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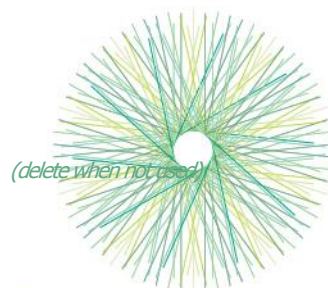
# EIP-AGRI Focus Group

## Genetic resources

REPORT OF THE FIRST MEETING  
6-7 FEBRUARY 2014 – ROME, ITALY

# EIP-AGRI Focus Group 4: Genetic Resources – Cooperation Models

4 JUNE 2014



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## Report of the first meeting 6-7 february 2014, Rome, Italy.

The first meeting of the Focus Group (FG) meeting on genetic resources was held in Rome from 6-7 February 2014. Annex 1 gives the list of FG experts attending the meeting and Annex 2 gives the agenda of the meeting.

### DAY 1

#### Field Visit

The meeting started with a field visit to the Fruit Tree Research Centre (CRA-FRU) located in Ciampino, Rome. Dr. Guido Cipriani, Director of the Centre welcomed participants. A presentation on the activities of the Centre was given by Ms. Petra Engel of the centre and in particular an overview of the project '*PlantaRes - the Italian Window to Plant Genetic Resources for Food and Agriculture*' (<http://planta-res.entecra.it>.) was presented. The PlantaRes project is an Italian national network of 29 partners of research centres and Units of the Council for Research and Experimentation in Agriculture (CRA) established in response to the Italian ratification of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA, hereinafter: the Treaty). It is a research programme specifically targeted to the implementation of the objectives of the Treaty. Research activities are aimed at the collection, conservation, characterization, documentation and utilization of more than 70 crops essential for the Italian agriculture (cereals, vegetables, fruits, olive, grape, fodder and forage crops, as well as forest species, industrial crops, ornamental, medicinal and aromatic plants), 26 of which are currently included in the Multilateral System of the Treaty. The CRA-FRU centre focuses on fruit tree research, conservation and utilisation. Work Plan of the Institute for 2014-2017 focuses on the recovery of autochthonous species, on characterisation and evaluation (mainly for taxonomic traits because of budget constraints) as well as on utilization. The Centre provides materials to nurseries in limited quantities, but do not themselves have a nursery for mass propagation. 60% of materials requested from the Centre is used for research and breeding purposes. One of the main problems in collection is the sanitary status of the material: every season the materials need visual and molecular checks to ensure integrity of their materials. Imported materials are subjected to quarantine in a warehouse.

FG Participants visited the research facilities. They were divided in several groups, one sub-group went for a visit in the field where local varieties and landraces are being reintroduced in cultivation, another sub-group visited the molecular laboratory of the centre, while another sub-group went to visit the in vitro-laboratories where germplasm are conserved.

During the field visit some clarification questions were asked by the Focus Group members:

Comments/Questions:	Replies:
Is there any cooperation with farmers?	There are no regular exchanges but who wants to contact us can easily do it. We are open for cooperation.
Which types of agreements are in place?	Existing agreements are concerning mainly phyto-sanitary issues. There is no harmonized approach for sharing genetic material.
What is the main problem you are facing?	The sanitary state of the genetic material.
Is there a price for sharing genetic material?	Currently there are none but the centre is considering to charge a fee in future. This could lead to wiser requests from users of the genetic material.

## Session 1 – Introduction

The meeting was held at the Hilton Garden Inn in Fiumicino. The first session was chaired by Sergiu Didicescu (Service Point's Focus Group Task Manager). He welcomed the FG experts and invited Emanuela Galeazzi (responsible for the FG on genetic resources at DG AGRI), Ehsan Dulloo (key expert of FG on genetic resources) to give their introductory presentations, as well as two guests namely Isabella Dalla Ragione (Archeologia Arborea foundation) and Michael Halewood (Bioversity International) to make a presentation (see agenda Annex 2).

