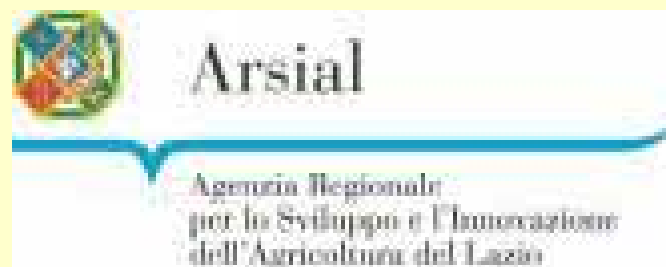




On-farm conservation of plant genetic resources in Lazio Region - Italy. Implementation of Regional Act 1st March 2000 n°15.



ARSIAL - Regional Agency for the Development and Innovation of Agriculture in Lazio (Italy).

Maria Teresa Costanza, Immacolata Barbagiovanni Miracolo, Paola Taviani, Stefano Paoletti, Roberto Rea, Lino Lelli, Jane Helene Garzia, Oriana Porfiri, Pierfranceso Nardi and Massimo Tanca.



ARSIAL is the official public body in charge of the **Application** and **Implementation** of the agricultural regional policies of the Lazio Region

ARSIAL

- Agriculture and biodiversity activities (Regional Act n°15, 2000);
- Regional monitoring of Rural Development Plan;
- Monitoring organic farm control organizations;
- GMO control for food security (Lazio Region is “GMO free”);
- Management of Regional Fauna Observatory in the Lazio Region;
- Protection of agricultural production quality (Protected Designation of Origin and Protected Geographical Indication);
- Development of multifunctional agriculture (social agriculture, farm holiday, dissemination to schools);
- Dissemination of ARSIAL activities results.

CURRENT BIODIVERSITY EU PROJECTS

- “SUSTGREENHOUSE” LIFE+ 2007 Environment Policy and Governance;
- “REVERSE” Interreg IVC 2010

The Lazio Region is characterized by a complex morphology and a great bioclimate variability.



**Mediterranean
biogeographical
region**

Lazio Region has 5 district
divided in 378 municipality:

- Frosinone (91)
 - Latina (33)
 - Roma (121)
 - Rieti (73)
- Viterbo (60).

Lazio Region: 17.236 Km²:

- mountain 26%
- hill 54%
- plain 20%.

Lazio Area: 1.720.300 ha

**Lazio
population
5.561.000
(female 52%)**

- Young people in Latina (15% + 65 years)
- Old people in Rieti (22% +65 years).

