

DYNAVERSITY

DYNAmic seed networks for managing European diVERSITY

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Interaction between conservation and breeding

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☒ **PU: Public (must be available on the website)**

☐ **CO: Confidential, only for members of the consortium (including the Commission Services)**

☐ **CI: Classified, as referred to in Commission Decision 2001/844/EC**

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Foreword

One goal of WP3 is to “connect community seed banks and farmers’ networks involved *in situ* conservation with institutions involved in *ex situ* conservation”.

This deliverable reports about perspectives and lock-ins for new forms of interactions between conservation and breeding communities.

This document follows the template provided by the European Commission in the Participant Portal.

This deliverable is based on and complying with the following reference documents:

- The GA, Annex I and Annex II (downloadable from the participant portal); and
- The Consortium Agreement (CA).

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Introduction

As already mentioned in D 1.2, the divergence of views between *in situ* and *ex situ* approaches is a half-century debate, which emerged as early as the 1960s (Frankel et Bennett 1970). Since then, while the recognition of *in situ/ex situ* complementarity has always been emphasised, it has never been taken up at a large scale, and unbalanced investments (both financially and conceptually) have been made between *in situ* and *ex situ* (Cohen et al. 1991; Westengen et al. 2018). However recent developments of initiatives, such as Community Seed Banks (Vernooy et Clancy 2017), hardly fit in the current binary divide and oblige to reconsider the current *in situ/ex situ* divide and more generally the conservation landscape¹.

This deliverable reports about perspectives and lock-ins for new forms of interaction between conservation and breeding communities based on a diversity of point of view gathered from various actors concerned by the dynamic management of crop diversity. Definition of “conservation and breeding communities” and “dynamic management” proposed in D 1.1 are recalled here:

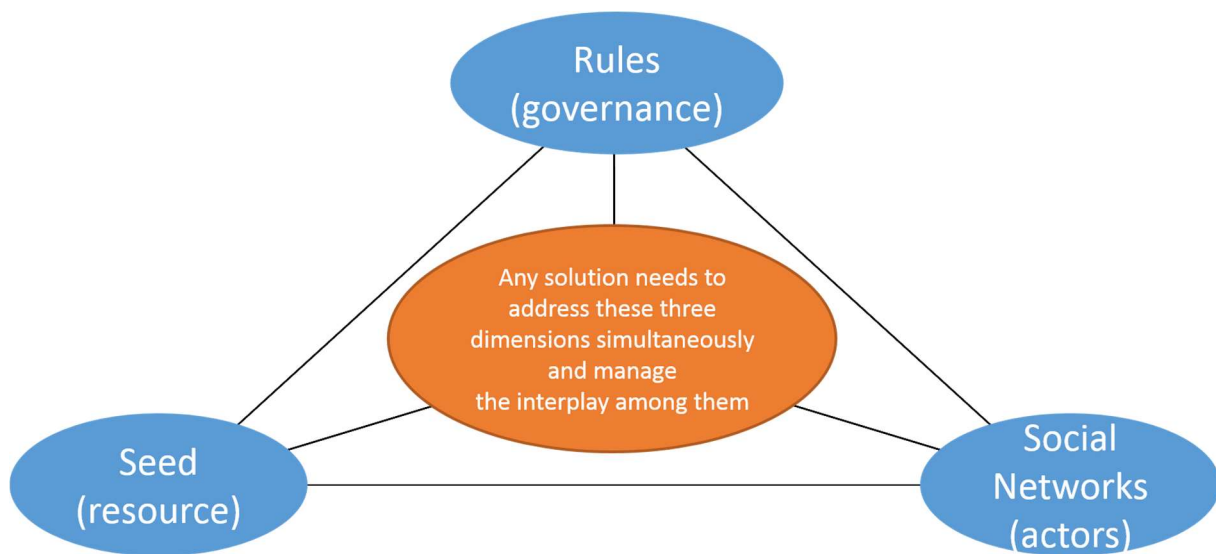
- Conservation and breeding communities: “community seed systems are composed by a diversity of actors (farmers, genebank, breeders, local conservatory, researchers, community seed banks, farmers and seed savers organisations, consumers, etc.) interacting through seed and knowledge transfers” [refers to 1.2) Seed networks (D1.1)].
- Dynamic management (DM) recognises conservation as a dynamic process realised through use and exchange among the widest range of actors, that better accounts for the evolving nature of material however it is managed (also *ex situ*). DM is considered as an overarching principle that allows to: move beyond the binary division of labour between *in situ* and *ex situ* as given and fixed categories; move beyond a binary division of labour between conservation and use (natural resources perception of conservation). DM becomes an integral part of the integrated seed systems/networks presented earlier that connect different actors, resources and rules. [refers to 1.3) Agrobiodiversity conservation (D1.1)].

