, Animal genomics, Plant genomics, GMO, Food.

Several other programmes deal with agriculture-related topics: biodiversity, climate change and environment, bioenergy, emerging diseases, etc.

The nature and orientation of these programmes provide an indirect way of appreciating the national trends and needs in agricultural research as well as its relative weight as compared to other research sectors.

As a side effect of the set-up of ANR, several former funding systems have disappeared or have been merged into it. However, some other funding systems have been maintained, such as those of ADEME (<http://www.ademe.fr>) for waste and energy matters, of the Ministry of Environment (<http://www.environnement.gouv.fr>) for environmental issues such as water quality, biodiversity, pesticide reduction, global warming, etc., and of most regions which specialize in funding PhD and post-doc fellowships as well as research facilities (e.g. scientific equipment). It is worth observing that the Ministry of Agriculture has a low capability to fund research and thus to explicitly direct it.

Where does the financing come from?

National spending in R&D is divided among the State and companies.

- **Public research laboratories** are partly financed by university budget allocations, public research organisations and financing agencies, including the National Research Agency (ANR). The Ministries finance directly some organisms (full cost model...) and also via calls for research proposal as via "CASDAR" fund for agricultural and rural development and targeted research (technical agricultural institutes...). The ANR provide funding based on calls for proposals and peer review selection processes. Public research laboratories benefit also from other subsidies from French Regions, charities, industries and Europe.

- **11 700 permanent public staff** (scientists engineers, technicians and administrative staff) in the organizations that fall under the joint supervision of the Ministry of Research and The Ministry of Agriculture as INRA (agriculture, food and environment), Cemagref (water, environmental engineering and risks) or AFSSA (food security and animal health) and IFREMER (fisheries, aquaculture and marine research).
- The global budget of the interministerial 'programme 187', under which most **agri-food research** falls, was **1.14 G€ in 2006**.
The global budget of 'programme 142' for **agri-food higher education, applied research and knowledge transfer**1 was **260 G€ in 2006**, out of which, 220 M€ for higher education and **40 M€ for applied R&D**.
- **Agricultural knowledge transfer:** a fairly fragmented system for higher education with more than 20 Colleges for 2,500 permanent staff and 14,000 students. Agriculture-related higher education is also carried out in a few other organizations but not, as such, in general universities. Development and extension are carried out by 60 technical centres and 122 district agriculture agencies for 600,000 farmers and 4,000 SME in agro-food

- **As regards private research**, the State, via the public establishment OSEO, supports innovation programmes created by SMEs. France's international appeal and its readiness to welcome foreign companies contribute to financing industrial research; via the ANR, addresses both public research institutions and industries promoting interaction between public laboratories and industrial laboratories through the development of partnerships.

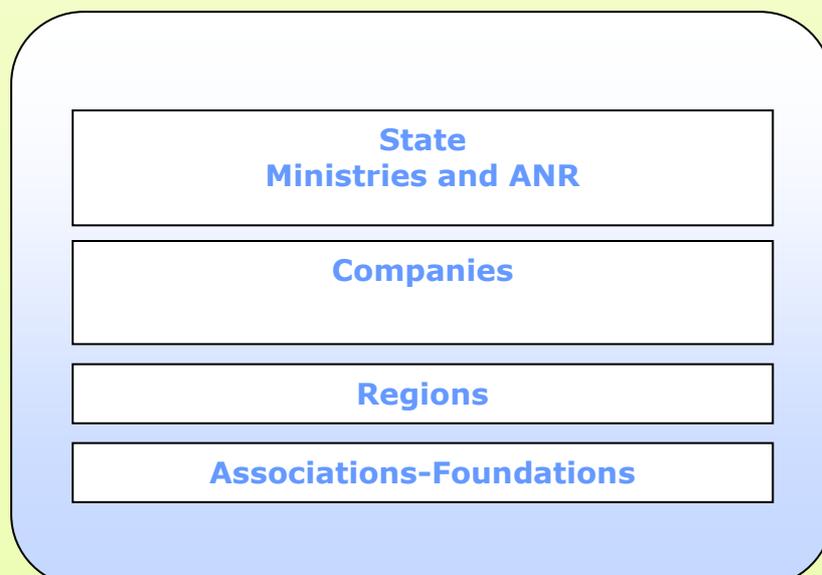
The State encourages also the private research and the partnerships public - private via simplification and increase of research tax credit, increased OSEO support for SMEs, attribute Carnot Institute labels and encourage contractual Research, assist in technology transfer, support joint research, support competitiveness clusters, increase the number of industrial agreements to train PhD students in companies, tax exemption of patronage to finance doctorates, grants for public research related business incubators, national star t-up competition, status of young innovative companies and young university company.

Private spending

The private enterprises spent in 2004:

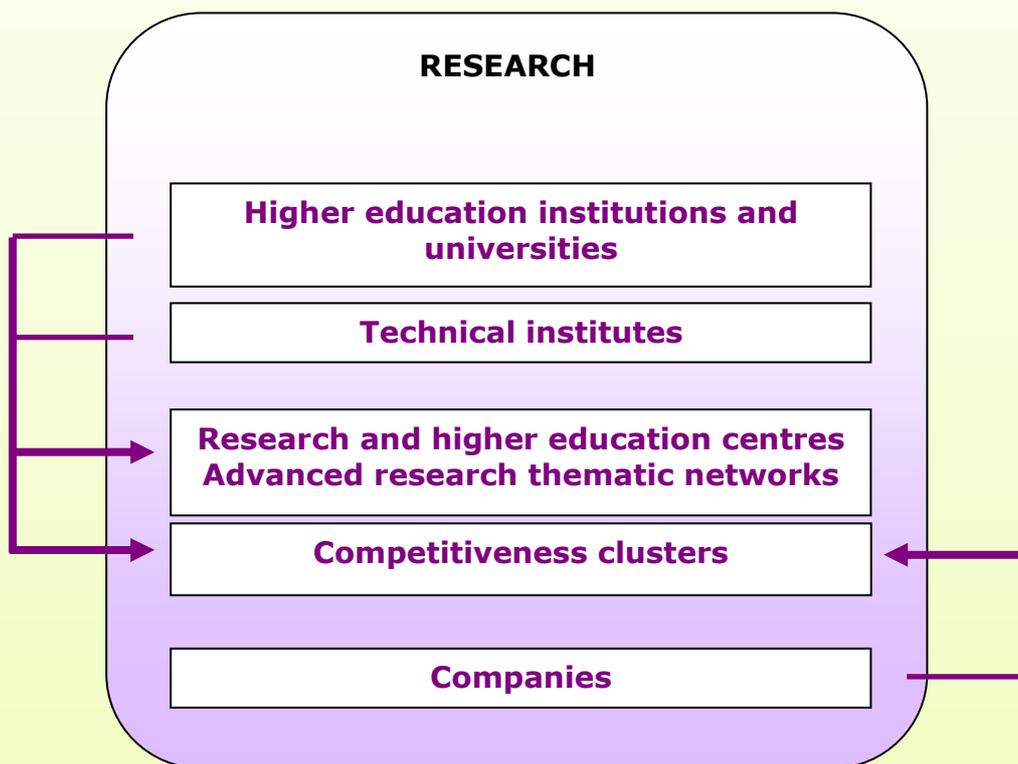
- 321 M€ in the fields of a agriculture, forestry or fisheries and aquaculture
- 491 M€ for agri-food

Respectively 1.4% and 2.2% of private enterprises funds



Who carries out research activities?

- **Public agricultural research** is lead mainly within multidisciplinary (as CNRS) or targeted (as Inra) research organisations, the technical institutes and the universities and higher education institutions. France employs 160,000 people (full time) in the public research field, including 96,000 researchers.
- Companies lead as well **private research** as "Limagrain"





Coordination of the Agricultural Research In the Mediterranean Area

Public goal-oriented scientific research

Table1 . Main national public research organizations which carry out research in the field of the agri-food sector.

Organization ^a	Specific features: location, and keywords for topics, disciplines and activities	Total annual budget ^b	Permanent staff ^b	Other staff ^b
AFSSA	<i>Location:</i> Paris and a few other sites in France <i>Areas:</i> food security, animal health <i>Disciplines:</i> life and food sciences <i>Activities:</i> mainly expertise and monitoring on the basis of scientific data and knowledge <i>Web site:</i> http://www.afssa.fr	80 M€	950	
Cemagref	<i>Location:</i> Paris and a few other sites in France <i>Areas:</i> environment, agriculture, water management, waste and environmental risks <i>Disciplines:</i> mostly engineering and environmental sciences and social sciences <i>Activities:</i> research, expertise and knowledge transfer <i>Web site:</i> http://www.cemagref.fr	66 M€	900	450 temporary staff 200 PhD students 40 post-docs
CIRAD	<i>Location:</i> Paris and Montpellier, ultraperipheric regions and foreign tropical countries <i>Areas:</i> agriculture, food, environment <i>Disciplines:</i> mostly life sciences and agricultural sciences, but also biotechnologies and environmental and social sciences <i>Activities:</i> research and development, in a context of international cooperation with developing countries <i>Web site:</i> http://www.cirad.fr	182 M€ (in 2005)	1,676	225 PhD students 10 post-docs 174 collaborators
IFREMER	<i>Location:</i> Paris and a few other sites along French coasts <i>Areas:</i> ocean and sea, coastal areas, exploration, environment, fisheries and aquaculture <i>Disciplines:</i> life and environmental sciences, marine sciences <i>Activities:</i> research, expertise, exploration and large-scale monitoring <i>Web site:</i> http://www.ifremer.fr	160 M€	1,385	320 persons in 'Genavir' shipowner
INRA	<i>Location:</i> Paris; 235 research units (including 148 joint research units with other organizations) located in 21 research centres; 60 experimental units covering an area of ca. 12.000 ha <i>Areas:</i> agriculture, food, environment <i>Disciplines:</i> mostly life sciences and agricultural sciences, but also biotechnologies and environmental and social sciences <i>Activities:</i> mainly research, but also innovation, expertise and foresight <i>Web site:</i> http://www.inra.fr	732 M€ (in 2007)	8,941 (1,875 scientists and 2,396 engineers) (48% of female)	1,300 temporary staff 1,600 PhD students

Some agri-food research is also carried out, as a side subject, in other organizations, which define themselves as **basic science research centres**, such as:

- CNRS ['Centre national de la recherche scientifique': <http://www.cnrs.fr>] for basic science, especially in the fields of ecology, plant and animal physiology and development, social sciences, physical and chemical processes, etc.;
- IRD ['Institut de recherche pour le développement': <http://www.ird.fr>] for international cooperation with developing countries in basic sciences, especially and in the fields of tropical botany, ecology, plant biology, soil sciences, aquaculture, etc.;
- MNHN ['Muséum national d'histoire naturelle': <http://www.mnhn.fr>] in the fields of biodiversity and conservation biology, especially in taxonomy and systematics;
- CEA ['Commissariat à l'énergie atomique': <http://www.cea.fr/>] for technology-driven basic science, especially in the fields of plant physiology.

Some agri-food research is also carried out in higher education organizations and in private industrial organizations (see below).