Emanuela Galeazzi first gave a presentation about EIP-AGRI in general and underlined some principles and what it is expected from the first focus group meeting:

- General principles :–interlinking existing initiatives, achieving synergies, facilitating communities and enhancing complementarity
- Innovation models: -not in a linear way, but more interactive, bottom up, multi-stakeholders, partnership and networking.
- Means of the EIP:
  - – Rural Development Programme – Operational Groups (farmers, advisors, agribusiness, researchers and NGOs); Pilot projects; EU Research Policy Horizon 2020 – multi-actor (including on-farm activities); thematic networks.
- Operational groups-like projects can be supported under other public or private funds (at Union, national or regional level)
- Tasks of the FG is to take stock of activities, practices and research and identify needs for cooperation among stakeholders. Experts are also expected to contribute to the preparation of specific technical reports (mini-papers) in-between the face to face meetings.

Sergiu Didicescu presented the EIP AGRI Service Point and the charter based on which the focus groups function. He also mentioned the helpdesk function, organization of events and activities, networking and communication, establishment of a database of experts on agricultural innovation to which members of the focus group were kindly invited to contribute.

Isabela Dalla Ragione, from Archeologia Arborea Foundation gave a presentation on her research and conservation work of old local fruit varieties in Umbria, Italy. Key points include:

- Work on marginal areas where agriculture was abandoned.
- Many plants are in convents and monasteries; local people depended on plants growing there
- Searching for orphan crops that were abandoned because farmers disappeared from these regions
- Looked for information from historical books, pictures, paintings to know what varieties were being grown
- Followed antic road and farms and survey local biodiversity
- Documented information about the ancient varieties from both old and young generations

She worked hard to establish the orchard of Archeologia Arborea which she described as a corridor of on-farm conservation in the area. She also mentioned that the Archeologia Arborea has formed a new foundation to promote the conservation work on ancient varieties.

Michael Halewood made a presentation on policy aspect of access to germplasm. He spoke of the state of policy landscape in Europe regarding access to PGRFA, especially with regards to international conventions and treaties (CBD, Treaty and Nagoya protocol) as well as national law and policies. He spoke of recent collecting activities in Europe; despite the complexities of the laws and regulation governing access to germplasm, there has been over 400 collecting mission in Europe from 2007 to 2011. He provided some examples of cooperation models such as ECPGR, EURISCO and AEGIS, and concluded with some issues for consideration viz. extension of the MLS to *in-situ*, strategic action plan for conservation and use at EU level needed to support ECPGR, AEGIS; access by farmers to save, use, exchange and sell under the Treaty. Some questions and comments followed:

Comments/Questions:	Replies:
What is foreseen in Nagoya Protocol concerning the identification of parent traits', and what is the EU approach in that regard?	There are some references in the Nagoya text to create retroactivity. There is not yet a common approach among Union's countries in the implementation of Nagoya protocol.
How can one access the material from collections?	Gene banks have Material Transfer Agreements in place for the distribution of accessions. With Nagoya protocol, governments are also building other protocols for access and benefit sharing beyond existing agreements.
Are there any studies to show the extent of use from European genebank?	Information not available for Europe, but global studies exist; e.g. a study on "Trends in research using plant genetic resources from germplasm collections: from 1996 to 2006" was published in Crop Science (by Dulloo et al. 2012), which shows that germplasm from genebanks are now primarily used for studies of genetic diversity, agro-morphological and nutritional quality characteristics, biotic resistance, and mapping. The study noted that there was a significant reduction in use of genetic resources for breeding.

The FG key expert, Ehsan Dulloo, presented the starting paper and also introduced the results of the survey carried out among group members to identify the most important issues for discussion during the first meeting.

After the presentation, Emanuela Galeazzi proposed a three level cooperation model for experts to consider in their discussion. These include:

1. Cooperation between gene bank collections and users (breeders, farmers etc.)
2. Cooperation at regional and national level to include economic, environmental and social aspects as well as legal rules (e.g. phyto-sanitary rules)
3. Union and International cooperation and agreements towards harmonisation of (*ex-situ*) conservation activities

## General Discussion

The key points which came out of the general discussion include:

- It was noted that the situation is different between PGR and AnGR. With regard to AnGR, farmers are also the breeders and conservators of diversity. Thus the first level of cooperation proposed would not be applicable.
- There is a danger that the innovation process is taken over by economic, social or environmental goals. What are the drivers of the EIP work? It was suggested that farmers should be the main driver and the EIP needs to connect farmers to markets.
- The role of farmers as well as the importance of maintaining genetic diversity on-farm need to be enhanced.
- What does “to broaden the use of genetic material” mean? Is this a means to an end? How we will feed an increasing world population?
- Key word is innovation; we should look at consumer needs and supply aspects.
- In Wine/Vine industry, there is the awareness that the loss of genetic diversity may be jeopardising the future in delivering new wines.



