

DIVERSIFOOD

Embedding crop diversity and networking for local high quality food systems

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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

Abstract

In Task 4.1 we developed a questionnaire to characterize the Biodiversity management system of five project partner countries: Austria, Italy, Spain, France, Switzerland. The Partners who answered the questionnaire belonged to the so called "informal sector" representing five Civil Society Organizations (NGOs). All of them are organized in farmer, gardeners and farmer-gardeners networks and all of them are involved in community seed bank activities.

All organizations are affected by national and international laws as they consider themselves as a part of the national and international seed managing system. Most of them are familiar with the ITPGRFA system and with using and signing sMTAs related to the exchange of seeds, e.g. with genebanks they collaborate with. The Nagoya protocol was mentioned by almost all partners, but the implications for their daily work is not yet clear. On a national

level seed laws especially on marketing of seeds and phytosanitary restrictions have been considered as a threat for biodiversity management systems in several cases.

In general, it can be said that the NGOs participating in the DIVERSIFOOD project are not at all working isolated. They participate in national conservation programs and all of them exchange seeds with the formal sector. Some of them cooperate tightly with little professional seed companies (microenterprises) but none of them have any links to bigger seed companies. In most of the biodiversity management systems marketing and commercializing of seeds and their products is an integral part of the conservation system especially for the farmers networks. For that quality seed systems are known and applied in the seed networks. Although they cooperate strongly with national authorities and policy makers, in many countries this cooperation is happening more on an informal basis and established platforms where exchange is formalized are lacking or in some cases under construction.

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INTRODUCTION (TASK DESCRIPTION)

In former EU projects or reports (e.g. PGR-Secure 2008) it has been stated repeatedly that NGOs¹ aren't well integrated in the Plant Genetic Resources for Food and Agriculture (PGRFA) circuit and that projects and interactions between NGOs and other stakeholders are rather poor. In Task 4.1 we would like to see if this is still the case after ten years. Many of the same NGOs exist far longer than that, are still working on biodiversity management, and succeeded in establishing themselves in the national and international PGRFA circuit.

After the entry into force of the Convention on Biological Diversity (CBD) in 1993, the release of the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture in 1996, and the entry into force of the International Treaty on Plant Genetic Resources for Food and Agriculture in 2004, on-farm biodiversity management communities have been able to benefit from those international initiatives, while struggling with some of the content and its impacts (e.g. the change in paradigm that PGRFA came under national sovereignty and lost their status as a heritage of mankind). However, we can now state that at least some of the civil society initiatives working on PGRFA biodiversity management benefitted from the new recognition they gained. Some national authorities started to involve representatives of the so called "informal sector" in the process of developing national action plans and national biodiversity strategies, and they established platforms and structures on which the different stakeholders can meet and develop their biodiversity management systems. But unfortunately in most of the European countries these cases are exceptions instead of the rule.

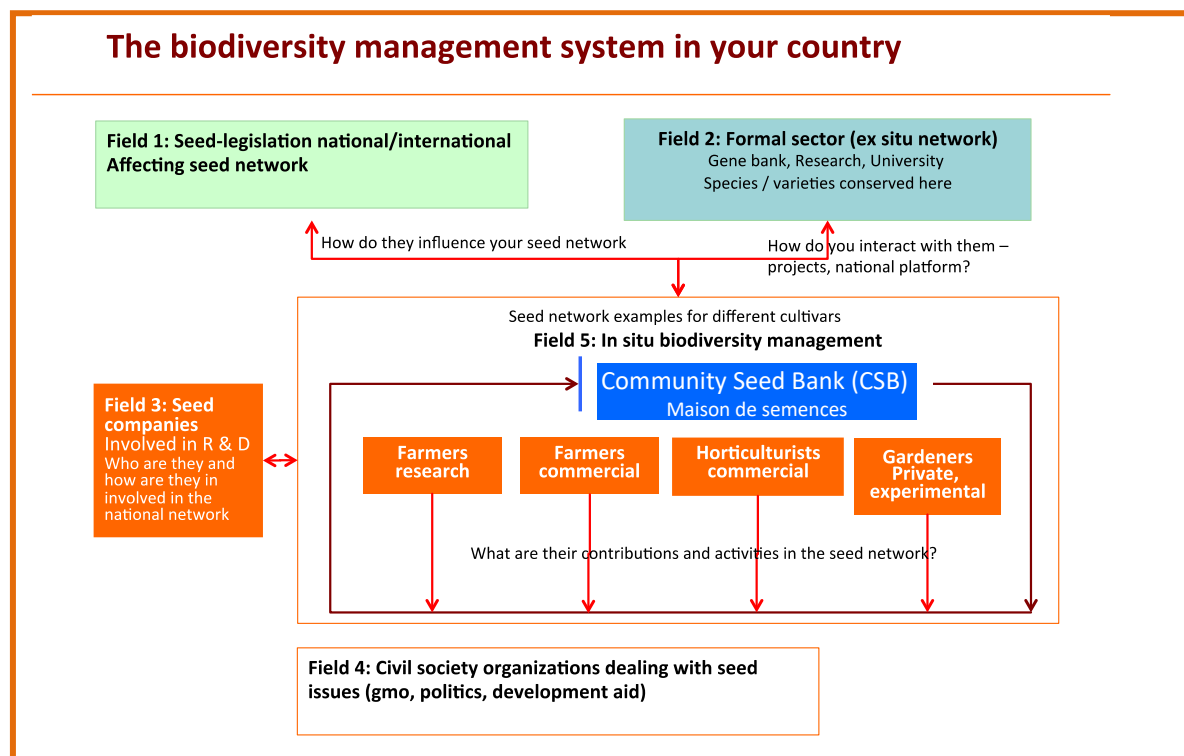
In order to improve the situation of these initiatives in general and to improve the quality of their biodiversity managing practices specifically, we have to clearly understand their present situation within the national and international PGRFA setting that constitutes the fundament on which they can accomplish their biodiversity management task. In general this part of the assignment deals mostly with the different structures that are established or lacking in a country and whether and how the different stakeholders are interlinked within those structures or networks.

Stating that seeds are at the beginning of almost every food production process, we have to be aware that the seed sector is one of the most regularized sectors in agriculture. Because of that a further aspect we examine in Task 4.1 is how international and national legislation related to PGRFA and seed marketing affects the daily work of the biodiversity management communities and which rules and standards are nationally and internationally established to facilitate or impede this work.

¹ Many partners of the DIVERSIFOOD consortium would have preferred to use the expression of Civil Society Organization (CSO). Nevertheless WP-leader preferred this expression, we decided to keep the abbreviation "NGO" because we think it is better known in the public. In our case NGO stands for: seed savers and "diversity farmers" that are collaborating in networks and run a central coordination office. Most of those NGOs run a kind of community seed bank to store and exchange seeds between each other.

METHODOLOGY

To better capture the diverse structures of the biodiversity management systems in the countries involved in this study, we established a model structure that depicts the various stakeholders and fields of activities that constitute the whole system.



The model is based on a list of stakeholders we established for the inventory of Community Seed Banks (CSBs) and biodiversity management stakeholders in Task 4.1 and Task 4.3.

FOCUS OF THE ANALYSIS:

The questionnaire focuses on NGOs practicing on-farm biodiversity management and describes their actual situation, their field of activities and how they are linked to the international and national conservation and biodiversity management system.

The first part of the questionnaire is dedicated to the legal environment of the international and national seed system. The Task 4.1 partners had to describe two or three concrete examples and illustrate which of the legal directives currently affect them the most. These examples are compiled in a list.

The second part focuses on the network itself. First at the national level and secondly at the partners (NGOs) level. What does the network look like? Who is involved? What kind of PGRFA are managed? What are the links between formal and NGOs networks and what do the cooperation looks like?

In the following analysis we extract the main points of each partner that are relevant for the comparison of the different systems. The questionnaire and some of the received answers that aren't summarized in the report are included in the annexes.

Field 1: International legal framework linked to the biodiversity management system of NGOs

All partners mentioned the following international legal framework as relevant for their seed propagation and biodiversity management work:

1. International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)
2. Nagoya Protocol of the CBD
3. Union for the Protection of New Varieties of Plants (UPOV)
4. European Patent Office (EPO)

Most of the national NGOs are familiar with the ITPGRFA system and with using and signing SMTAs related to the exchange of seeds, e.g. with genebanks they collaborate with. It isn't considered a burden. Only few NGOs report what they do with the documents after having signed them.

The Nagoya protocol was mentioned by almost all partners but the implications for their daily work is not yet clear to all of them, since the national implementation in their countries hasn't been realized yet and only few experiences exist. Arche Noah has had the opportunity to work on a practical basis on the implementation of the Nagoya protocol and they have offered training courses in their countries for different stakeholders.