To report about obstacles and perspectives for new forms of interactions between conservation and breeding communities, we mobilised an analytical framework that is defined in the first section. This analytical framework has been applied to three sources of information that are described in the second section. The third section presents and discusses the findings of the analysis.

1 For more information about the role of Community seed banks in Europe see www.communityseedbanks.org and the website of the HORIZON2020 project DIVERSIFOOD www.diversifood.eu.

1. Analytical framework

Seed systems integrate different dimensions: biological (genetic, physiological, agronomical, nutritional), social, cultural, aesthetical, economical, and political. To consider dynamic management of crop diversity it is, thus, needed to account for the interconnection of a diversity of people, plants and rules, as reflected in the Institutional Development Analysis Framework developed by Elinor Ostrom on her study of common-pool resources management (Ostrom 1990).



Because it is above all a diversity shaped by human societies, crop diversity cannot be considered solely in its biological dimensions. Crops come from a history that is always linked to human societies and always fit into specific social contexts. The dynamics of crop diversity management systems is consequently approached according to three dimensions specific to the socio-ecological system in which they operate: biological (the diversity of cultivated plants), socio-economical (the diversity of actors involved in crop diversity use, exchange and conservation) and political (the diversity of rules that organise the circulation of seeds) (Halewood et al. 2012). Such framework makes it possible to situate crop diversity management systems beyond the linear value chain vision in which the different activities concerning crop diversity (conservation, research, breeding and product development, farming/production) are operated sequentially by different sets of actors, which is often the main focus of reflection on seed systems.

2. Sources of information

Three types of inputs have been mobilised to document the obstacles and perspectives of new forms of interactions between conservation and breeding communities in Europe:

- two online surveys to understand the current interactions and synergies between *ex situ* institutions and on-farm actors in Europe;
- a preparatory document produced as an input to a first workshop about the role of genebank in the institutional landscape of dynamic conservation; and
- a report of the first workshop about innovative governance for the gene banks.

This section describes how these sources of information were obtained.

Online surveys

One of the activities led by DYNAVERSITY is to increase our understanding on availability, usefulness and accessibility of genebank materials to the so called “final” or “direct” users. These direct users are here defined as those who do not generally request and use *ex situ* accessions for formal pre-breeding, breeding or genetic/genomic research purposes, but rather for on-farm conservation, collective field experimentation and local production. This include seed savers’ organisations, farmers and their organisations and networks. DYNAVERSITY deployed two surveys: one among genebank curators and the other among on-farm organisations and their individual members (farmers, seed savers, technicians). This initiative built upon the two surveys (annex 1 and 2) already implemented in the context of the ECPGR LINKAGE project (2017-2018)². It aimed at increasing the representativeness of the responses by increasing the number of European countries which gathered the survey. Three contact lists were used to reach this aim: 1) The participation list of the final meeting of the preparatory action on Plant Genetic Resources (Arcadia, Nantes, September 2018); 2) the contact list used by FAO to share information dealing with sustainable agriculture/on-farm/*in situ* management of crop diversity; 3) the contact list of national focal points for the Treaty and CGRFA FAO. The compilation of these different contact lists amounted to more than 90 persons who were invited to fill in the survey in November 2019. Even if only 9 people answered it up to now, 7 answers were obtained from the *ex situ* survey with 2 new countries (the United Kingdom and Portugal) and 2 answers from the on-farm survey with 2 new countries (Germany and Greece).

Preparatory report

This preparatory report has been done based on a case study analysis of the Montpellier-based Biological Resource Center Arcad. A series of interviews has been conducted in October 2018 to collect rich descriptive data to inform the issue of opportunities and obstacles of new forms of interactions between conservation and breeding communities. Interviews have been conducted following traditional interview methods (Denzin et Lincoln 2008; Kvale 1996) with representatives of three main groups: 1) genebanks managers; 2) researchers and managers involved in crop diversity analysis and management; 3) (non-academic) practitioners.