## DAY 2

### Session 2 - Working groups

The FG experts were divided into three sub-groups, one dealing with AnGR and the other two with PGR. The groups were asked to discuss and respond at the following questions:

1. Analyse existing cooperation models. What works and what do not work and why? What could be improved and how?
2. What are the main needs for research action?
3. What should we focus upon for the future meeting?

### Session 3 - Results of group discussions

Each group nominate a rapporteur and presented their findings in plenary. Each rapporteur was requested to send detailed notes to the Key Expert. The following are key points presented by each Group:

#### **AnGR Working group (Contribution from Dianna Bowles, chair of the group):**

The group first introduced the backgrounds and experiences of their 'co-operation models'. This led to a detailed discussion of one particular model and these notes reflect that discussion rather than consider other models that were also raised through wider experiences of the group.

Rudolf Boehler recounted the events leading from the near-extinction of a traditional land breed of pig in Germany, to its current recovery both in terms of numbers of breeding animals and the commercial success for their products. This sequence of events illustrated a 'co-operation model' that had led to conservation of genetic resources through astute strategies and achievement of a sustainable business.

Key points that were raised and discussed in this specific model, included:

- The market must be ahead of the production. At the start, with few animals it is essential to focus on niche markets. This likely involves only 10-20% of those consumers who choose the product for quality and/or cultural reasons and have the finance to buy those products. It is therefore useful to select outlets fulfilling those criteria – these first contacts and potential outlets can be local hotels, local restaurants, local wholesalers and butchers as well as private buyers. Personal contacts to 'champion' the breed to explain fully why customers should be interested in the meat are essential. The farmers are the champions to create their own market for the products that their own animals produce.
- Unless the business is economically viable, there can be no success, and the role of advisers in helping to realise the full economic potential of new businesses was emphasised through experiences of the Group members.
- A product has to develop its own brand. The brand is based on the 'whole product' – the breed and its genetic resources producing the product, whether meat in the case study of the pigs or milk, wool, breeding animals etc. A mix of additional values such as the animal's welfare and health standards, the taste quality and nutritional quality of the meat, as well as cultural aspects of the breed or species also contribute to the overall brand.
- In parallel to farming the animal, it is essential to create awareness and educate retailers, processors and consumers about this 'whole product quality' that is an integral feature of the breed and of the brand that the breed increasingly represents.

As success grows, Rudolf Boehler described how additional farmers were recruited to farm the pigs. But for this to work sustainably and successfully, the farmers must earn more than they would by farming mainstream commercial breeds.

The farmers are recruited into an entire package. At the beginning, they receive a guaranteed premium above the standard market place, but in return they must conform to the 'private standards' for working with the breed. These are communicated through a specialised extension service specific to the breed, enabling the farming practises to be of the high standards required to achieve 'product quality' that defines the brand.

Clearly, if there are many different breeds with these traditional qualities and endangered genetic resources, each breed on its own cannot become a separate brand. Therefore there may be ways of bringing them together in groups related to geography and/or to farm management systems. Discussion of other species and products, including cattle, sheep and goats led to the conclusion that the steps/practises described in the case study were broadly applicable.

The group made the following suggestions related to research areas needs:

- An important issue is that success in increasing the population of an endangered/traditional breed brings its own risks. As numbers of a livestock breed increase to those of mainstream breeds, there is a risk of 'genetic drift' away from the traits that were unique to the traditional breed. This requires research to evaluate the risk and is dependent on issues which may be specific for each Member State.
- Research is also required on methods/tools to encourage recording of pedigrees for the traditional breeds, as well as to improve management systems in the absence of pedigrees. Given the availability of scientific tools, it is now straightforward to determine potential in-breeding and also the genetic distinctiveness of the individual breeds including similar breeds currently farmed in different Member States that may share common or related origins.
- Given that these traditional breeds are reservoirs of biodiversity of livestock genetic resources, it is also essential to identify genes contributing to their ability to adapt to local conditions and remain robust under low input and extensive farming systems.