Applied R&D and knowledge transfer

R&D technical centres are semi-public organizations that are federated into three networks and which carry out user-driven short-term applied research and technology transfer:

- ACTA [<http://www.acta.asso.fr/>] federates agricultural technical centres;
- ACTIA [<http://www.actia2.w3sites.net/static/index.html>] federates agri-food technical centres;
- CTI [CTI: <http://www.reseau-cti.com>] federates other industrial technical centres, out of which two of them dealing with forest resources, cellulose fibers, wood and furniture (FCBA) and paper (CTP) fall within the scope of this report.

Private industrial R&D is recognised to be still underdeveloped in France. In the agri-food sector, there is a contrast between large international organizations which have their own international R&D system (e.g. Danone for food industry or Limagrain for seed industry in France), medium enterprises which have a French-based R&D system (e.g. Roquette, Soufflet, RAGT) and a large number of small enterprises which both lack inner R&D capacity and links with public research organisations.

The French agricultural, forest and veterinary higher education system is organized around a fairly large set of Colleges which deliver a Master diploma. These Colleges are located all over France (Paris, Montpellier, Nancy, Dijon, Rennes, Toulouse, Angers, Bordeaux, Clermont-Ferrand, Lyon, Nantes, etc.). Beside a few private Colleges and a few public Colleges which depend on the Ministry of Higher Education and Research, most of this system depends on the Ministry of Agriculture and Fisheries and is not part of the regular university system. However links have been developing between these Colleges and the neighbour Universities. These links are of particular importance for doctoral studies, which are organized around Doctoral Colleges ('*Ecoles doctorales*' [ED]) which cover broad topics and are usually under the principal responsibility of the universities: most of the agricultural, forest and veterinary Colleges have the right to deliver the PhD diploma under the Doctoral College of which they are part. But for ABIES doctoral college in Paris, there is no doctoral college specifically dedicated to the agri-food sector in France.

Table 2. Main players of the French agricultural, forest and veterinary higher education system (data are from 2005).

Organization ^a	Specific features: location, and keywords for topics, disciplines and activities	Total annual budget	Number of teaching staff ^b	Number of students ^c
AgroParisTech	Location: Paris Created in 2007 as the federation of INA-PG, ENSIA (Paris site) and ENGREF Web site: http://www.agroparistech.fr	—	ca. 200	ca. 2,000 (incl. 500 PhD st.)
Montpellier Sup-Agro	Location: Montpellier Created in 2007 as the federation of ENSA Montpellier, CNEARC and ENSIA (Montpellier site) Web site: http://www.supagro.fr/	—	ca. 100	ca. 764 (incl. 115 PhD st.)
ENSAT	Location: Toulouse Web site: http://www.ensat.fr/	—	ca. 100	ca. 900
INH	Location: Angers Web site: http://www.inh.fr/	—	ca. 50 (plus staff from the University)	ca. 450
AgroCampus Rennes	Location: Rennes Web site: http://www.agrocampus-rennes.fr/accueil.php	—	ca. 60	ca. 800 (incl. 150 PhD st.)
ENSBANA-ENESAD	Location: Dijon Web site: http://www.u-bourgogne.fr/ENSBANA/	78 M€ (in 2006)	ca. 100	ca. 800
Veterinary Colleges	Locations: Maisons-Alfort (Paris), Nantes, Lyon, Toulouse Web sites: http://www.vet-alfort.fr/ ; http://www.vet-nantes.fr/ ; http://www.vet-lyon.fr/ ; http://www.envt.fr/			
ESA Group (private)	Location: Angers Web site: http://www.groupe-esa.com/			

Reforms of the French research and innovation system since 2005

...with the objective to increase its performance, its visibility, and international influence of French research.

A new Research Act that was passed in the Parliament in 2006

Independent, high-performance universities

The law of 10 August 2007 regarding the liberties and responsibilities of universities reinforces the initiative abilities of universities in terms of education and research, and improves their visibility on the international scene.

Innovative cooperation instruments: to bring together the public research players, mutualise research and resources, to reinforce the bonds between research and higher education

Since the late 1990s, the general policy towards linking the research system with the academic system, also applied to agricultural research and education. This resulted in the creation of a high number of joint research units [UMR: 'unités mixtes de recherche'], e.g. between INRA and both agricultural colleges and general universities.

Considering the high level of fragmentation of the French agricultural, forest and veterinary higher education system, the Ministry of Agriculture and Fisheries has recently decided to strengthen **a limited number of regional academic clusters in Agronomy**. Beside the present size of these Colleges (e.g. staff number and amount of registered students), the links with agricultural, forest and veterinary research centres was one of the key criteria for choosing these poles. 7 such clusters were identified: Paris, Montpellier, Dijon, Toulouse, Nancy (mainly for forest and wood), Angers-Nantes-Rennes in western France and Lyon-Clermont. Two of these clusters have already emerged with a special status: Paris and Montpellier.

At the same time, the Research Act proposed a framework for creating **academic regional clusters for research and higher education (PRES: 'pôle de recherche d'enseignement supérieur')**: the first clusters have been created at the beginning of 2007.

The Research Act also provided the possibility to establish a few **highly competitive 'advanced research campuses' (RTRA: 'réseau thématique de recherche avancée')**: 13 such 'campuses' have been selected in 2006, Montpellier **being the sole one in the field of agri-food research** (with INRA, CIRAD and Montpellier Sup-Agro as the founding organizations); however, three other 'campuses' have links with the agricultural research system (INRA being a founding member of these three 'campuses'), in Lyon in the field of human and animal infectiology, in Paris and Toulouse in the field of economic sciences.