It goes without saying that the NGOs that mostly work at national level in Europe have been focussing their attention to the EU and national regulations.

EU and national legal framework linked to the biodiversity management system of NGOs

Within the EU and national context these regulations have been listed as very relevant to their work:

1. Council Directive and national seed laws on the marketing of seeds (vegetables, cereals, fodder plants, etc.) → EU and national catalogue of varieties
2. Plant variety protection laws
3. EU and national phytosanitary regulations
4. EU directives and national laws on GMO (especially in the case of Spain) (*COMMISSION REGULATION (EC) No 889/2008*)
5. Council directive (n°98-44) on legal protection of biotechnological inventions (patent-laws)

As many of the NGOs are tightly connected to organic agriculture they also mention EU-Commission regulations on organic seed production. An exhaustive list of international, EU and national regulations is compiled in Annex 1.

In the questionnaire the eight participating country partners were asked to report which laws were most relevant for their work and affected their daily activities most. The partners were asked to give three examples per country. The following table shows an overview of the answers received.

Country examples illustrating the impact of national and international legislation on biodiversity management communities

Field 1

Organization	EU and National law		
ProSpecieRara SWITZERLAND	<p>Agriculture law (breeding, development) Based on Swiss agriculture-law article 147a and 147b (LwG 1998) and on the executive directives of the ITPGRFA the Swiss government approved a new directive for the sustainable use of PGRFA that was put in force on January 1. 2016 In article 7 It is mentioned that: project to describe, evaluate PGRFA can be supported The supply of healthy basic seed material for further propagation can be supported The further development (breeding) of varieties for a special niche on restricted areas can be supported As well as project to promote awareness for the sustainable use of pgrfa. Demonstration gardens and public meetings etc. Based on that directive ProSpecieRara and its partners are now leading four new projects to develop new niche varieties.</p>	<p>CH directive 916.151.1 (commercialization of seeds) Since 1.7.2010 the new CH directive 916.151.1 has been put into force. Until now this article is quiet helpful for our work because it does not regulate the marketing of little quantities of seeds and it creates a new category of varieties that can be marketed without fulfilling the registration criteria to the official catalogue. = niche-varieties (see below). Art. 2 Definitions 2.4. Local variety, 2.5. old variety (obsolete variety) 2.7. Niche-variety (= varieties that don't fulfil the official registration-conditions, new varieties as well (this category has a direct impact on agrobiodiversity that can be presented on the market) – this is a new category for Switzerland! Art. 27 Marketing (Inverkehrbringen) Niche-Varieties can be marketed. Art. 29 Determines the conditions under which conditions niche-varieties can be marketed. Registration by a simple description and registration fee one time CHF 150.-/variety. Have to be designated as “authorized niche-variety, not certified seed”. The department <u>can</u> restrict quantities and the marketing of that seeds are geographical restricted to Switzerland.</p> <p>Negative aspect: On a long term quantitative and geographical restrictions (in Switzerland the whole country is considered as one region) under this article could have a negative effect on the willingness to produce seeds for a market that is too little to make the seed production sustainable.</p>	<p>Certification of seeds (registration) and phytosanitary aspects In Switzerland phytosanitary restrictions in the seed law are at the moment a much bigger threat for our collections than marketing restrictions:</p> <p>PSR isn't allowed to exchange potatoes freely. ProSpecieRara had to prove that they have established a secure tuber-propagation system to avoid viruses to attack the tubers. That is a very expensive system. What is somehow hard to understand is in Switzerland is zero tolerance for viruses whereas in other country certain viruses are allowed to occur? A berry-collection has been closed for the distribution of propagation material because a quarantine-disease has been discovered.</p> <p>As ProSpecieRara doesn't want to be a source of diseases we welcome the controlling system but we need pragmatic solutions for collections to scope with the problem and we need government funding to be able to invest in rehab programs to get healthy plant material.</p>
Arche Noah AUSTRIA	<p>Directives, laws and regulations on the marketing of PRM as implemented on national level: Saatgutgesetz 1997 & Saatgutverordnung 2006 General negative effects: Limiting the marketing of PRM because of obligation of variety registration Thereby amplifying the risk of loss of PGRFA Positive Aspects in Austrian legislation: Amateur and Conservation varieties registration open niche markets.</p>	<p>Austrian phytosanitary regulations</p> <p>Heavily restricts the exchange of PRM f e.g. fruit trees and potatoes Thereby amplifying the risk of loss of PGRFA But openness within competent authorities to review legislation and re-balance effects</p>	<p>EU-Nagoya regulation Austria did not yet ratify the Nagoya protocol nor did it implement further legal instruments of enforcement. ARCHE NOAH is – apart from the compliance aspects – working on effective internal implementation systems, but also advocating a meaningful implementation on national and EU level.</p>

	<p>Amateur and Conservation varieties are allowed to be exchanged by non-professionals in limited quantities</p> <p>All PGRFA are allowed to be exchanged by non-professionals in limited quantities on a non-monetary but also on a monetary basis</p>		
<p>Rete Semi Rurali</p> <p>ITALY</p>	<p>The national law 194/2015 (Seed exchange)</p> <p>This law is dealing in general with protecting agricultural diversity. RSR didn't support this new law, because RSR thought that it was unnecessary a new law on this matter, moreover because in Italy Regions are responsible of agriculture and we already had the National Plan and the National Guidelines. It was mainly a cosmetic law, agreed by all the parties in the Parliament and based on the Slow Food approach. It really didn't change anything except one point on seed exchange. Until now RSR has legally promoted seed exchange basing our position on the EU and national laws (not protected varieties and exception for research and conservation), but this law clearly states that seed exchange is allowed only amongst members of the National Network established by the law. It means that RSR activities (and those of our members) are excluded by not being officially part of this National Network. At the moment none is posing this problem but it could become a problem in the future.</p>	<p>Lay 1971, n. 1096 (marketing of seeds)</p> <p>Italian law regulates the commercial sale of seed through Law 1096 of the 25 November 1971. In 2007, this law was amended to introduce a new article allowing for the sale of seeds from Conservation Varieties, a new category established by the European Union in those years in an effort to bridge the gap between genetic resource conservation efforts and the seed market. By this amendment, for the first time farmers, in addition to seed professionals or seed enterprises, are allowed to sell seeds from these varieties. To do so, they have to reside in the area of origin of the variety they wish to commercialize and are subjected to simplified phytosanitary requirements than those to which seed enterprises have to comply. This achievement was due to RSR lobbying</p>	<p>Conservation varieties (registration) phytosanitary aspects</p> <p>Thanks to the legislative instruments on conservation varieties (Decree 149 of 2009), farmers are allowed to register a traditional variety or landrace to the national catalogue and to subsequently sell the seeds of this variety. For the registration, the applicant must submit a set of documents which describe the variety morpho-agronomically and define its traditional area of origin and cultivation, within which any farmer or other actor who wishes to sell seed needs to reside. Upon registration, the applicant can proceed to request a specific (simplified, refer to example above) phytosanitary licence from the relevant regional institutions and, after passing field inspections, be allowed to sell the seed from the registered conservation variety. The applicant acquires no exclusive right over the variety she/he registers or the sale of its seeds, since any other farmer residing in the area of origin may request the same phytosanitary licence and, if compliant, start selling seeds from the same conservation variety. Furthermore, local or small-scale seed exchanges of the registered variety for conservation, research, education purposes as well as on-farm seed saving and reproduction continue to be allowed for any conservation variety registered in the catalogue. In other words, conservation varieties remain in the public domain.</p>
<p>Red Andaluza de Semillas</p> <p>SPAIN</p>	<p>Inadequate rules for organic labelling of seeds</p> <p>COMMISSION REGULATION (EC) No 889/2008 of 5 September 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control.</p> <p>This law affects organic farmers that exchange seeds in our CSB because, on one side, seeds exchanged between organic farmers are not recognized as organic and, on the other, the use of non-certified seeds of non registered local varieties is not facilitated in this law.</p> <p>Local varieties of the RAS CSB are not registered and farmers who are producing them are not legally authorised to produce seeds. Thus, according to the law, these seeds cannot be certified organic or even recognised as conventional untreated. Control agencies are not accepting this plant reproductive material and farmers are having problems with the seeds coming from the CSB (and also from their exchanges with other farmers).</p>	<p>GMO production threatening PGRFA conservation and use</p> <p>GMO Law (LEY 9/2003, de 25 de abril, por la que se establece el régimen jurídico de la utilización confinada, liberación voluntaria y comercialización de organismos modificados genéticamente.)</p> <p>Spain is the main GMO producer in Europe, where only the production of MON810 corn is allowed. However, the Spanish government supports the authorisation by the EU of other GM varieties and species.</p> <p>In 2016 the Spanish GMO production was about 129.081,12 ha. There is no monitoring and transparency of the GMO corn production as there is no information about the concrete locations and concrete surface per location and, therefore, the transgene contamination is completely uncontrolled.</p> <p>Since the RAS CSB constitution in 2007, 127 corn local, traditional and farmer's varieties have passed through this seed exchange bank. Despite the surface of GMO corn in Andalucía is low (around 10.000 ha in 2016), as coexistence between GMO and no GMO is not possible, there is a possibility that the corn landraces in RAS</p>	