AGRICULTURE

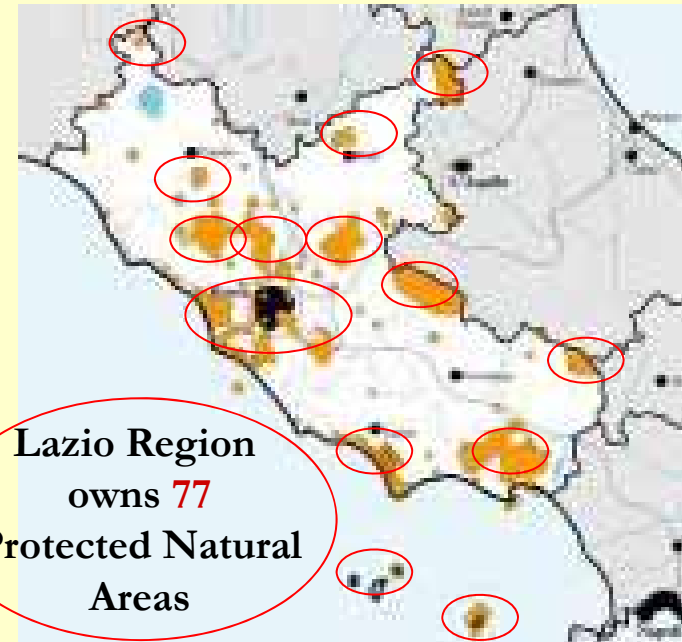
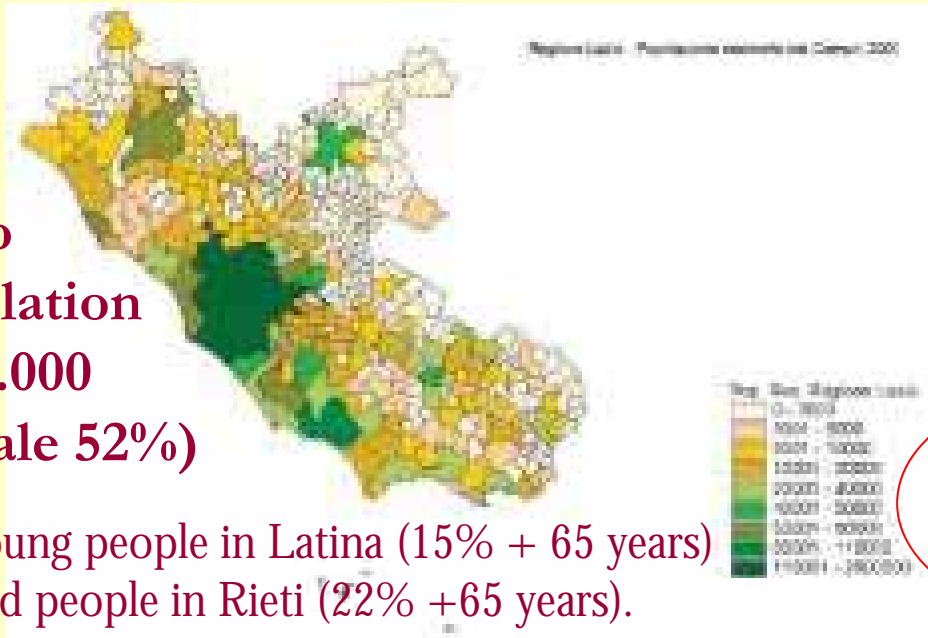
674.011 ha (40% total area)

FARMER {

- N° 102.572
- Age: 61,5% ≥ 65 years

FARM {

- 80,5% extension <5 ha
- 10% organic methodology (70.000 ha)
- Major crops: durum wheat, wheat, maize, olive, grapevine, hazelnut and chestnut us wood tree, vegetables (tomato, potatoe, carrot, watermelon), fruit tree (kiwi, peach, cherry-sweet, apple)



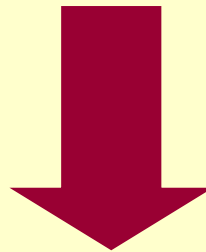
Natura 2000 Network

- 183 Sites of Community Importance (SCI): 143.163 ha
- 42 Special Areas of Conservation (SAC): 375.154 ha

Italian Regions promote agricultural biodiversity protection:

- Acts and operative plan to support in situ conservation.
- Toscana (1997 and 2004)
 - Lazio (2000), Marche (2003) and Emilia Romagna (2008)
 - Umbria (2001), Friuli-Venezia Giulia (2002) and Basilicata (2008)

The **Lazio Region** according to the **Convention on Biological Diversity** (implemented by Italy Act n.124, 14/02/1994) has issued



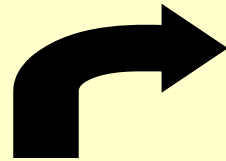
“Protection of autochthonous genetic resources of agricultural interest”
(Regional Act 1st of March 2000, n. 15)

“Protection of autochthonous genetic resources of agricultural interest”

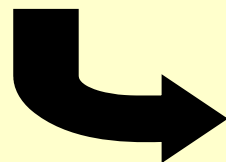
Art. 1. Subject

*... autochthonous genetic resources of agricultural interest, including wild plants that mixed with cultivated species, such as species, races, varieties, populations, cultivars, ecotypes, and clones for which there is an economic, scientific, **environmental**, or cultural interest, **threatened by genetic erosion**.*

**Protected
Genetic
Resources**



Autochthonous: Lazio origin or introduced and integrated into the agro ecosystem of Lazio at least for the past fifty years.