Simultaneously, the French Government established the concept of **competitiveness clusters ('pôles de compétitivité')** with the aim to foster innovation and the links between research and industry through innovation. More than sixty clusters have already been labelled: around 15 deal with the agri-food sector.

A **national Consortium for the agriculture, the food, the animal health and the environment**, born in 2009, associates two research institutes (INRA, CIRAD) and four research and training organizations (AgroParisTech, AgroCampus Ouest, Montpellier SupAgro, ENV Toulouse). The missions of the Consortium are the construction of strategies for common priorities to its members in the fields of development, formation and research; the improvement of the performance of the national agronomic research-formation-development device by reinforcing synergies between the members; the definition of concerted policies with the national scales...

Project Financing

The National Research Agency is at the centre of the French research system. Its mission: to finance the research projects selected based on excellent international criteria. The agency functions essentially on requests for proposals: it invested nearly €1.5 billion in two years.

Who does the evaluating?

The research and higher education evaluation Agency (AERES) independently evaluates the organisations and establishments of higher education and research, research activities and higher training courses. The ministry in charge of research implements evaluation procedures of the performance and effectiveness of the national research and innovation system.

The agency has been created in 2007. This creation was planned in the Research Act: this is another major change in the French research landscape. Most agricultural research organizations had already developed and implemented their own evaluation systems (at the individual and collective levels), which was not the case for Colleges and Universities¹. The impacts of the creation of AERES might thus be milder for the agricultural research system than for universities, but they are not yet known.

Source: *Agri-Food Research in Europe: country reports*, in agrifoodresearch.net, Déc. 2007

EVALUATION

**Research and Higher
Education Evaluation Agency**

INRA French National Institut for Agricultural Research

8,504 staff

- **8,504** tenured staff members as of 31 December 2007, 48% women. 1,828 scientists, 2,427 engineers, 4,249 technicians and administrative staff. Much INRA research requires technical or experimental facilities for crops of agricultural interest or livestock. Because staff with appropriate training is needed to run these facilities, INRA has a higher percentage of technical staff than most other research organisations.
- **1,784** PhD students at INRA in 2006-2007 and a large number of predoctoral and postdoctoral students, including 58 foreign predoctoral and 133 post-doctoral students financed by INRA in 2007, as well as 97 postdoctoral students financed by the Ministry of Research. These future researchers actively contribute to research at INRA whilst receiving training.

Financial resources

- **€800.5** million budget for 2007, including €59.7 million brought forward from 2006.
- **81%** of INRA's resources come from the Ministry of Higher Education and Research and the Ministry of Agriculture and Fisheries, **12%** are from grants or funds for research activities or contracts, **5%** from provision of services, symposia and product sales.
- Staff costs represent **68%** of expenditure, operating costs **19%**, collective infrastructure and computer services **9%** and property costs **4%**.

Missions: To combine scientific excellence and the social objectives of research

- To produce and disseminate scientific knowledge
- To develop innovations and know-how for the benefit of society
- Through its expertise, to inform decision-making by public and private sector players
- To develop scientific and technical culture and participate in the science/society debate

A renewed management structure in response to the challenges of science and society

In 2004, the management structure of the Institute was modified, as was the research system, with the reorganisation of scientific divisions and the creation of three federative research programmes (open to the entire scientific community) in the areas of environment, food and nutrition, and agriculture and sustainable development. The latter two programmes now form part of the programme of the National Research Agency (The Public Interest Group known as the Agence Nationale de la Recherche) which was set up in February 2005. INRA is responsible for the management and scientific organisation of these programmes, along with five other programmes in

Key Focus Areas for 2006-2009

- Preserving the environment and creating productive rural areas
- A healthy, balanced diet
- Quality processed products that are competitive on the market
- Furthering our knowledge of living organisms
- Innovative and sustainable farming systems
- Analysis of sectors and public policies

Research at INRA is organised into 14 scientific divisions

- Nutrition, Chemical Food Safety and Consumer Behaviour
- Plant Biology
- Science and Process Engineering of Agricultural Products
- Forest, Grassland and Freshwater Ecology
- Environment and Agronomy
- Animal Genetics
- Plant Breeding and Genetics
- Applied Mathematics and Informatics
- Microbiology and the Food Chain
- Animal Physiology and Livestock Systems
- Animal Health
- Plant Health and Environment
- Science for Action and Sustainable Development
- Social Sciences, Agriculture and Food, Rural Development and Environment.

INRA

Research axes 2006-2009

Environment and rural space

- To study the management and exploitation of biodiversity through farming and forestry, and act to protect aquatic environments.
- To identify means to adapt to global changes: climate change and extreme events, new health pressures, the transformation of practices and land use.
- To reduce pollutant and toxic inputs: minimise pesticide use and develop integrated crop protection systems
- To study systems to produce biofuels, biomolecules and plant biomaterials.
- To analyse the spatial organisation of production systems, ecosystems and landscapes.
- To identify interactions between ecological dynamics, the behaviour of human actors and public or collective decision-making.

Human diet and nutrition

- To develop the integrated analysis of consumer behaviour.
- To explain the impact of foods and diet on physiological and psychological functions.
- To understand the mechanisms underlying the development of food quality.
- To evaluate and prevent risks in the food industry.
- To study instruments for nutritional policies.

Agricultural products, their processing and characterisation

- To meet demands for product quality adapted to current objectives, particularly with respect to products with official certification (AOC, etc.) or "green chemistry"
- To place interdisciplinarity at the heart of quality questions.
- To develop new diagnostic, modelling and process management tools and technologies.
- To pay particular attention to the qualification and segmentation of sectors, based on the provisional economic analysis of markets.