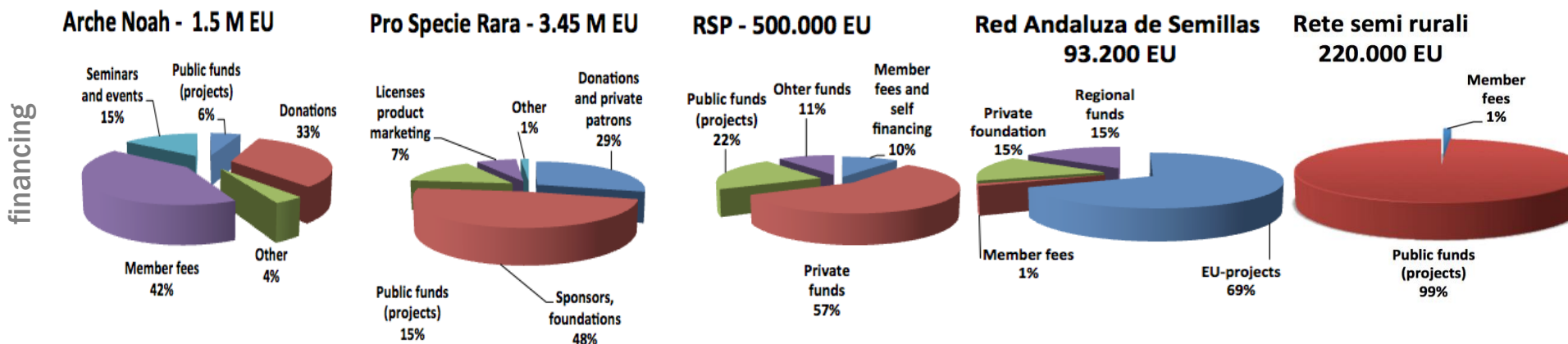
	<p>RAS is advising farmers to use the article 45.5.d. (completely unknown to farmers) to show the problem. It is the competent administration that has to authorise the 45.5.d. option and this takes too much time. It is not an efficient option.</p> <p>The political aim is the legal recognition as organic seeds of the seeds exchanged among organic farmers but also to facilitate the seed exchange of registered and non registered local varieties with non-certified farmers.</p> <p>In the Participatory guarantee systems used in different production and/or consumption organisations, farmers are not facing this problem because the use of local varieties is encouraged and the certification is based on the recognition of an integral vision of the organic practices.</p>	<p>CSB are contaminated. Unfortunately RAS does not have economic resources to afford genetic analysis of the corn seeds of the bank.</p> <p>The National Bank Network (network of public genebanks) is conserving 2.360 accessions of corn local varieties without GM contamination control in the prospection and multiplication processes. So there are big possibilities that these genebanks are spreading contaminated corn.</p> <p>Due to the impossibility to control the flow of the pollen and other aspects related to health, socioeconomics and environment among others GMO production must be banned in Spain and Europe.</p>	
<p>Olikos - Organic Norway</p> <p>NORWAY</p>	<p>The regulation on plant variety release</p> <p>This regulation limits the number of varieties that can be released to those that have been approved, based on the official criteria for that. It includes conservation varieties and traditional varieties of vegetables. However, the criteria exclude varieties that are more genetically heterogeneous. Also, there are criteria on origin of the varieties that exclude varieties from other parts of the Northern Hemisphere from being listed as conservation varieties or traditional varieties of vegetables. Norwegian farmers consider this as problematic.</p>	<p>This regulation on the marketing of seed and propagating material</p> <p>It allows farmers to exchange seed on a non-commercial basis. It also allows farmers to establish seed shops to sell seed of conservation varieties and traditional varieties of vegetables. However, there are limits as to the quantities that can be sold. So far the limits have not been reached, but for some varieties the limits may soon be reached, e.g. for 'slash and burn rye', as it is increasingly popular.</p>	<p>The regulation on seed potato (phytosanitary aspect)</p> <p>This regulation is very restrictive in order to halt the spreading of disease. This means that direct exchange of seed potato among farmers is illegal. All exchange has to be done via the Norwegian potato seed bank and a clone producing partner. This is limiting the work on potato diversity. However, the service of the potato seed bank is highly appreciated.</p>
<p>ARI</p> <p>Cyprus</p>	<p>Ari didn't present any examples and commented the question about the impact that legal aspect have on their work like that:</p>	<p><i>"As a public research Institute, ARI has to abide by these legislation pieces"</i></p>	
<p>Réseau semences paysannes</p> <p>FRANCE</p>	<p>GMO and patents</p> <p>Development of patent on native traits and regulation of new GMOs : Even if the Biodiversity law has broad interesting progress regarding the issue of patents, pressures from the industry made it impossible to prohibit that "the protection conferred by a patent on a product containing genetic information or consisting of genetic information" would also be extended "to biological material obtained exclusively through essentially biological processes" containing or consisting of the same genetic information¹⁸. They also blocked any attempt to regulate the new GMOs that result from recent genetic engineering techniques and bio-informatics (New Breeding Techniques). If those GMOs are not regulated nor labelled, the consumer will eat them without knowing. But, in addition, nothing compels the industry to label what differentiates plants and animals genetically modified, from plants and animals that are obtained exclusively by essentially biological processes, and which carry genetic information that are similar to those which</p>	<p>Seed exchange and commercialization of seeds among farmers</p> <p>To be able to sell seeds to persons which will "aimed at commercial exploitation of the variety" (eg. professional such as farmers) the variety need to be registered in the catalogue and for agricultural species the seeds needs to apply to certification → a population doesn't reach the criteria of the catalogue and the two lists (conservation and intrinsic value for commercial crop production) supposed to ease the marketing of more diversity are not reaching their goals. Indeed, the criteria for registration are still very closed to the one used for standard variety. Moreover the conditions for marketing these seeds are very restrictive (geographic limits and size limits) → at the end, the possibility for selling population seeds to farmers is not existing. The only space existing today for the diffusion of population's seeds amongst farmers are the following: experimental practise and project (ok only for small quantities) or the exchange in contexts of mutual aid (see below, only if the variety is not protected by a PVR). It is very restraining the possibility to develop the networking amongst</p>	<p>Seed exchange among gardeners and seed companies</p> <p>Amongst gardeners : From our understanding, the obligations to certify the seeds and to register the variety in the catalogue only apply in Europe and in France to the commercialization "aimed at commercial exploitation of the variety". Amateur gardeners who do not commercialize their harvest do indeed no "commercial exploitation". The legal actions by the industry against those who commercialize seeds that do not belong to a variety registered in the catalogue are only based on their omission or refusal to indicate the exclusive use to which the seeds are intended. Having that in mind, the article 11 of the French Biodiversity law (see details below) is only a partial positive recognition in the law of a right that no French or European regulatory text prohibits. It is indeed partial as it is only dealing with the right to exchange (for free) seeds which are not belonging to registered variety. The positive recognition of the sale of such seeds has been deleted from the article because the wording was only recognizing the right to sale such seeds to non-profit organization (it was consider as unfair</p>