2 <https://www.ecpgr.cgiar.org/working-groups/on-farm-conservation/linkages>

Report of the first workshop

This workshop was organised in Mèze (France) in November 2019 and brought together 25 European and African participants³ from different sectors (curators, researchers, and practitioners) with direct or indirect experience of working in or with gene banks. On the basis of past or current experiences of linkages between *ex situ* and on-farm conservation, the objective was to identify opportunities and constraints for changing practices for the conservation, exchange and use of cultivated diversity in a way that benefits the greatest number of people. This workshop enabled us to engage in an in-depth reflection on this subject through interactions organised using foresight method that led us to imagine the different possible roles of gene banks in 10-year time. This approach allowed reconsidering the present situation and building a shared diagnosis of the situation and identifying expectations in terms of the evolution of the role of gene banks in the more global landscape of the dynamic conservation of cultivated diversity.

3. Results and discussion

Information gathered through to the three previously described sources was organized according to two axes. The first one consists in identifying the obstacles for new forms of interactions between conservation and breeding communities in Europe. The second one deals with the perspectives and opportunities for developing these new forms of interactions.

Reported obstacles

In line with the analytical framework, when considering the biological characteristics of the seeds, some responses provided by the direct users obtained through the survey pointed out that *ex situ* conservation can lead to unsuitable material for farming conditions due to the environmental conditions of multiplication/regeneration. Along the same line, people interviewed to prepare the preparatory report highlighted that *ex situ* practices generally reduce intra-varietal genetic diversity (population-varieties fixed in pure lines) and reduce adaptability.

Some participants in the workshop noted that the trend towards dematerialisation of the biological resources (bioinformatics, synthetic biology, -omics) could increase the gap between genebanks and farmers as this kind of characterisation further the distance between knowledge systems. It has also been noted that the choices in the material collected in genebanks, in line with their mandate, are more in line with the expectations of researchers (core collection representative of the diversity within a species) than those of farmers (storing varieties specific to their locality).

When considering the actors' characteristics, responses provided by genebank curators indicate a lack of interest, incentive and time for collaboration with other actors than researchers or other genebank curators. Both surveys reveal a lack of trust and/or strong social relationships between the two communities: people working in genebanks and people

3 France (18), Tunisie (1), Algérie (1), Italie (1), Sénégal (1), Mali (1), Côte d'Ivoire (1), Niger (1)

managing on-farm crop diversity. More broadly, the preparatory report identified a lack of consideration for the diversity of actors concerned by dynamic management of crop diversity such as farmers, farmers' organisation, community seed banks, seed saver organisations, gardeners/hobbyists, agronomic education programs, food heritage initiatives, local conservatories and botanical gardens, etc.

The workshop highlighted the following additional points in relation to obstacles:

- Genebank are increasingly dedicated to the activities of genetic researchers, a specialization that prevents opening up to other disciplines (social sciences, with the consequent lack of information of a socio-cultural nature associated with the samples collected) and to other non-academic actors. More broadly, participants agreed on the need to strengthen the interdisciplinary and transdisciplinary skills and capacities of genebank managers.
- But more openness is required on the non-academic actors' sides too. There is a sense of mistrust from some farmers' organization towards scientists that would need to be overcome.
- The existence of intellectual property rights on varieties generates also mistrust limiting collective management of cultivated diversity.
- At a more fundamental level, existing divergences about the status of seed and the importance of social dimensions in management of agrobiodiversity increases the difficulty to find common ground.

When considering the organisational and regulatory characteristics of the management of crop diversity, the survey highlighted inadequate information about what is available (characterisation, associated information...). Some responses from the genebank curators addressed the limited availability of funding (used in priority for core *ex situ* related activities). This lack of funding leads, in some situations, that genebanks develop new business model by implementing fees that reduce the number of requests by direct user. Some direct users like technicians from farmers' organisation or farmers depicted an inadequate quantity of seed available for distribution by genebanks and high transaction costs (paperwork and length of the process). In addition, exchange rules are not always adapted to the diversity of actors. Some European genebanks provide seed only for research and other genebank and not for the direct user like farmers. The lack of inclusiveness in the decision-making process was also pointed out by the preparatory report.