...species, races, and varieties disappeared from the Region and collected in botanical gardens, breeding farms, experimental institutions, public or private genetic banks, and research centres of other regions or countries.

Art. 5 (Heritage of genetic resources)

... to the right of ownership on each plant or animal enrolled in the Register as of article 2, the heritage of the genetic resources of these plants and animals belongs to the indigenous local communities, within which the benefits must be distributed equally...

The Act entrusts **ARSIAL** to manage the operating tools:

The Regional Voluntary Register

Official repertory of the Lazio Region,
where the protected genetic resources
are registered, subject to the opinion of
two Scientific Commissions, one for the
Plant Sector and one for the **Animal
Sector**.

The Conservation and Safety Network

The members of the Network may be
public and private institutions,
associations of interest and single or
associated farmers.

GOALS

- to reduce the "genetic erosion threat" of autochthonous genetic resources of agricultural interest;
- to promote **on farm** and **in situ conservation**;
- to improve "plant and animal genetic resources" through a development of an economic interest of their **food products**;
- information and **dissemination**.



MAP OF ACTIVITIES TO PROMOTE ON FARM CONSERVATION

CENSUS

Historical point:

- bibliographic research
- interviews

Accession data:

- farmer
- agronomic practices
- geographical localization

Ex situ conservation

- Collection field
- Germplasm Bank

descriptors

CHARACTERIZATION

Morpho-physiologic:

- UPOV-IPGRI (tree)
- OIV (grapevine)
- CPVO (seed plants)

Molecular

- marker analysis (olive and grapevine)

REGIONAL VOLUNTARY REGISTER

Plant section (in situ area and level of genetic erosion threat)

Plant Scientific Commission

Local knowledge investigation

On farm conservation!

Soil biomonitoring
•Sites biomonitoring interested by landraces field

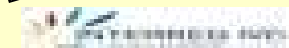
CONSERVATION AND SAFETY NETWORK

Incentive pay to resource keepers for on farm conservation

Rural Development Plan

2007-2013

EU (FEASR)



Regional exchanges and policy making for protecting and valorising biodiversity in Europe.

For the plant sector **ARSIAL** has partnership agreements with different scientific institutions:

•ex ENSE Public Organization for Seeds Control

**Partner
involved
(2010)**

Universities

•Plant Production Department (University of Viterbo)

•Professor of Cultural Anthropology – Psychology Department (La Sapienza – Roma)

CRA Departments of Agricultural Research Council

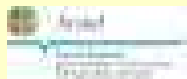
•Centro Ricerca per la Viticoltura

•Centro Ricerca per la Frutticoltura

•Centro Ricerca per l'Olivicoltura

•Centro Ricerca per la Patologia Vegetale

•Centro Ricerca Studi Relazioni Pianta Suolo



PLANT GENETIC RESOURCES

172 landraces registered in the RVR (1° Sept. 2010)