	<p>are patented. These hidden but patented GMOs allow a handful of multinationals to rely on Article 9 of Directive 98/44/EC to extend the protection of its patents to all “native” genetic information, which are essential for agricultural biodiversity, and to take control of the entire food chain. Finally, such patent prevent farmers to fully contribute to the national collection of plant genetic resources. Indeed, they cannot be sure today that the seeds they share in the national collection will not be used afterwards in a patentable invention which will at the end prevent them to use it.</p> <p>18: Article 9 of the directive 98/44/CEE: « <i>“the protection conferred by a patent on a product containing or consisting of genetic information shall extend to all material, save as provided in Article 5(1), in which the genetic information is contained and performs its function. »</i></p>	<p>farmers and the diffusion of population's seeds.</p> <p>A new section in CTPS on organic breeding have been recently created and will discuss how to facilitate marketing of new organic variety regarding DUS and VATE tests. ITAB is part of this section. CTPS: Comité Technique Permanent de la Sélection. French Permanent Breeding Technic Committee ITAB: Institut Technique de l'Agriculture Biologique. French National Institute on Organic Agriculture.</p>	<p>to other kind of actors such as breeder companies). Regarding seed exchanges, this new article of law submits both gardeners and breeding companies to the same sanitary obligations. These obligations are of course essential for mass production and commercialization, but they are totally inapplicable for the huge majority of amateur gardeners. At the end, this article is not a progress for the right of gardeners, it could even be the contrary.</p>
Organization	International Law		
ProSpecieRara SWITZERLAND	<p>Nagoya</p> <p>At the moment many points in the implementation of Nagoya in the practical handling and distribution-process of seeds within in the seed savers network and the cooperation of the seed saver-networks with D&R are not yet clear but could affect our system seriously because of the administrative workload it might cause.</p>		
Arche Noah AUSTRIA	<p>EU-Nagoya regulation</p> <p>Arche Noah advocates for meaningful guidelines at EU level, for a sufficient enforcement regime in Austria, and works on designing an implementation method for the organisation and network itself that ensures compliance and has a positive impact on the protection of commons without disproportionate administrative efforts.</p>	<p>European Patent Convention</p> <p>ARCHE NOAH advocates as partner of No patents on Seeds to effectively stop the patenting of conventionally bred plants and animals, on national and European level</p>	EU Regulation on Organic Agriculture
Rete Semi Rurali ITALY	<p>Nagoya</p> <p>In Italy we still don't have a national law implementing the Nagoya Protocol and the EU directive. The two Ministries involved, agriculture and environment, still don't have an agreement on PGRFA outside the Annex I of the Treaty. Implementation is foreseen by the end of the year. RSR has been involved in the negotiations through the Ministry of Agriculture. Until now we don't have a clear picture of how Nagoya will affect our activities, but it is clear that we won't have any obligations regarding registering our collection according to the protocol. Our position is to enlarge the competence of the ITPGRFA to species outside the Annex I.</p>		
Red Andaluza de		National legal aspects related to the Treaty	

Semillas SPAIN		<p>Farmer's Rights are still not developed Seeds, plant nursery and PGR Law (Ley 30/2006 Semillas y plantas de vivero y recursos fitogenéticos).</p> <p>This law has a complete Title for the management of PGR. It is mainly focused on access, National Program for the Conservation and Sustainable Use of PGRFA and Farmer's Rights). A law is a statement of intents that needs technical regulations to specify each aspect. After 11 years since the adoption of the law, in march 2017, a Royal Decree was approved to regulate the National Program for the Conservation and Sustainable Use of PGRFA, which prioritizes ex situ conservation. This regulation is far from being an integral strategy as it does not mention Farmers' Rights and other important elements as the support to seed micro-enterprises, CSB and seed networks and the implementation of measures to avoid misappropriation of local varieties and its denomination, among others</p>	
Réseau semences paysannes FRANCE	<p>Genetic Resources and Traditional Knowledge: International Treaty on Plant Genetic Resources for Food and Agriculture and the Nagoya Protocole: both have been implemented either through national or European texts. It can be observed that the recognition of Farmers' rights (see article9 of ITPGRFA) for instance "to save, use, exchange and sell farm-saved seed/propagating material" are not fully implemented and can be in concurrence with other regulations (IPR, GMO, sanitary). The on-going recognition of "on-farm and in-situ conservation" since national decree in December 2015, could be a way to balance the situation.</p>	<p>GMOs: Carthagen Protocol and Codex alimentarius: both have been implemented either through national or European texts. The propagation of New Breeding Techniques is coming with huge issues regarding their legal status.</p>	<p>IPR's regulations namely the European Patent Convention and the UPOV convention from 1991 have direct effects in France: both have been implemented either through national or European texts. We observe that the majority of patent on plants are done at the EPO level. Besides UPOV is fully implemented without balance for the recognition of Farmers rights (see "Genetic Resources and Traditional Knowledges").</p>
Olikos - Organic Norway NORWAY	<p>UPOV and the Plant Treaty (ITPGRFA)</p> <p>Of these international agreements, Norway is most affected by UPOV and the ITPGRFA. As for UPOV, our regulation is quite liberal as compared to most European countries, and this is due to the decision by the Norwegian Government in 2005 to reject a proposal to join UPOV'91. The proposal was rejected in an effort to ensure balance between breeders' and farmers' rights. As for the ITPGRFA, the agreement has been instrumental in upholding the balance between farmers' and breeders' rights and ensuring a certain legal space for farmers to continue saving, using, exchanging and selling farm-saved seed. It may also have been instrumental to channel some support for activities of conserving and sustainably using PGRFA.</p>	<p>Norway and the European Union</p> <p>Norway is not a member of the European Union, but of the European Economic Area. This means that all EU regulations and directives that are labelled EEA-relevant are to be implemented in Norway. Norway has no possibility of influencing EU decisions in this regard, but participates as observers in the different decision making bodies. The EU regulations and directives on variety release and the marketing of seed and propagating material are highly relevant for Norway and affecting the work on seed and genetic diversity</p>	<p>Member of EPO – EU patents</p> <p>Norway is a member of EPO since 2008. Patent applications from Norway can be filed with EPO and, if granted, have full coverage in the memberstates of EPO, provided that the patent holder pays the patent fee in these countries. It also means that patents from other countries can be made valid in Norway, also provided that the patent holder pays the patent fee in Norway.</p> <p>Plant varieties, cannot be patented under the European Patent Convention, but plants, plant components, including genetic traits, can be patented. In practice this means that also plant varieties can be covered by patents. So far this has not constituted a great problem in Norway, but it is important to be aware about the development.</p>
ARI Cyprus	<p>Ari didn't present any examples and commented the question about the impact that legal aspect have on their work like that:</p>	<p><i>"As a public research Institute, ARI has to abide by these legislation pieces"</i></p>	

Presentation of the NGO-networks involved in DIVERSIFOOD

	Arche Noah Austria	ProSpecieRara (CH)	Réseau Semences Paysannes (F)	Red Andaluza de Semillas, Spain	Rete semi rurali Italy
visions/objectives	<p>The loss of crop diversity is stopped.</p> <p>The crop diversity is maintained by its private and commercial use in gardens and fields and develops further according to the local conditions.</p>	<p>The loss of crops and rare breeds is stopped. Diversity in food and agriculture is maintained by a dynamic management system that includes marketing elements and cooperation with many stakeholders from seed to shelf.</p>	<p>Build a farmers network for dynamic conservation. Promote the rights and practices of biodiversity actors. Protection of traditional knowledge. Right to save, use exchange and sell farm-saved seeds.</p>	<p>Stop the loss of agric.biodiv. and peasant knowledge. Reintroduction of local varieties and agroecological farming systems as well as farmers organic food products. Farmers right to sow and exchange seeds, Awareness raising.</p>	<p>Right-based approach to conservation. From conservation to biodiversity management. From old varieties to populations Research action Recognition of the role of farmers on biodiv.-management (CSB). Participatory research.</p>
structure	<p>16'000 members and donors in Austria, Germany and other countries. 39 employees.</p>	<p>3 branch offices in CH, 1 in DE. 25 employees, 11'000 donors and 3'700 gardeners and breeders.</p>	<p>90 collective members. 6 employees.</p>	<p>150 individual and 50 collective members. 850 users of the community seed bank (CSB)</p>	<p>38 member organizations in Italy 4 full time, 3-4 part time</p>



Description of the different biodiversity management seed systems at national level

Field 2, 3 and 5

In the second part of the questionnaire the partners were asked to give a picture of the formal seed propagation and PGRFA conservation system. The NGOs partners had to answer how they are involved in this national system. In a third part of the questionnaire the NGOs had to describe their own biodiversity management system and how they connect themselves to other stakeholders e.g. national authorities, gene banks and seed companies.

Summary of the biodiversity management seed system on the country and NGO level Field 2,3 and 5

Country	Ex situ seed-conservation system	National biodiv. Coordination platform	NGO involved in national conservation system?	Biodiversity Management strategy?	Access to pgr ex situ restricted, easy	Seed quantity	Interaction between genebank and private seed companies?	Interaction between NGO and seed companies
Italy	Decentralized ex situ system.	Yes: PlantRes is a national network that involves all the actors. 29 Research Centres and Rete semi Rurali as the only NGO and NPO.	No But formal interactions with ministry of agric.	Yes	Easy with sMTA	Enough for research not for direct use	Not known?	Not known only with Arcoiris
Switzerland	One CH-genebank	Yes: The Swiss commission for the conservation of cultivated plants (CPC-SKEK).	Yes with SKEK	Yes	Easy with sMTA	Enough for research not for direct use	Only a few known. E.g. Delley seeds and plants ltd	With some CH-organic seed companies
Austria	Several genebanks run by regional and federal institutions	No: Only for fruits	No	Yes: Not satisfying	Easy with sMTA	Enough for research not for direct use	not at all involved in a national biodiv. Management system.	With some A-organic seed companies
Spain	Decentralized national seed bank network	No: Only local collaboration	No	No	Easy with sMTA	Enough for research not for direct use	Not known	With some microenterprises
France	11 public genebanks for different species	Yes: CTPS = French Permanent Breeding Technic Committee	Yes with CTPS	Not yet	Supposed to be easy, sMTA, No access to private-public collections e.g. Maiz	Enough for research not for direct use	Yes through CTPS	With artisanal microenterprises
Norway	NordGen and Norwegian Genetic Resource Centre	No:	No	Yes	Easy with sMTA	Enough for research not for direct use	Only a few known: Graminor and Solhatt not known	?
Cyprus	One centralized National Genebank,	No:	No	No	Easy with sMTA	Enough for research not for direct use	Not known	?