Generic research

- To develop high-throughput approaches and invest in high technology tools to understand the structure and functioning of genomes in model species and species of agronomic interest.
- To pursue research in structural genomics: comparative mapping in species of agronomic interest, sequencing of microbial, animal and plant species and their pests, and research on molecular markers.
- To understand the role of genes and their interactions, notably with the aim of improving reproductive biotechnologies.
- To develop research on epigenetic phenomena.
- To design technologies and methods which will enable the improved description, modelling and understanding of living organisms at different levels of organisation.

Innovative and sustainable farming systems

- To reduce inputs in agriculture by improving the feed efficiency of animals and plant stress tolerance, and by reducing the use of plant health and veterinary health products.
- To design innovative and sustainable production systems which take account of the diversity of evaluation criteria concerning sustainability.
- To reorient breeding methods by "re-exploring" the diversity of genetic resources and the domestication of fish species.
- To improve animal health and wellbeing, and prevent and treat animal and plant diseases based on a knowledge of pests and pathogens and host responses.
- To decipher genotype-environment interactions and control the dynamics of epidemics, from an understanding of biological and ecological mechanisms to the global evaluation of the costs and benefits of the actions undertaken.

Strategy and organisation of actors, public policies

- To understand the organisation, decision-making processes and performance of markets, farms, companies and institutions, with the intention of analysing interactions between public interventions and the strategies of private sector actors.
- To analyse and evaluate national and international public policies and the interactions between farm policies and those relative to diet and nutrition, the environment and rural development.
- To analyse the effects of public policies on international trade, the dynamics of developing countries, the location of productive regions and the territorial insertion of agricultural and agri food systems, and their importance in terms of equity, justice and reducing poverty.
- To analyse the interactions between social and economic systems or technical and ecological systems with respect to the definition of policies.
- To question the relationships between science and society from the theoretical and methodological points of view.

CIRAD

French Agricultural Research Centre for International Development

a targeted agricultural research organization committed to ensuring that its capacity to imagine the farming systems of the future benefits the world's poorest populations, sustainable development and global public goods.

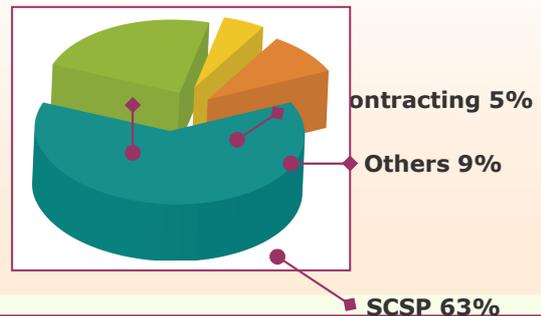
CIRAD is an industrial and commercial public establishment (EPIC), placed under the joint authority of the Ministry of Higher Education and Research and the Ministry of Foreign and European Affairs.

A mandate

- To contribute to rural development in tropical and subtropical countries through research, experimentation, training operations in France and overseas, and scientific and technical information, primarily in the fields of agriculture, forestry and agrifoods,
- To provide training through research and disseminate scientific and technical information to benefit development,
- To support public policy in terms of research for development in both North and South.

A budget of 203 million Euros

- Contractual resources: 37%
- Grant for public service costs (SCSP): 63%



A strategy

An agricultural research needs to focus on three inextricably linked issues:

- the human and social issue: access to food, consumption patterns, and food safety and security,
- the environment and energy issue: designing new agricultural production systems aimed at preventing environmental risks while ensuring that countries in the South can exploit the natural resources they need for their development,
- the governance and public policy issue: alleviating poverty and overcoming structural inequalities as the preferred means of preventing and resolving conflict (riots over hunger issues, territorial conflict, etc).

Based on these three issues, CIRAD has drawn up six strategic lines of research:

- Inventing ecologically intensive farming systems to feed the world
- Analysing the conditions for the development of biofuels and ensuring that they benefit people in developing countries
- Innovating, to make food accessible, varied and safe
- Foreseeing and managing infectious disease risks linked to wildlife and domestic animals
- Supporting public policies aimed at reducing structural inequality and poverty
- Understanding relationships between agriculture and the environment and between human communities and nature better, so as to manage rural areas sustainably.

3 departments and 52 research units :

- 22 joint research units
- 3 international research units
- 27 internal research units
- 4 service units

A staff of 1800, including 850 researchers :
1200 staff members in metropolitan France, 600 staff members outside metropolitan France (400 in the French overseas regions, 200 in other countries)

Biological Systems Department

This Department conducts research on the living world, its characterization and its exploitation: from the diversity, biology and functioning of organisms to the relations between them and with their environment.

The performance of Tropical Production and Processing Systems Department

This Department centres its research on biological processes in interaction with environmental conditions and technical interventions.

The environments and Societies Department

This Department centres its research on the relations between agriculture, natural resource management and social dynamics, and the links with public policy.

IRD Institut de recherche pour le développement

A mandate

- The IRD is a French public science and technology research institute under the joint authority of the French ministries in charge of research and overseas development.
- The IRD has **three main missions**: research, consultancy and training. It conducts scientific programs **contributing to the sustainable development of the countries of the South**, with an emphasis on the **relationship between man and the environment**.

The IRD's scientific activities are organised through **5 departments**:

Earth and Environment

Societies and Health

Expertise and consulting

Living Resources

Support and training

The Institute in figures (as of 2000)

A total budget of € 177 millions.