### **PGR Working Group #1 (Contribution from Ahmed Jahoor, chair of the group)**

The working group discussed some cooperation models in which the group members had experience, in particular a Public and Private Partnership (PPP) project in Nordic countries. There is a plan to include such a framework (i.e. PPP) in the Baltic countries. It was noted that breeders (even those from smaller breeding companies) usually discuss with the industry and not with farmers. Co-operation may take place between farmers, universities and administrations as it is the case in Tuscany where a label to protect denomination helped in the conservation of some genetic resources. They also discussed the ECPGR platform as a cooperation model for genetic resources community to work together at the European level.

It was also noted that nowadays characterisation and evaluation of genetic resources has become a trivial work. It is done by researchers and breeders and nobody else is interested in doing it. In that context, it could be useful to develop descriptors that could be used by genebanks but also by farmers. Note that Bioversity International has developed descriptors for farmers' important traits.

The group noted that there existed geographical differences within Europe – Nordic region, Mediterranean region, Central/Western European region and Eastern European region, each having their distinctive characteristics and different priorities and needs. For example Northern Europe has a considerable issues for diseases resistance, whereas Mediterranean region has extremely big problems with drought. Therefore, it was suggested that while projects comprising all regions of member

countries can make sense (e.g., on the rationalisation of collections, of conservation infrastructures, .etc), there should be subregional projects dealing with the specific issue relevant for particular regions.

It is possible to identify two breeding strategies:

1. Toward the market
2. To develop new varieties with new traits and using other genetic resources.

Farmers need to be taken on-board but advice is needed to promote new attitudes. The role of advisors is important but sometimes (often?) practical/technical problems arise. The example of San Giovanni hazelnut is provided:

A Spanish farmer, willing to plant hazelnuts adapted to the characteristics of his soil and to the climatic condition of his region, asked for advice. San Giovanni hazelnut, an Italian variety with a high level of productivity and appreciated for its great organoleptic characteristics, fitted perfectly well to his request. However, the advisor could not suggest this variety because the long shape of the shell does not fit the machinery of the industry and as a consequence the San Giovanni hazelnut has a low commercial value because of the low transformation capability.

The group identified the following **research needs**:

- Optimisation of *ex-situ* collections;
- *Ex-situ* conservation;
- Geographic information relating to biotic and abiotic stresses, viz. pest and diseases, drought, waterlogging, temperature etc.;
- Selection, evaluation of germ plasm for important traits
- Strategies for *in-situ* conservation;
- Monitoring of genetic diversity changes over time;
- Link between *ex-situ* and *in-situ* conservation;
- Pre-breeding
- Cooperation in the form of public and private partnership

The group identified the following traits as being important for pre-breeding under the application of plant genetic resources:

- Disease resistance
- Drought tolerance
- Waterlogging
- Climate changes (CO<sub>2</sub>; Ozone; temperature)
- Quality
- Stability
- Modern tools for prebreeding under the application of plant genetic resources.

The group also discussed how to bring stakeholders together to carry out the above research activities and identified some possible actions:

- Pilot projects: depending on the region, these projects would involve different categories of stakeholders (Nordic countries: farmers, breeders, seed companies; in Mediterranean countries: all the value chain)
- Activities towards knowledge transfer: open days, training for farmers, field visits, best practices
- Ideas for pilot projects:



- Control of mycotoxins in cereals: touch many stakeholders (farmers, seed industry, food industry,...)
- Fusarium
- New kind of platforms (at EU level): many available but all top-down. "National" platforms are not interlinked, they are industry-driven and SME are too small and not involved; bio-based industry platforms

### **PGR Working Group #2 (Contribution from Charlotte Allender, chair of the group)**

Each member of the second PGR group gave their experience in collaborative model they have been involved in. A common theme which arose among them was knowledge and technology transfer. They discussed what worked and did not work in these collaborative models.

Things that made existing cooperation successful were:

- a clear win –win situation among the stakeholders;
- a good understanding of the value of PGR and their products; in this respect roadshows proved to be very effective, but were limited by scarcity of funds;
- good communication among members of the partnership;
- a certain threshold of trusts among stakeholders.

Things which did not work well were:

- different perspective among stakeholders in the public sector;
- mismatch between the interest of large multinationals companies and local community needs;
- concerns about intellectual property rights, in particular with regards to royalty returns;
- short time frame for the research projects.

The group identified the three priority research needs:

- Pre-breeding;
- Trait screening; evaluation and characterisation;
- Knowledge / technical transfer along value chain.