The following table gives a very condensed overview of the different answers received. The table shows that all countries have a national ex situ conservation system. In the questionnaire focused on vegetable and cereal collections that stored seeds. Nevertheless some of the partners mentioned fruit-collections as well. Switzerland, Norway, and Cyprus maintain their collections in one main centralized gene bank whereas Italy, Spain and Austria have chosen decentralized genebanks that are maintained by universities or agricultural research centres or regional / federal state institutions. In France, we have many genebanks as well but there is one centralized genebank for one family of species. Only three countries developed a national platform where the safeguard of PGRFA is managed and coordinated. Only one NGO participates in the national platform in Italy, giving it a weak standing, whereas in Switzerland the majority of the 49 platform members are NGOs and only a minority represents the formal sector. In France the CTPS http://www.geves.fr/index.php?option=com_content&view=article&id=50&Itemid=290&lang=fr) is a technical board with experts coming mostly from research centres, companies (private sector) and the administration, NGOs are represented in some sections and can participate in public symposia.

Not all countries have a Biodiversity Management Strategy and interestingly Norway, Italy and Austria have a national strategy but they didn't develop a national platform for the coordination of PGRFA with an involvement of all stakeholders as did Switzerland. Some countries like Spain have a National Program for the conservation and sustainable use but they are mainly focused on ex situ conservation methods.

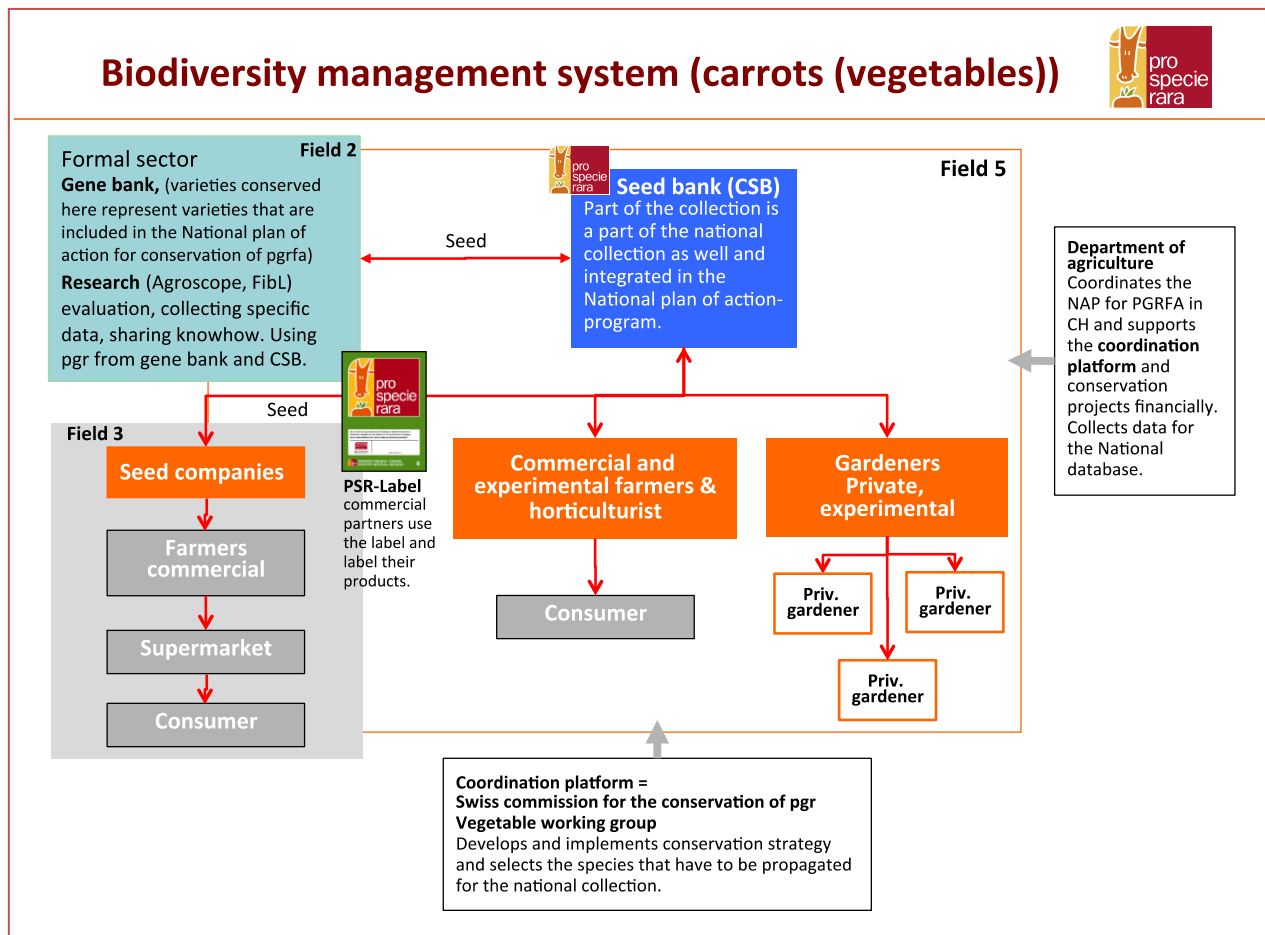
A very nice development concerns the access to PGRFA in the public collection. It has improved substantially and no organization expressed any restrictions in relation with access to PGRFA in the public domain. A small but interesting exception was mentioned for France for those cases where public collections include accession from private companies. Generally, it seems that access is more complicated when public collections contain accessions from both sources. It would be interesting to check if this is also the case in other "mixed" collection in Europe or if the situation in France is unique.

All organization mentioned that the amount of seeds they received was not enough to be used directly for a large scale seed production in the field. The seed quantity was only enough for experimental purposes. To use the seeds for field experiments in an agricultural context with the intention to bring a product on the market, some years of seed propagation has to be undertaken until the seeds fulfil the quality standards the market is expecting. If countries want to promote the sustainable use of PGRFA through public collections then a discussion about the quantities of seeds stored in national gene banks could become an issue.

Regarding the direct interactions between genebanks and seed companies or NGOs and seed companies most of the partners state that these interactions are rare and aren't based on official and established structures. Compared to the situation of interactions between genebanks and NGOs the interactions between NGOs and big private seed companies haven't neither changed nor improved. On the other hand there are interactions between NGOs and small local or national seed companies (micro-enterprises). Here it becomes obvious that all countries lack an official platform where such (sensitive) interactions could be promoted or coordinated in a neutral environment.

The detailed answers of all the project participants are compiled in Annex 2 where the seed system of the formal sector (Field 2 and 3) and in Annex 3 the informal biodiversity management system at national level (Field 5) are described.

National Biodiversity Management Systems (5 examples): ProSpecieRara:



Field 5: The seed library (= community seed bank) (CSB)) of ProSpecieRara contains about 14 carrot varieties. All 14 varieties are propagated through a seed savers network (= mostly gardeners, some experimental farmers and a few horticulturists). The seed savers propagate seeds and send back a backup amount to the seed library. Some propagators sell seeds and products directly. In addition, some of them use the ProSpecieRara label to mark their products. As the carrot is an outbreeding specie propagation is not a simple task because it requires some isolation from wild carrots and other carrot varieties and not every private seed saver has these facilities. This is why ProSpecieRara has extended its propagation system to additional pillars (e.g. professional seed companies and nurseries).

Field 3: ProSpecieRara-CSB also collaborates closely with two small organic seed companies in Switzerland. About a quarter of the carrot-collection is propagated and sold professionally by them under the label ProSpecieRara. In return they pay a fee for using the label. In recent years a small carrot breeding and selection project was developed to improve the quality of a specific violet, conic carrot with white flesh for organic farming. This breeding-working group of farmers and wholesalers also includes cooks. **Two of those commercially available carrot varieties had to be registered as niche varieties.** Smaller quantities that are sold in seed packages for amateurs don't need a registration. They can be commercialized without any restrictions.