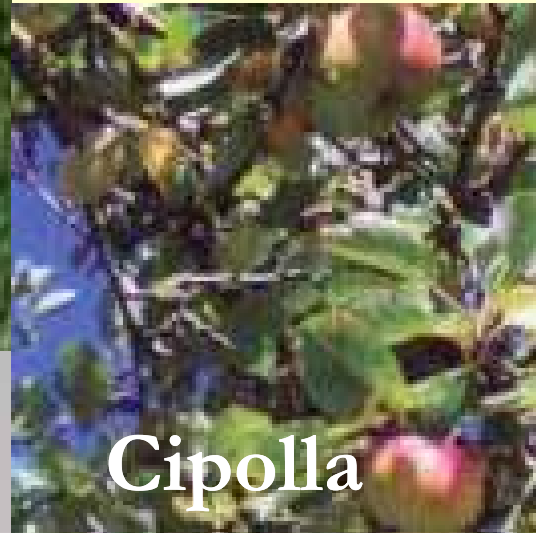
TREE SPECIES	N°	HERBACEOUS SPECIES	N°
<i>Malus domestica</i> Bork	36	<i>Phaseolus vulgaris</i> L.	14
<i>Vitis vinifera</i> L.	32	<i>Lens culinaris</i> Med	3
<i>Pyrus communis</i> L.	23	<i>Lycopersicum esculentum</i> Mill.	3
<i>Prunus avium</i> L.	14	<i>Triticum dicoccum</i> Schrank.	2
<i>Olea europea</i> L.	13	<i>Cymara cardunculus</i> var. <i>scolymus</i> L.	2
<i>Punica granatum</i> L.	4	<i>Allium sativum</i> L.	2
<i>Prunus persica</i> L.	4	<i>Apium graveolens</i> L.	1
<i>Prunus insistiva</i> L.	4	<i>Cucurbita pepo</i> L.	1
<i>Corylus avellana</i> L.	3	<i>Foenicum vulgare</i> Mill.	1
<i>Prunus armeniaca</i> L.	2	<i>Zea mays</i> L.	1
<i>Crategus azarolus</i> L.	1	<i>Capsicum annum</i> L.	1
<i>Prunus cerasus</i> L.	1	<i>Cicer arietinum</i> L.	1
<i>Castanea sativa</i> L.	1	<i>Phaseolus coccineus</i> L.	1
		<i>Fragaria vesca</i> L.	1
13 spp.	138	14 spp.	34



Prata



Rosetta



Cipolla



Calvilla



Spugnaccia



Cerina



Verdone

**Apple landraces
in situ area: Rieti**

medium risk
the others high risk



Rossa

In situ area: Monti Lepini (LT).

→ High risk



Spadona di Castel
Madama



In situ area: Castel Madama (RM).

Cherry-sweet in *Sabina*

medium risk



Graffione



Lingua de Fori



**Ravenna
Tardiva**



Ravenna precoce



Petrocca

High risk



Reginella I

**Peach *in situ* area
Roma district.**

→ **High risk**



Reginella II



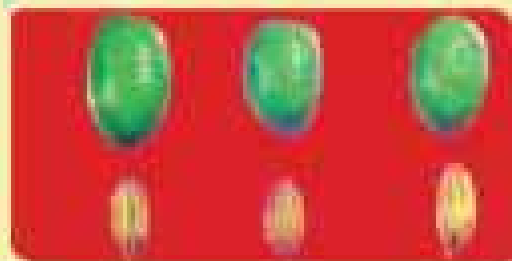
Pizzutello di Tivoli

In situ area Tivoli (RM) and
low risk.



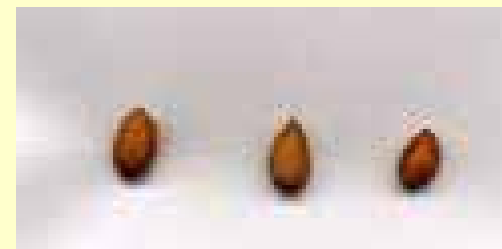
Cesanese di Castelfranco

In situ area Rieti district and
high risk.



Marina Valcomino

In situ area Valcomino (FR) and medium risk.