The governance workshop pointed to structural, financial and regulatory constraints that are not conducive to accounting for the diversity of practices and needs. The lack of non-academic actors in genebanks' governance structures is also an obstacle for the design of more collaborative processes.

The disengagement of public authorities regarding the management of genebank, which materializes through lack of core public funds lead genebank to develop economic models that could be detrimental to collaboration with local actors.

	Financing and Governance	GR management	Interactions, trust building	Regulations and policy
Genebank managers	disengagement of public authorities	Professionalization and specialization	Lack of time/staff/resources to engage beyond existing mandate	Exchange rules (contract/ABS rules)
Researchers		Lack of inter-disciplinarity	Lack of incentive and funding for wider collaborations	
Practitioners	Lack of inclusion in decision-making	Gap between knowledge systems	General mistrust for what is perceived as a biological only approach to seed and crop diversity management	IPR

Table 1: Summary of main obstacles as described by the type of actors

Opportunities and perspectives

The opportunities and perspectives are not approached according to each category (actors/resources/rules) taken in isolation but rather in a integrated manner in order to show the importance of considering the interplay between these three dimensions:

1. Towards an opening of genebank management and research to a diversity of actors involved in agrobiodiversity management

There is an increased willingness to open-up on the part of many genebank managers who feel that their profession loses its meaning when it specialises too much towards researchers who have limited interest and demand for genetic material. The survey answered by genebank curators indicates the trend that the number of requests by direct users is increasing since the last 5-10 last years for 27 genebank curators over the 52 who answered the survey. Such behaviour improves popularity and reputation of the genebanks. Such new interactions will induce a shift from the provider/user relationship to collaborations between genebank and the “breeding community” (Annexes 3 and 4). Recent collaborations between genebanks and farmers’ organisations or seed savers’ organisation are reported by the two surveys like in Latvia, Norway, Spain, and Italy. Some genebanks already developed innovative initiatives with other non-academic actors that are based on a re-territorialisation of the collective management of diversity through community seed banks or regional conservatory that could serve as intermediary between genebanks and larger breeding communities.

Besides, some research organisations increasingly help in developing new spaces of dialogue and begin to co-construct new governance modalities to acknowledge the role and the function of the different actors involved in dynamic management of crop diversity, such as: 1) charter for enhanced collaboration (e.g. CREA & RSR in Italy); 2) Genetic resources national commission open to farmers and NGO’s (e.g.

France); 3) Genebank steering committee (e.g. Citrus GB in Corsica or Center for Genetic Resources, the Netherlands).

Finally, a new way of characterising material contained in genebank (by providing more phenotyping and associated use knowledge information) also helps raising interest by an increased number and diversity of users.

2. Towards a recognition of the multi-functionality of farmers and their know-how in the management of crop diversity.

The recognition of farmers' rights by the International Treaty on Plant Genetic Resources and of local and indigenous ecological knowledge by the Nagoya Protocol increases the legitimacy of increased involvement of non-academic actors in diversity management at the institutional level.

Multi-actors' national genetic resources committee are being set up in some countries and diversity of contexts and actors are integrated in national action plan dealing with agrobiodiversity.

3. Towards a paradigm shift from on farm conservation to collective management of agrobiodiversity

Increased work and evidence are accumulated on the co-evolution process between plant their environment and society. This leads to increased recognition on the part of certain researchers/managers for different modes of representation of living beings in which human beings are an integral part of the biological diversity. This change of paradigm can encourage the decompartmentalization between researchers/managers on the one hand and farmers on the other. The society, as a whole, is also increasingly aware of the risks associated with biodiversity loss.

Overall, a more holistic approach to agrobiodiversity in which the different dimensions of agrobiodiversity, including the social and cultural ones, are integrated would help establishing more adaptive governance processes.

Conclusions

The report identified several major obstacles for more integrated and dynamic management. A set of obstacles concerns the financing of gene banks, the current compartmentalization between the different types of actors involved and the genebanks in which genetic resources contained in gene banks are mainly used for research purposes and does not favour a large circulation of diversity for a wider range of activities and objectives. The existing distance between the different types of actors involved, the lack of articulation between the different types of expertise and know-how, and the power games existing between these types of expertise, are detrimental to more fluid interactions.