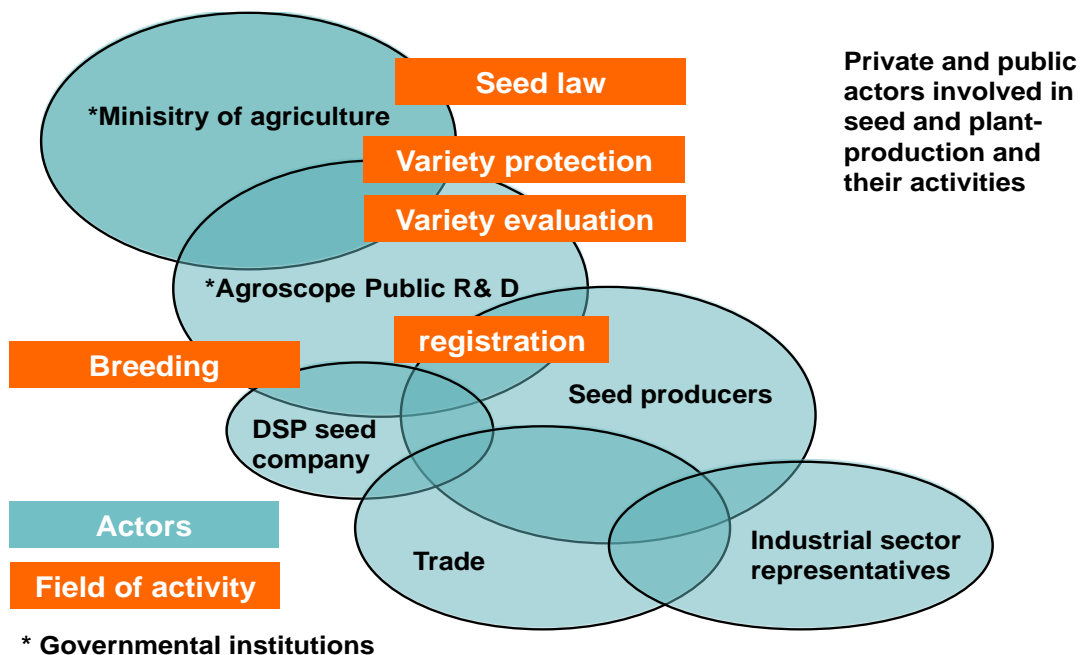
Besides this a considerable part of the ProSpecieRara tomato collection is submitted to the Swiss National Collection and thus becomes part of the multilateral system (ITPGRFA). In return ProSpecieRara benefits from the Swiss National Plan of Action for PGRFA (NAP-DIVERSIFOO D4.1

PGREL) and receives some funds for the evaluation, description and propagation of varieties. NAP-PGREL is coordinated jointly by the ministry of agriculture and by an association called Swiss Commission for the Conservation of PGRFA (CPC-SKEK, <http://www.cpc-skek.ch>).

Field 2: Varieties that are integrated into the Swiss multilateral system are considered as part of the national heritage and accordingly are stored in the national gene bank in Changins. ProSpecieRara maintains a backup of its whole collection in the national genebank in a black-box system for the long-term storage.

Within the NAP-PGREL-program ProSpecieRara cooperates tightly with various national research centres like Agroscope and FiBL.

Formal Seed Sector in Switzerland CH



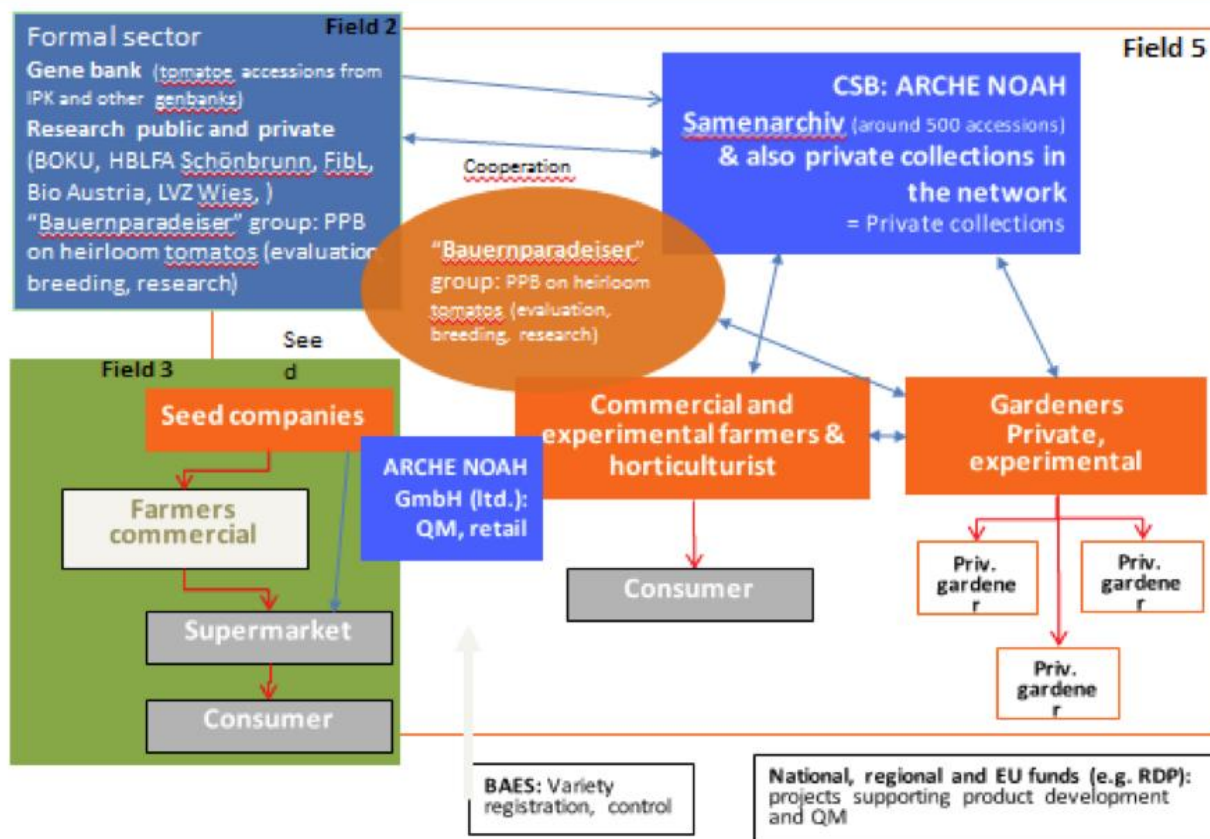
Source: Publikation Sorten, Saat- und Pflanzgut in der Schweiz 2008, p15 Ministry of agriculture (BLW)

Some stakeholders of the formal sector are involved in the biodiversity management system like DSP (a seed-propagation and breeding company). DSP is a combination of a public and private institution! DSP propagates seeds for the genebank and receives funds for breeding, while it simultaneously acts as a licence-holder for protected varieties. Some active breeders of DSP also participate in various SKEK working groups.

Agroscope is the collective name of all federal agricultural research centres. They are funded and coordinated by the Swiss Ministry of Agriculture. (Agroscope is involved in many national conservation programs but doesn't have the lead. Only NGOs (like ProSpecieRara) are allowed to apply directly for funds provided by the National Action Plan for PGRFA (CHF 3.2 Mio. per year).)

Seed producer-organizations, traders and seed industry are involved in the technical commission and they decide which varieties will be published in the recommendation list for farmers. This recommendation list is absolutely crucial for farmers. Farmers rely very much on that list and therefore it is a very powerful tool. Neither farmers nor consumers are directly involved in the development of that list of seed varieties. Here, only the industry – like Swiss Sem – is involved in the decision making process.

Biodiversity management system (TOMATO)