The group also suggested that the users of genetic resources should be invited to make a presentation for the next Focus Group meeting. The group also requested that the list of participants and their bio-data be shared among participants.

### **Plenary Discussion**

After the presentation of the breakout working groups, participants engaged in a general discussion. Key points raised during the plenary discussion are:

- Need for developing trust for any cooperation model to succeed;
- Ideally, markets should drive conservation but incentive mechanisms should be developed for conserving varieties that have no market value;
- How can farmers make a living from local breeds and varieties?
- Rare breeds alone often do not work; there is a need for a whole branding package often combined with superior health and sanitary standards;
- Niche market – need to consider all details;
- Fair distribution of benefits;
- Recognition should be given to farmers who are custodians of biodiversity;

- Make use of existing experiences – ECPGR , PPP (Private Public Partnership) in Nordic countries;
- There is a missing link between breeders and farmers in PGR;
- Cooperation model will only work if there is a platforms for collaboration (e,g, Biobase platform).
- The participation of farmers in these platforms was questioned. It was noted that farmers have a full busy schedule and have no time to devote to attend meetings.

### Final discussion, preparation of next meeting, homework

The group discussed the process for the preparation of specific thematic papers (mini-papers). Sergiu presented a table of key topics and themes for further development and invited FG members to contribute (see annex 3). Key expert of the FG (Ehsan Dulloo) will coordinate this process. Timeframe was discussed and it was agreed that this should be done as soon as possible. Sergiu will send new time line for next steps.

### Date for next meeting

A possible date for the next meeting was set for 1-2 July 2014. Possible destinations are Germany or Finland. These destinations have been proposed because experts from these countries can provide useful examples/field visits in animal genetic resources co-operation in order to "balance" the focus on plant genetic resources of the first meeting. A final decision will be made when the EIP Service Point and the travel agency have examined the logistical aspects.



## NEXT STEPS

1. Send minutes of the first meeting to participants (Sergiu - by February 14) done
2. Provide table on the Specific Thematic Papers (minipapers) together with the minutes (Sergiu) done
3. Provide evaluation questions together with the minutes (Sergiu) done
4. Encourage experts to fill in E-forms about relevant innovation related research projects, innovation initiatives (e.g. operational groups, best practices) etc. Link to E-forms (can be further disseminated by FG experts) <https://googledrive.com/host/0B5UW-7uGIJIBWVvK24tYIBLUEU/index.html> done

Link to additional E-forms about registering organizations and individual users

<https://googledrive.com/host/0B5UW-7uGIJIBWVvK24tYIBLUEU/organization.html>

<https://googledrive.com/host/0B5UW-7uGIJIBWVvK24tYIBLUEU/user-profile.html>

## Annex 1: List of participants

Name	Country	Gender	Expertise
Charlotte Allender	UK	Female	Manager of vegetable genebank
Georgios Banos	Greece	Male	Scientist -farm animal genetics and breeding
Diana Bowles	UK	Female	Molecular biologist and policy advisor
Bravi Romana	Italy	Female	scientist - seed certification
Rudolf Buhler	Germany	Male	Farmer - rep of Agriculture Organisation AnGR
Coralie Danchin	France	Female	Rep agriculture org., industry and manufacturing; AnGR cryobank
Isabela Dalla Ragione	Italy	Female	Curator, Archeologia Arborea Foundation
Segiu Didisescu	Belgium		EIP-AGRI Service Point; Focus Group Task Manager.
Ehsan Dulloo	Italy	Male	Key expert –EIP
Andrew Fieldsend	UK	Male	Scientist - Breeder
Emanuela Galeazzi	Belgium	Female	Responsible for the FG on genetic resources at DG AGRI
Ana CATARINA Gomes	Portugal	Female	Molecular biologist
Michael Halewood	Italy	Male	Policy, Bioversity International
Ivan Ingeibrecht	Belgium	Male	Manager, International Industrial Biotech Network
Ahmed Jahoor	Norway	Male	Private plant breeding company; breeder, genetic diversity
Beate Koller	Austria	Female	Arche Noah; NGO
Gintare Kucinskiene	Lithuania	Female	Lithuanian Agricultural Advisory Service; Ministry of Agriculture
Stefano Padulosi	Italy	Male	Conservation and use of PGR
Merce ROVIRA	Spain	Female	Nuts and tree genetic resources;
María José Suso	Spain	Female	Scientist; local pre-breeding and breeding strategies;
Raphael Tisiot	France	Male	Farmer advisor and scientist