On the more positive side, there is today a growing number of multi-stakeholder networks that consider a plurality of skills and values associated with agrobiodiversity. The emergence of many community seed banks around the world over the last 20 years has led to the recognition of farmers' multi-functionality and their know-how in the collective management of crop diversity, including at the national and international levels.

Ultimately, the approach highlighted the need to reconsider the question of the role of gene banks in a broader societal project and place the modalities of *ex situ* conservation in the context of societal and political issues. This particular point will be addressed in the upcoming deliverable D3.3: Report about innovative mechanisms of governance for genebank management (M34).

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Annexes

Annex 1: Survey to on-farm communities

Questions

General information

- Are you a:
 - Farmer
 - Seed saver
 - Home gardener/hobbyist
 - Seed network technician/animator

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- Small seed producer/distributor [please briefly describe how you operate with relation to seed production/commercialization, e.g. are you a formal seed enterprise, what type of seed do you sell? Do you deal with conservation or amateur varieties? Do you serve the organic market?]
 - What is your main activity?
 - Commercial production
 - Organic/biodynamic
 - Conventional
 - Self-sufficiency production
 - On farm conservation
 - On farm variety selection/adaptation/breeding
 - What crops are you most interested in?

Relationships with genebanks

- Do you think a genebank is an appropriate place for you to ask for seed for your use?
 - Yes (please explain why)
 - No (please explain why)
- Have you ever requested seed from *ex situ* collections/genebanks in or outside Europe?
 - Yes. If so, from which ones? Of which crops? For what purposes?
 - No (please explain why)
- What did you use the requested genetic resources for?
 - Self-consumption
 - Promotion among farmers through participatory research and seed exchange
 - Valorization of the final product
- Was the information on the varieties available in genebanks sufficient and useful for you to select the materials you wished to request?
 - Yes
 - No. If so, what sort of information would you need to be able to make more informed choices about the materials that may be useful to you?
 - Not relevant since I never searched for this type of information

Contacting genebanks

- Do you find it straightforward to contact genebanks and/or to get information on the procedures for making a request for germplasm?
 - Yes (please explain why)
 - No (please explain why)

-
- Through which channels did you express your request?
 - o Email to website address
 - o Online form
 - o Informal request thanks to contact with genebank personnel
 - o Other
 - o Not relevant since I never requested material from genebanks
 - Was your request transmitted through an organization you belong to or that you asked to help you on this occasion?
 - o Yes, I used the intermediation of an organization (please specify which one)
 - o No, I made the request in my name

Getting the seed

- Did you get the seed you requested?
 - o If yes, under what conditions (e.g. MTA, SMTA, payments)?
 - o If no, can you share the explanation (if any) given by the *ex situ* institution(s)?
 - o Not relevant since I never requested material from genebanks
- If your request was fulfilled, were you satisfied with the material you received (in terms of timeliness of the distribution, quantity and quality of the seed, correspondence to variety description, uniformity, etc.)?
 - o Yes (please spend a few words on your experience and satisfaction)
 - o No. If so, what were the main problems you experienced with the seeds?

Collaborations with *ex situ* institutions

- Apart from the distribution of genetic resources, do you or your organization collaborate formally with *ex situ* institutions?
 - o Yes [Please describe the platforms/projects/initiatives (national or international) in which you collaborate]
 - o No

Future perspectives

Based on your experience or on your expectations, would you be interested in receiving (more) seeds from *ex situ* collections? What do you see as the main added-value of receiving germplasm from these institutions and the advantages offered by this kind of relationship with these institutions? Please elaborate briefly on this.

Annex 2: Survey to genebank managers

Number of germplasm requests

How many requests for materials do you receive, on average, per year?

- less than 100

-
- 100-500
 - 500-1000
 - over 1000

Requests for direct use

Do you receive requests for germplasm which can be considered for “direct use”?

- yes
- no (if no, can you explain why, in your opinion or knowledge, you do not receive direct use requests?)

Do you have a specific policy regarding requests for “direct use” (i.e. requests from farmers or farmer associations interested in multiplying and directly using the materials, as they are, in production systems or in on farm activities?) or do you treat them as any other request for material? [open answer]
How many requests for germplasm for direct use purposes do you receive per year, on average?

- less than 20
- 20-100
- over 100

Have these types of requests been increasing in the last 5-10 years?