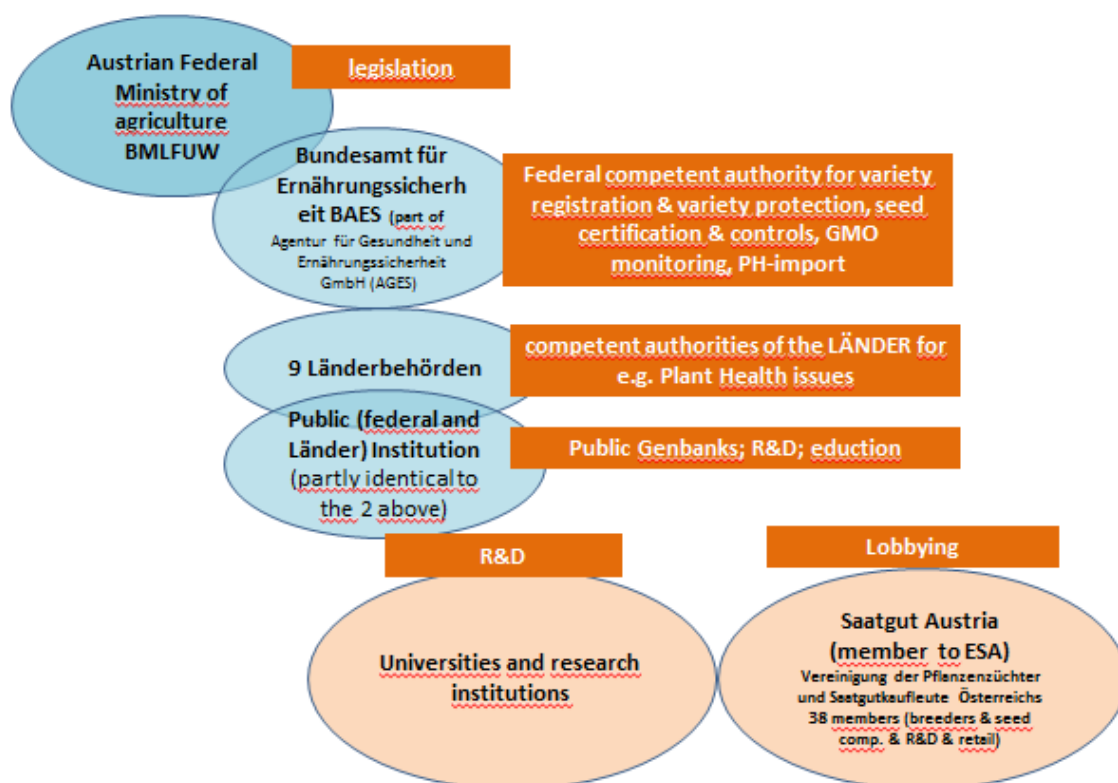


Arche Noah maintains a tomato collection in their CSB ('Samenarchiv') of 500 varieties. Most of the varieties are propagated in the Arche Noah seed production garden. Others are propagated in a seed savers network with private gardeners Field 5. Arche Noah created a special "Tomato group" (Bauernparadeiser) where small-scale farmers and gardeners collaborate to evaluate the Arche Noah tomato collection and do some breeding activities together (collaborative breeding).

Field 3: Arche Noah created a GmbH (Ltd.) for commercialization purposes. Seeds are sold by small seed companies under the label of Arche Noah and by the Arche Noah GmbH as well.

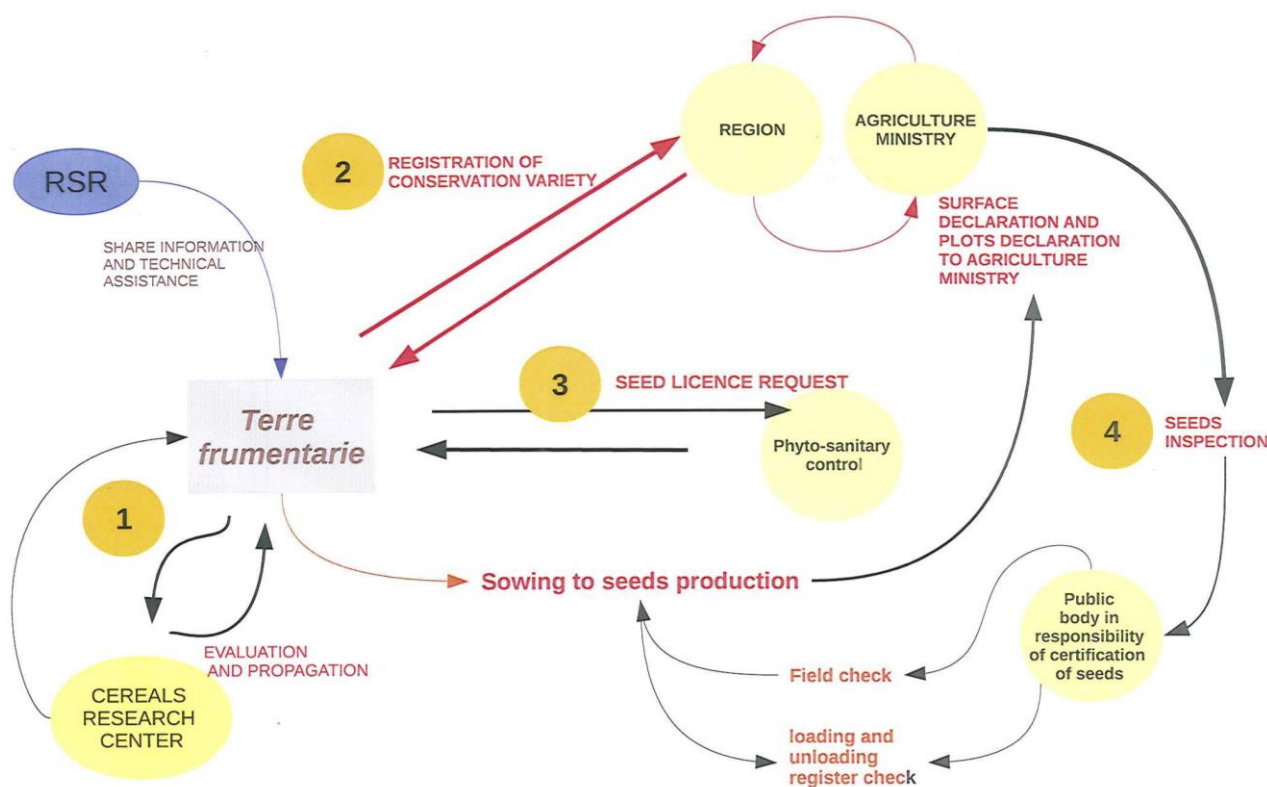
Field 2: There is no link to national PGRFA projects due to the lack of national programs and platforms. Nevertheless there are interactions with national horticulture research institutions and universities.

The formal seed sector in AT – a rough scheme



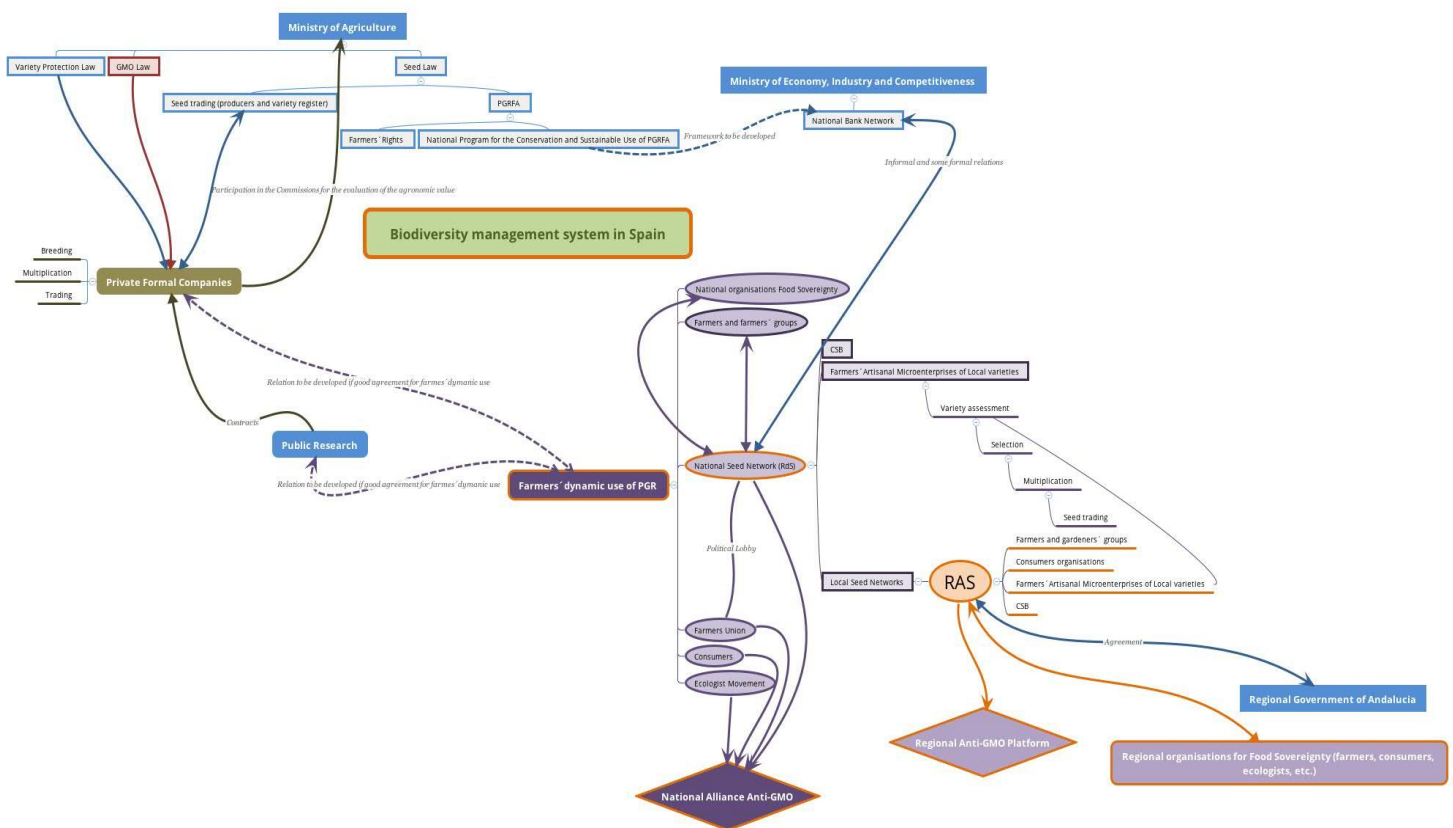
Rete Semi Rurali (RSR):

Below we describe the case study of example 3 on conservation varieties, based on the concrete experience of Terre Frumentarie, the farm of Giuseppe Li Rosi in Sicily, who registered three wheat landraces in the conservation varieties catalogue.