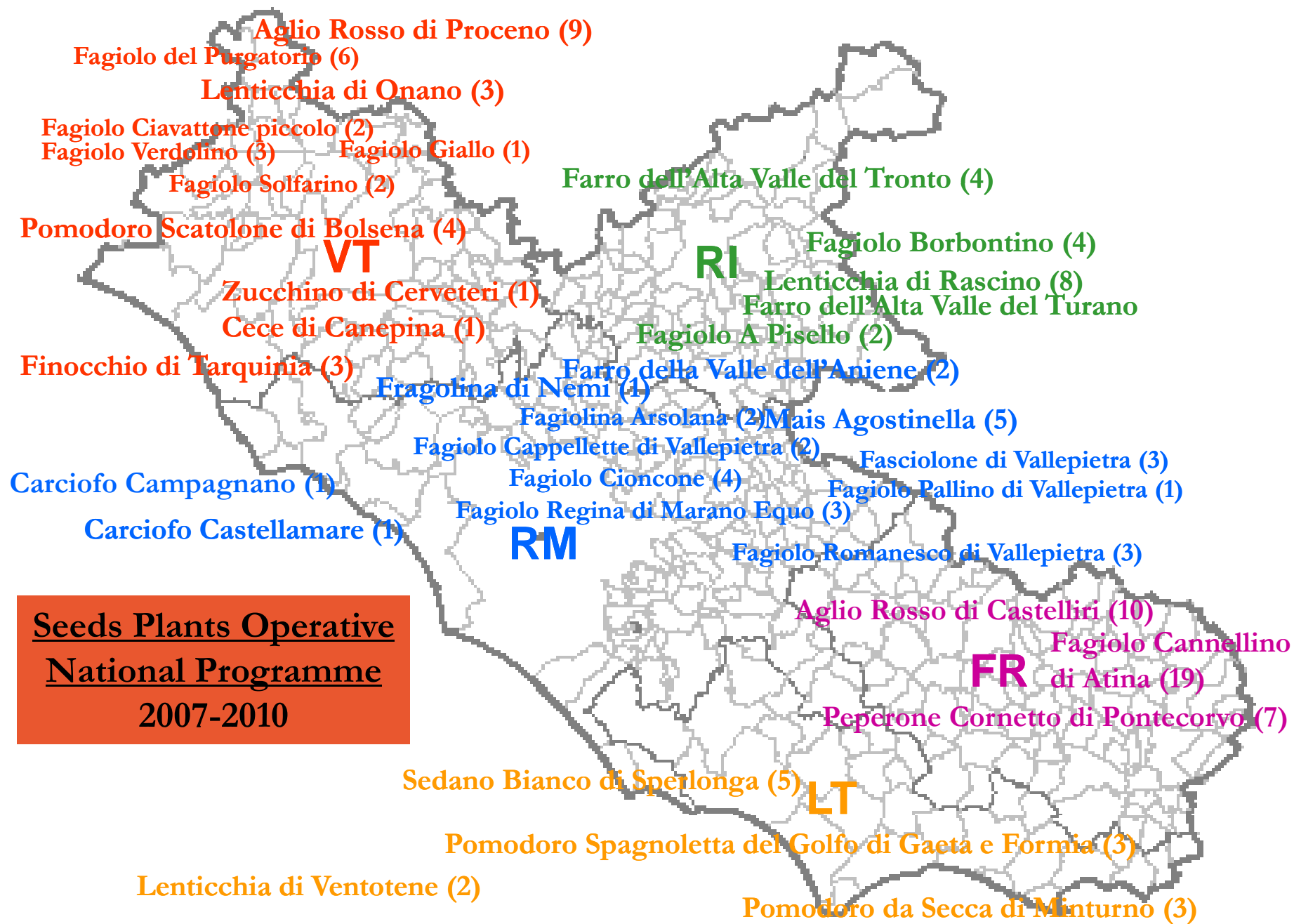
Rotonda di Tivoli



In situ area: Tivoli (RM) and high risk.



34 herbaceous landraces registered in RVR (130 acc.)



**Seeds Plants Operative
National Programme
2007-2010**



**Vallepietra,
August 2009**







Fasciolone di Vallepietra



In situ area Alta Valle dell'Aniene (RM) and high risk.



**Mais
Agostinella**



High risk.



Aglio Rosso di Castelliri



In situ area Castelliri (FR)
and medium risk.



Zucchini di Cerveteri



In situ area Cerveteri (RM)
and high risk.



**Lenticchia di Rascino
(RI)**



**Lenticchia di Ventotene
(LT)**



Medium risk.