Actor types

Who are the main actors requesting materials for direct use? Please provide an estimated percentage for each suggested category over the total of direct use requests

- Farmers
- Seed savers/amateurs
- Farmer associations
- Seed saver associations
- NGOs

Origin of the requests

Do these requests mostly come from within the country of the genebank or from other countries?

- from within the country of the genebank
- from other countries
- equally from within the country and from abroad

Species most requested

Which species among those you conserve are mostly requested? Please indicate the first three in order of frequency of requests

Material types

What types of material are usually requested in these cases? (e.g. mostly landraces, mostly elite lines, crop wild relatives or other)

Response to germplasm requests

What kind of agreements do you use when distributing materials from your collection?

- Standard Material Transfer Agreement (SMTA) as defined by the International Treaty on PGRFA
- Another MTA (How does it differ from the Treaty's SMTA?)
- Other (please describe it briefly)

-
- No agreement

When you receive requests for direct use, do you send out the material (given it is available and in good health)?

- Yes, always
- Only in a few cases (Please specify which cases and based on what considerations)
- No (why not? Do you explain your reasons to requesters?)

Do you use different agreements or arrangements when distributing materials from your collection to “direct users”?

- Yes (Please briefly describe such agreement or arrangement)
- We use no agreement (Why?)
- Not relevant (we don't distribute to direct users)

Do you have any observation or comment that you wish to share on your institutions' experience with “direct use” requests?

Apart from the distribution of genetic resources, does your organization collaborate formally with direct users (farmers, seed savers) or their organizations?

- Yes (Please describe the projects, initiatives or platforms (national or international) in which you collaborate)
- No (Do you believe there is potential for greater collaboration/interactions? In which thematic areas?)

Do you publish the total numbers of requests and the total genetic resources you distribute annually?

- Yes, we publish it online or in our annual report
- No

Annex 3: Preparatory document for the LINKAGES final workshop



Preparatory document for the LINKAGES final workshop

Florence, Italy, 4-5 June 2018

Dear invitees to the LINKAGES final workshop,

Hoping to contribute to your interest and commitment to attend the LINKAGES final workshop, we are sharing this brief document which summarises the main results emerging from the surveys and outlines a few preliminary points of discussion for our meeting.

As you know, the LINKAGES project circulated two surveys, one among genebank curators and one among on-farm representatives (farmers, seed savers, and their collective organizations), to gather data on how “direct use” germplasm requests were handled. While defining direct use was challenging, we kept the definition quite broad, intending to capture all those requests for germplasm which do not fall within the conventional research/breeding pipeline but are rather made to genebanks by individuals or communities who wish to embed crop genetic diversity in their on-farm sustainable production or participatory research endeavours.

Ex situ findings

We received 45 complete answers from genebank curators in 21 countries, covering a range of different crops and distributing an average of around 100-200 samples per year. With just one exception, all genebanks have received “direct use” requests for germplasm, and these types of requests were reported to be increasing by half of our respondents. Most “direct use” requests came from farmers and seed savers, and a relatively smaller proportion from their associations or organizations. While most curators declared not to have a specific policy for dealing with direct users’ requests (70%), around a quarter of our responses indicated they had a specific policy in place, although not all specified what it consisted in specifically. The use of an SMTA was quite frequent even in dealing with direct users but often in a simplified form, while around 22% of curators stated not to be using a transfer agreement at all in these cases. Finally, in terms of collaborations with the on-farm world, the majority of genebank managers answered positively, being engaged more or less sporadically with on-farm actors and farmers in projects or networks.

On farm findings

We received 45 complete answers from “direct users” in 8 countries, covering a range of different actor types including farmers, farmers associations and technicians working closely with local farmers. Respondents are equally involved in commercial organic/biodynamic production as well as

on farm conservation of landraces and breeding/selection activities. Most of the respondents already experienced an interaction with a gene bank to request seeds and the vast majority obtained the material requested. An intermediary organization or network often helped individual users with the request. The promotion of a specific variety through collective processes and seed exchanges was the main purpose for which the respondents asked for germplasm. A large proportion (over 75%) of surveyed direct users declared a high level of satisfaction with the material received, while some dissatisfaction was expressed in terms of the associated information. Finally, more than 40% of the direct users reported being engaged with one or more *ex situ* institutions in collaborative projects or networks.