2 187 employees of whom 1,634 are tenured staff, including:

- **831** researchers
- **803** engineers, technicians and administrative staff **553** of various status
- **40%** of permanent staff posted overseas, mainly in Africa, the DOM-TOMs and Latin America
- **30** visiting research associates, **19** of whom are new researchers from universities and research institutes

Establishments in 23 tropical countries

- **5** sites in mainland France and **5** in the DOM-TOMs
- **97** research and service units
- **34** consultancies
- **57 300** references of IRD researchers' publications in the bibliographic data base Horizon
- **20 000** photographs illustrating IRD research

9 main research fields:

1 - Tropical climate variability and its regional impact

- **Disciplines**: physical and chemical oceanography, hydrology, hydrometeorology, glaciology, Quaternary geology, sedimentology, etc.
- **Staff**: **100** researchers and technicians

2 - The geodynamic approach to mineral resources and natural hazards

- **Disciplines**: geology, geophysics, pedology, physical geography, etc.
- **Staff**: **60** researchers and technicians

3 - Dynamics and use of water resources

- **Disciplines**: hydrology, agronomy, pedology, socio-economy, etc.
- **Staff**: **170** researchers and technicians.

4 - Dynamics and uses of Mediterranean and tropical terrestrial ecosystems

- **Disciplines**: pedology, phyto-ecology, agronomy, hydrology, remote sensing, geology, zoology, nematology, microbiology, nutrition, archaeology, socio-anthropology, demography, socio-economy, law, etc.
- **Staff**: **185** researchers and technicians

5 - Dynamics and uses of marine, coastal and inland aquatic ecosystems

- **Disciplines**: oceanography, marine fisheries, hydrobiology, sedimentology, socio-economy, etc.
- **Staff**: **130** researchers and technicians.

6 - Biological foundations of agricultural and agro-industrial use of biodiversity

- **Disciplines**: entomology, nematology, botany, genetics, phytopathology, microbiology, plant physiology, etc.
- **Staff**: **130** researchers and technicians.

7 - Health and development

- **Disciplines**: epidemiology, genetics, molecular biology, entomology, parasitology, virology, biochemistry, nutrition, demography, anthropological geography, economy and anthropology of health, etc.
- **Staff**: **160** researchers and technicians.

8 - Urban issues and development

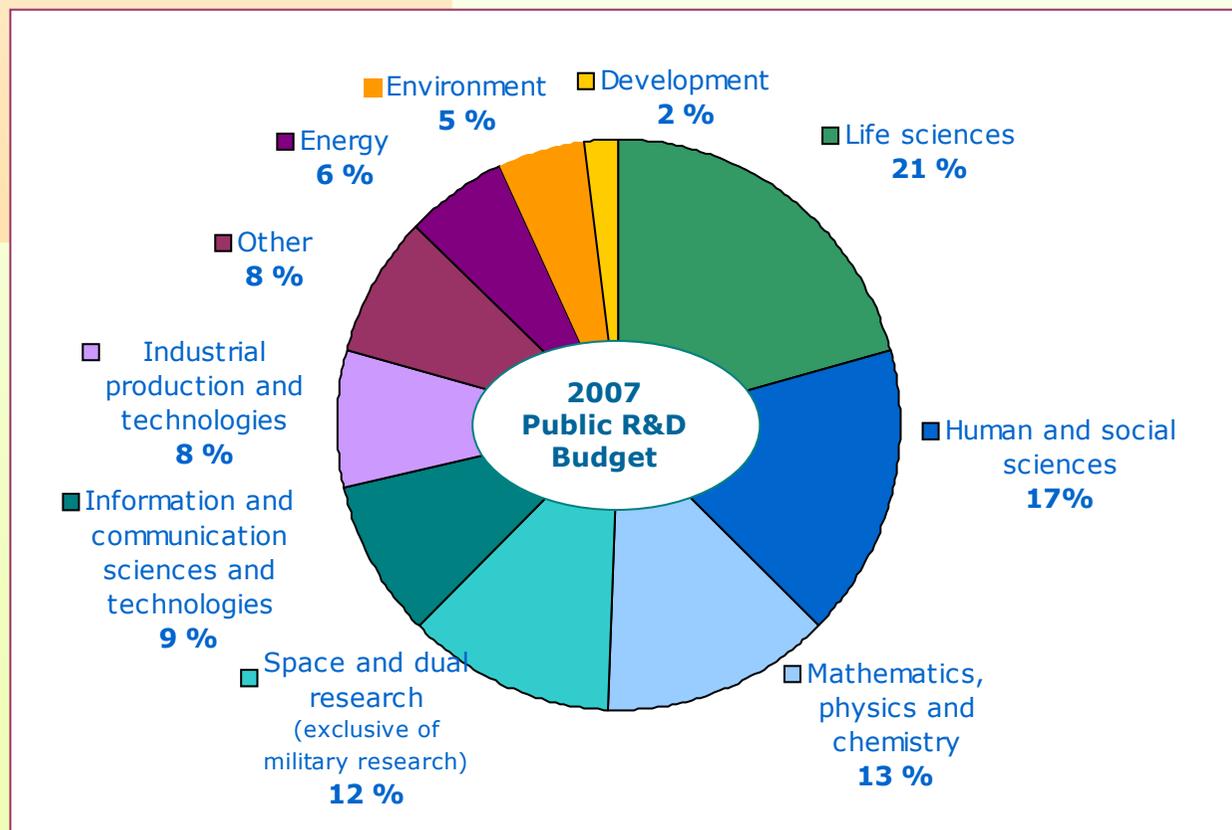
- **Disciplines**: geography, economy, statistics, socio-anthropology, demography, hydrology, seismology, etc.
- **Staff**: **40** researchers and technicians.