EVALUATION OF GENETIC EROSION THREAT



INDICATOR	Description	Risk level	Score
A	Markets and/or producer's cooperatives Sector: main variety in a certain DOC, DOP, IGP, IGT certified production.	Low	1
	Niche market: locally limited cultivated areas Market section: secondary varieties in a DOC, DOP, IGP or IGT certified production.	Medium	2
	Only some fruits/few seeds available for consumption or research No product on the market.	High	3
B	Fruits: presence in variety list A, B and C Vegetables and plants: listed in the national register of varieties Grapevine: listed in the regional register.	Low	1
	Grapevine: under registration to regional register Propagation materials available at a few nurseries.	Medium	2
	Fruits: not registered in the variety list Vegetables and plants: not registered in the national register of varieties Grapevine: not registered in the regional register. No propagating material available out of the maintaining farm.	High	3
C	> 100	Low	1
	30 to 100	Medium	2
	< 30	High	3
D	> 5%	Low	1
	1 to 5 %	Medium	2
	<1%. Isolated plants or home garden cultivations	High	3
E	New areas dedicated to landrace present	Low	1
	No new areas dedicated to landraces present	High	3

Sum of different value

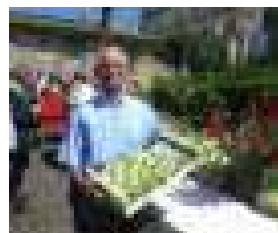
- ≤ 9 LOW RISK
- =10-13 MEDIUM RISK
- ≥ 14 HIGH RISK



CONSERVATION AND SAFETY NETWORK



Plant resources members



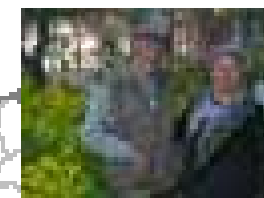
Viterbo: 72

Rieti: 39



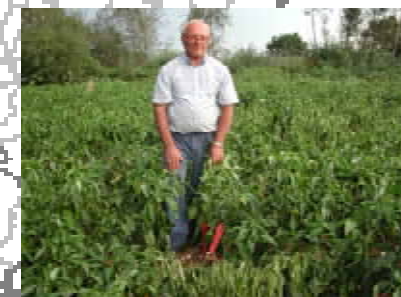
Roma: 8

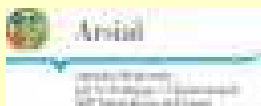
Frosinone: 97



255 Farmers enrollment in the Network for in situ conservation and multiplication of plant genetic resources (1° September 2010).

Latina: 39





CONSERVATION AND SAFETY NETWORK:

- to support in situ and on farms conservation of protected genetic resources;
- to favour the reintroduction or extension of culture or breeding of protected genetic resources;
- multiplication of genetic resources by farmers (under control of ARSIAL to enhance the techniques for the multiplication and propagation of material);
- to control the exchange of the propagation material produced and to make it available both to the farmers;
- to coordinate the members participating in the Network

Incentive pay to the resource keepers for on farm conservation

ENTITY OF THE GRANTS TO FARMERS:

- CEREALS: 250-300 Euro/ha
 - VEGETABLES: 500-600 Euro/ha
 - TREES-PLANTS: 800-900* Euro/ha
 - SINGLE TREE: 70-90 Euro/plant
- (Up to a maximum of 5 tree-plants per local variety)

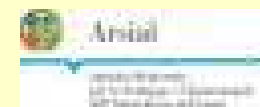


**Antropology investigation
on social capital:
knowledge and practices
linked to plant genetic
resources owners.**



Future actions

- Reintegration and valorization of local varieties and races.
- Promote traditional food products.
- Enhance farmer's network.
- Participatory plant breeding methodology promotion.
- Research on food products' nutrition properties.
- Phyto- sanitary and genetic tests on resources.
- Identification of soil microbial communities characteristic of landraces field.



Since 2010 ARSIAL is involved in the Interreg IV C **REVERSE** project (regional exchanges and policy making for protecting and valorising biodiversity in Europe, EU founded) to promote the exchange of the best practices to preserve biodiversity among European Regions.

Information in <http://reverse.aquitaine.fr/>

Thanks!



Obrigado!