Tentative issues for discussion

Do we have a shared and common view of what can be considered a “direct use” request and of what kind of actors are making these types of requests?

Which specific agreements or policies are in place (if they differ from the default ones) for direct use requests (what do “simplified SMTAs” look like? Are they reported to the Treaty’s Governing Body or other relevant institutions in a similar way as “normal SMTAs”?)

How does the *ex situ* community see the “direct users” communities they serve, in terms of potential collaborations and synergies in carrying out conservation and innovation around genetic resources?

Who are the “direct users” interacting with the *ex situ* community? Are they perhaps not only private farmers/gardeners but actors embedded in communities where meaningful on farm conservation and experimentation take place?

How can we improve the interaction between these direct users and the *ex situ* community and how could this contribute to an integrated strategy for conservation and sustainable use of plant genetic resources?

What can be the role of “direct users” involved in collective processes and seed exchanges in agrobiodiversity conservation policies? Could their activity become complementary/synergic to the one of the *ex situ* community and how to foster this?

How can knowledge exchange between *ex situ* and on farm actors involved in collective experimentation/innovation processes improve the information associated to crop germplasm?

While we finalise the analyses of the two surveys to present the complete results during the meeting, we encourage you to develop your own questions and curiosities which will surely enrich our two day discussion.

We hope to see you soon,

The local organizers from Rete Semi Rurali,

Livia Ortolani
Riccardo Bocci
Gea Galluzzi

Annex 4: Report of the LINKAGES final workshop



LINKAGES Activity final workshop

4 - 5 June 2018, Florence, Italy

Future plans and concrete steps

- ✓ Create future moments for more exchange/interaction between *ex situ* /on farm communities around concrete issues such as:
 - Improving the varied scenario of MTA/SMTAs currently used by on farm communities for material exchange, ensuring the possibility of interactions with genebank collections and modalities;
 - Possibility of integration/communication (with careful consideration of privacy issues) between the databases used by on-farm networks and communities and those used by *ex situ* genebanks;
 - Pilot projects on multiplication/dissemination of *ex situ* germplasm of interest to on-farm communities and/or small-scale organic farmers.

Opportunities for these continued exchanges and interactions could be offered by ongoing EU-funded projects focusing on synergies between *ex situ*/in situ/on farm conservation approaches and communities, namely the DYNAVERSITY and FARMERS' PRIDE projects in which some LINKAGES partners are involved. RSR is part of the Dynaversity project and will take care of embedding the issues emerging from LINKAGES into this project, finding opportunities to research them further. Other opportunities can be offered by seed networks' farmer field days and visits to experimental fields, which could allow *ex situ* personnel to better get acquainted with the possibilities offered by seed/farmer networks in terms of germplasm evaluation/characterization. Dedicated meetings of the ECPGR working groups can also offer opportunities for deepening some of the aspects emerging from LINKAGES. Working group members/chairs are called to make these spaces available when they see the opportunity.

- ✓ Set up a new international journal for publications focused on participatory, "informal", decentralized research on organic agriculture, seeds and agrobiodiversity. The International Treaty had proposed something similar some time ago and the ECPGR is planning something along these lines within the framework of a newly established EU research project. It would be good to have someone from the European seed networks represented in the editorial board together with experts from genebanks, so to work together on evaluating research results, which come from both worlds.

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- V Develop a pilot project proposal involving selected national genebanks and on farm networks to test the evaluation/characterization of priority germplasm sets of interest for organic, small scale agriculture in farmers' fields and sharing of the resulting data (with intellectual property considerations) with mutual benefit for farmers and genebanks. This could be a first step towards establishing an "alternative" evaluation network capable of incorporating the need for formal scientific reliability and the participatory advantages of working directly in a more informal, on-farm context, establishing new integrated research protocols. An opportunity to be explored for this possible proposal is the Horizon 2020 call "SFS-28-2019-Genetic resources and pre-breeding communities", with the topic "adding value to plant GenRes" in 2019; another opportunity could be the next round of ECPGR activity funding, which is expected for 2019.
 - V Develop the bases for an *ex situ*/on farm "alliance" (definition, structure and mandate to be defined), which could stem from the above interactions and joint activities, and become a steward of a more integrated vision of agrobiodiversity conservation and contribute to stronger implementation of the International Treaty's Articles 6 and 9 on sustainable use and farmers' rights in Europe.