9 - Social and economic aspects of development

- **Disciplines**: economy, political science, anthropological geography, demography, socio-anthropology, etc.
- **Staff**: **90** researchers and technicians

French Research Figures

- **2,16 %**: percentage of GDP dedicated to research and development (2005)
- **37 billion Euros**: internal R&D spending (2005)
- **96,000** researchers and research teaching staff (full time) in the public research field
- **83** universities, approximately **100** prestigious higher education institutions, about **30** multidisciplinary (CNRS) or targeted (Inserm, Inra, Inria, CEA, CNES, Ifremer) research organisations, and **2** foundations (Pasteur and Curie Institutes). France employs **160,000** people (full time) in the public research field, including 96,000 researchers
- **360,000** people (full time) participate in an activity related to research
- **44%** in the public sector, **56%** in companies: national spending in R&D is divided among the State (€17 billion, 0.99% of the GDP) and companies (€20 billion, 1.17%).
- **70,000** PhD students in doctoral schools
- **10,000** new doctors each year
- **1,5 billion Euros** of research tax credit
- **1,000** agreements for PhD student training in companies
- **200** innovative companies created each year
- **33** Carnot Institutes
- **71** competitiveness clusters, including 17 with international dimensions
- **955 million €** for research projects (having a maximum duration of 4 years) is the budget of the ANR (National Research Agency) for 2008





Coordination of the Agricultural Research In the Mediterranean Area

ANNEX 3 : Plates-formes du dispositif agronomique montpellierain (2008)

Titre	Statut	Plateaux rattachés	Structure de rattachement	Responsables	Principaux organismes utilisateurs	Mission	Localisation
Centre de Ressources Génétiques (CRB)	(IBiSA) (TGIR)		UMR DiA-PC et UMR DAP	JM, Prosperi R, Cottin	INRA CIRAD	Dispositif français de gestion des ressources génétiques pour l'agriculture, l'environnement et l'industrie	Pilotage réseau CRB
Centre Inter-organisme de Recherche et d'Expertise en Systématique (CIRES)		BD Morphol et morphom, Collections	UMR CBGP	JY, Rasplus	INRA CIRAD IRD Profession	Systématique, phylogénie, diagnostic phyto-sanitaire et médico-vétérinaire	Baillarguet et réseau
Phénotypage "du Gène au Phénotype Intégré"			Institut de Biologie Intégrative des Plantes (IBIP)	T, Simonneau JF, Briat	INRA CNRS SupAgro UM2	Analyse et modélisation de la réponse adaptative des plantes en conditions environnementales suboptimales	La Gaillarde
Protéomique	IBiSA		Institut de Biologie Intégrative des Plantes (IBIP)	M, Rossignol	INRA CNRS UM1	Caractérisation dynamique des formes actives de protéines en phase post- réductionnelle	La Gaillarde



ARIMNET ERANET Coordination Action

Grant agreement FP7- 219262

www.arimnet.net



Coordination of the Agricultural Research In the Mediterranean Area

Fractionnement et transformation des produits végétaux			UMR IATE	S, Guilbert	INRA CIRAD SupAgro Profession	Fractionnement des produits végétaux et aptitudes des matières premières à la transformation	La Gaillarde
Polyphénols (Biologie structurale)	IBiSA		UMR SPO	V, Cheynier	INRA SupAgro	Analyse de la composition phénolique des produits d'origine végétale, en lien avec leur valorisation alimentaire ou non	La Gaillarde
Biotechnologies de la dépollution			UR LBE	JP, Delgenès	INRA Profession	Techniques microbiologiques de traitement et valorisation des effluents liquides	Narbonne
Génotypage, séquençage, clonage			UMR DAP et DiA-PC	JC, Glaszmann	INRA CIRAD IRD	Analyse structurale des génomes des plantes et recherche du polymorphisme	La Valette
Plate-forme logicielle d'aide à la stratégie pour l'étude et la sauvegarde de la biodiversité		Capsis	UMR AMAP	D, Auclair	INRA Profession	Logiciel générique intégratif de modèles de croissance et de dynamique forestière	La Valette
		IDAO				Chaîne d'outils informatiques pour l'étude la conservation et la connaissance des plantes	



ARIMNET ERANET Coordination Action

Grant agreement FP7- 219262

www.arimnet.net



Coordination of the Agricultural Research In the Mediterranean Area

RIO Imaging (P, Travo)	IBiSA	Plateau MRI	UMR DCC	A, Chatonnet	INRA	Imagerie confocale pour la biologie intégrative	La Gaillarde
		PHIV	UMR DAP	JL, Verdeil	CIRAD INRA	Histologie et imagerie cellulaire végétale	La Valette
Génomique fonctionnelle du Riz	IBiSA		UMR DAP	E, Guiderdoni	CIRAD INRA	Analyse fonctionnelle des gènes du riz par utilisation de la transgénèse	La Valette
Réseau des Animaleries Montpelliéraines (RAM) (JM, Blanchard)	IBiSA	Animalerie transgéné- rique	UMR DCC	A,Chatonnet	INRA	Elaboration de lignées de souris et de poissons pour l'analyse du développement musculaire et sa régulation	La Gaillarde



ARIMNET ERANET Coordination Action

Grant agreement FP7- 219262

www.arimnet.net



Coordination of the Agricultural Research In the Mediterranean Area

ANNEX 4- Links of the joint research units of Montpellier with the Mediterranean basin (SUPAGRO, INRA, CIRAD, IRD...)