Roberto Tuberosa	Italy	Male	Scientist; Breeding experience
Katya Uzundzhaliyeva	Bulgaria	Female	Plant Genetic Resources; Botanist
Johan Van Huylenbroeck	Belgium	Male	scientist; turf grass breeder, ornamentals ;
Merja Veteläinen	Finland	Female	Breeder; PGR scientist;

## Annex 2: Agenda

**06 – 07 February 2014**  
**Rome, Italy**

### Day 1: Thursday 06 February 2014

12:30	14:00	Lunch
14:00	16:00	Field Visit to 'Istituto Sperimentale di Frutticoltura, Ciampino' by bus
16:00	16:30	Coffee
16:30	18:00	<b>Session 1</b> Round of introduction

Introduction to the EIP AGRI concept and the expectation from the focus group on genetic resources cooperation models (10 min) - presentation by Emanuela Galeazzi (DG AGRI)

Introduction to the EIP-AGRI Service Point (10 min) - by Sergiu Didicescu (Focus Group Task Manager)

Presentation of the starting paper, results of the survey and topics for discussions (10mins) - by Mr. Ehsan Dulloo (Focus Group Key Expert)

19:30

Archeologia arborea, links to farmers and markets (10 min) - Presentation by Isabella Dalla Ragione

Policy aspects of access to germplasm (10 min) - by Michael Halewood (Biodiversity international)

Preparation of day 2 - discussions of key topics (30 min)

Dinner

### Day 2: Friday 07 February 2014

10:30	<b>Session 2</b> Participants will split in two groups, the first one focusing on Plant and the second in Animal Genetic Resources. Both groups will focus on the following tasks: <ol style="list-style-type: none"> <li>1. Identify the different types of operational agreements between the stakeholders in the field</li> <li>2. Identify and analyze existing cooperation: bottlenecks and successful factors</li> <li>3. Identify possible alternative solutions for the identify bottlenecks</li> <li>4. Propose models and strategies to motivate public and private stakeholders to engage in cooperation models</li> </ol>
11:00	
13:00	

Coffee break

#### **Session 3**

Presentation of outcomes by each working group (15 min each)

14:00

Plenary discussion (1 hour)

Summary of key outputs by Key expert (15min)

Next steps and plans for second meeting (15 min)

Lunch

Departure

## Annex 3: Table of the specific thematic papers (Mini-papers)

Theme	Theme questions	Lead Authors	Contributors
Cooperation in conservation of genetic resources	Insufficient information on gene bank accession; Concretely what kind of information/data?	Merce Rovira	Ehsan Dulloo
	Characterization and use of collections including using modern tools; List needed tools	Charlotte Allender	Ivan Ingelbrecht
	Inventory of genetic resources in public and private collections; identification of duplication within collections. How to proceed? What approach?	Merce Rovira	Ehsan Dulloo
	Interdisciplinary approach in conservation of genetic resources. What is needed? Which stakeholders?	Stefano Padulosi	Romana Bravi; Georgios Banos
	Preserve crop wild relatives; search and identify new traits. What criteria and issues for rationalization? What steps are needed?	Ehsan Dulloo	Merja Vetelainen; Katya Uzundzhaliyeva;
Cooperation in use of genetic resources	Use of (plant) diversity to control pests and diseases, biotic and abiotic stresses. What steps are needed?	Ahmed Jahoor (Biotic stresses) Roberto Tuberosa – (abiotic stresses)	Johan Van Huylenbroeck
	Research and breeding programmes on local breeds and varieties. How to proceed, at what level action should be taken? What priorities?	Stefano Padulosi Maria Jose Suso	Georgios Banos
	Participatory plant breeding and use of NUS, local breeds and varieties What exists? How to proceed?		

	Value chain cooperation. Eco-system services. What actors to be involved? What are their roles? Best way forward?	Ana Catarina Gomes	Maria Jose Suso
	Cooperative pre-breeding programs Which priority species?	Ahmed Jahoor	Johan Van Huylbroeck ; Charlotte Allender
Other issues	Platforms	Merja Vetelainen	Ehsan Dulloo