Documents delivered by the scientific direction of Montpellier SupAgro

UMR	Pays	partenaires	Thématiques	EC			
BPMP	Espagne	CSIC, Murcie					
	Italie	Université de Padoue	échanges étudiants + co-encadrement de thèse	JC Davidian			
	Tunisie		co-encadrement de thèse	JC Davidian			
LAMETA	Tunisie	associations coopération d'irrigants	Décentralisation gestion de l'eau	G.Grolleau			
QUALISUD	Maroc	Institut Agronomique Hassan 2	Encadrement de thèse				
	Italie						
SPO	Italie	Université d'Udine	FP6 strep ORWINE				
MOISA	Maroc	IAV Hassan 2	Projet international de Formation , Ipemed, Plan bleu agricole et agroalimentaire, Réforme organisation du Vin				



ARIMNET ERANET Coordination Action

Grant agreement FP7- 219262

www.arimnet.net



Coordination of the Agricultural Research In the Mediterranean Area

	Italie	Université de Perugia, de Naples, de Palerme. Instituto Nazionale di economicaagraria de Rome			
	Espagne	Université de Leida, de Pampelune, de Barcelone			
	Tunisie	INRAT, INAT, INSP, ESSTS			
	Algérie	INSP, INA			
	Egypte	Université du Caire, d'Alexandrie			
	Turquie	Université d'Akdeniz et d'Izmir, d'Antalya	espace d'expertise	JL Rastoin	
	Liban	Université de Beyrouth	Cours international		
	Chypre	Nicosie			
CEFE	Maroc	IAV Hassan 2, Université de Tétouan, Ecole forestière de Meknes, Faculté des sciences de Marrakech, Faculté des sciences de Fez	Agroécologie et gestion de la biodiversité en milieu méditerranéen et aride, Création d'un jardin et conservatoire botanique		



ARIMNET ERANET Coordination Action

Grant agreement FP7- 219262

www.arimnet.net



Coordination of the Agricultural Research In the Mediterranean Area

	Tunisie	Faculté des sciences de Gabes, INRGREF Tunis	Dynamique ds communautés animales, écosystème forestier ds contexte changement climatique			
NUTRIPASS	Tunisie		Projet OBE -Magreb, malnutrition obésité/anémie			
	Algérie					
ERRC	Maroc	IAV Hassan 2	Projet CLIMFOUREL, capacité d'adaptation des systèmes d'élevage face à l'aléa climatique	CH.Moulin		
	Algérie	INA d'El-Harrach				
LSTM	Algérie,		Fonctionnement symbiotique des écosystèmes naturels/protégés			
	Maroc	Université de Marrakech, rabat, Université Mohammed 5	Projet AIRES -SUD, Bourse Post Doc AVERROES, mécanismes d'adaptation en milieux arides, désertification et changement climatique	B.Brunel		
	Tunisie					
	Liban					
INNOVATION	Espagne	université de Séville	accueil thésard			
	Italie		Prog.EUE Equal/Value/Croc			formation
	Maroc	Institut Hassan 2		équipe spacto		



ARIMNET ERANET Coordination Action

Grant agreement FP7- 219262

www.arimnet.net



Coordination of the Agricultural Research In the Mediterranean Area

ITAP	Espagne	université de Barcelone	imagerie Hyperspectrale				
		Université de Madrid					
	Italie	Université de Turin					
BGPI	Grèce	Université					
	Espagne	U.Politecnica de Valencia					
	Maroc						
ECOSOL	Italie	université de Naples et de Florence	Groupe de recherche en agriculture méditerranéenne GRAM	E.Lecadre			
ASB	Espagne	Université de Grenade, Université polytechnique de Madrid	approche qualitative pour l'agroalimentaire				
	Italie		Procédés de transformation des aliments, SPES	C.Abraham			
SYSTEM	Italie		STREP ORWINE				
	Maroc		Innovation pour améliorer la tolérance à la sécheresse				



ARIMNET ERANET Coordination Action

Grant agreement FP7- 219262

www.arimnet.net



Coordination of the Agricultural Research In the Mediterranean Area

CBGP	Maroc	ENA, IAV, Azura Group	Réseau de collaboration IAALD+ Prog.UE DAISIE, protection des cultures, recherche sur écologie des communautés de				
	Algérie	INA, Université Saad Dahleb, université de Blida					
	Espagne	Université de Valence, de Barcelone					
	Grèce	NAGREF, institut of plant protection Heraklion,					
	Italie						
	Tunisie	INAT, ISA, CRRHAR centre de recherche en horticulture et agriculture biologique					
	Syrie		Bourse de Thèse				
G.EAU	Tunisie	INRGREF, INAT	convention de partenariat, accueil thésard				
	Maroc	ENA à Meknes, IAV Hassan 2	formation, modules Masters, professionnalisation des agricultures irriguées, échanges "raccord". Fondation SUEZ : "Eau pour tous"				
	Espagne	Université de catagne, de Murcie, de grenade					
	Italie	CNR-ISA, IGAF, IAM à Bari					



ARIMNET ERANET Coordination Action

Grant agreement FP7- 219262

www.arimnet.net



Coordination of the Agricultural Research In the Mediterranean Area

LISAH	Maroc	IAV Hassan 2	Formation master et thèse, Cours d'hydrologie et de ressources en eau + contrat bilatéral franco-marocain pour la recherche agricole			Consortium international : GLOBAL SOILMAP + ORE- OMERE Observatoire méditerranéen de l'environnement rural et de l'eau
	Algérie		accueil chercheur			
	Syrie					
	Italie	Irsa	Prog.Europ. Aquastress et Sowamed			
	Tunisie	Faculté des sciences , Inat, DG ACTA et DG gestion ressources en eau, INRGREF	Formation, + 2 con,ventions Tx de recherche + accueil chercheur + Participation à ED Génie rural Eaux et forêts, et ED géologie appliquée à l'environnement			
	Algérie					
	Liban					



ARIMNET ERANET Coordination Action

Grant agreement FP7- 219262

www.arimnet.net