Thanks to the legislative instruments on conservation varieties (Decree 149 of 2009), farmers are allowed to register a traditional variety or landrace in the national catalogue and to subsequently sell the seeds of this variety. For the registration, the applicant must submit a set of documents, which describe the variety morpho-agronomically and define its traditional area of origin and cultivation, within which any farmer or other actor who wishes to sell seed has to reside. Upon registration, the applicant can proceed to request a specific (simplified, refer to example above) phytosanitary licence from the relevant regional institutions and, after passing field inspections, is allowed to sell the seed from the registered conservation variety. The applicant acquires no exclusive right over the variety she/he registers or over the sale of its seeds, since any other farmer residing in the area of origin may request the same phytosanitary licence and, if compliant, start selling seeds from the same conservation variety. Furthermore, local or small-scale seed exchanges of the registered variety for conservation, research, education purposes as well as on-farm seed saving and reproduction continue to be allowed for any conservation variety registered in the catalogue. In other words, conservation varieties remain in the public domain.

Red Andaluza de Semillas (RAS)



Farmers and gardeners exchange seeds through the RAS CSB that acts as a tool to improve and facilitate the access to seeds. The varieties that have passed through the bank are local, traditional, farmers' varieties and, in some cases, commercial varieties in the public domain that have been adopted by farmers and, therefore, reproduced in their farms for many years. RAS has also introduced in the CSB some concrete local varieties coming from seeds of public genebanks. These seeds have been first multiplied and assessed by RAS collaborators in organic farms.

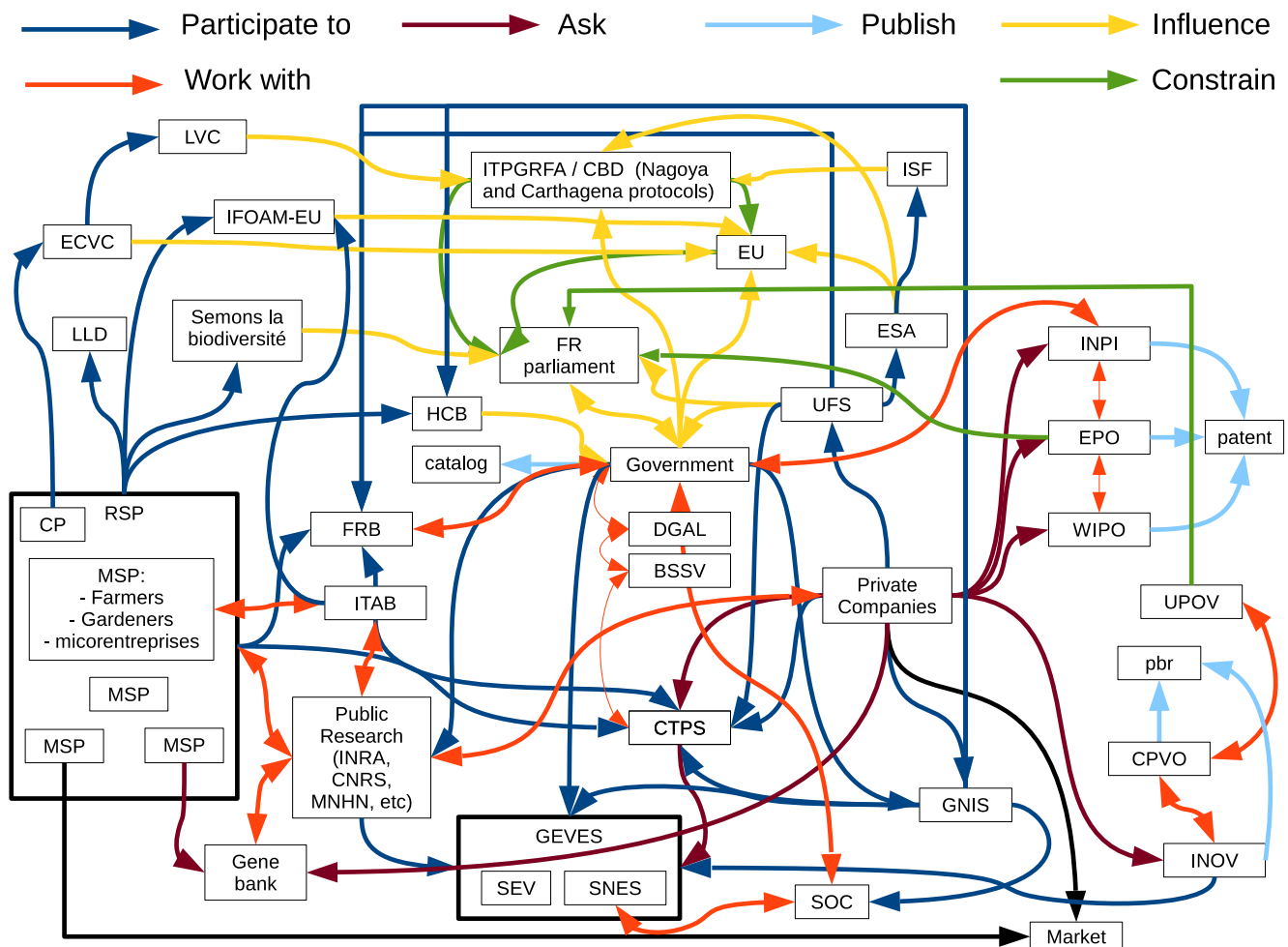
RAS haven't developed any long-term conservation structures and we don't have optimal storage conditions so we try to store the accessions no longer than 2 years and to encourage the seed exchanges in this period. After that time we donate the oldest samples to specific farmers and gardeners and we also give a sample of the most interesting varieties to the *Plant Germplasm Bank of Andalucía (Banco de Germoplasma Vegetal Andaluz-BGVA)* to extend the viability of the seeds and, therefore, the possibility to facilitate future seed exchanges.

RAS works with farmers, gardeners, processors, technicians, researchers, consumers, policy makers and other stakeholders. Our activities include the promotion of the dynamic use of local varieties in agroecological agrifood systems; achieving specific objectives such as the development of farmers rights to sow and exchange their own seeds; increasing the consumption of local varieties in short supply channels; raising awareness about the need to stop genetic erosion; employment creation in rural areas through the production and marketing of locally produced seeds; the creation and management of Community Seed Banks; etc.

RAS works with other organizations at the regional, national and international level. These organizations, in some cases work with similar issues, but in others deal with complementary and more general themes such as the organic sector, participatory action research, sustainable consumption, etc.

Réseau Semences Paysannes (RSP):

Description of the figure: List of abbreviations



Civil Society Organizations: Community Seed Banks and Farmers Networks

RSP: Réseau Semences Paysannes <http://www.semencespaysannes.org/>

MSP: Maison des Semences Paysannes

CP: Confédération Paysanne www.confederationpaysanne.fr

ECVC: European Coordination Via Campesina <http://www.eurovia.org/>

LVC: La Via Campesina <https://viacampesina.org/en/>

LLD: Lets' Liberate Diversity <https://liberatediversity.org/>

IFOAM-UE: International Foundation for Organic Agriculture <https://www.ifoam.bio/>

Semons la Biodiversité : <http://www.semonslabiodiversite.com/>

Political and legal environment

ITPGRFA: International Treaty on Plant Genetic Resources for Food and Agriculture

CBD: Convention on Biological Diversity

EU: European Union <http://europa.eu/>

FR Parliament: French Parliament

Gouvernement: refer to the French government

UPOV: Union internationale pour la Protection des Obtentions Végétales
<http://upov.int/portal/index.html>

EPO European Patent Office <https://www.epo.org/index.html>

WIPO: World Intellectual Property Organization <http://www.wipo.int/portal/en/index.html>

patent: refer to patent

Formal Seed Sector and Development & Research Centres:

UFS: Union Française des Semenciers. French Union of Breeders. <http://www.ufs-semenciers.org/default.aspx>

ESA: European Seed Association <https://www.euroseeds.eu/>

ISF: International Seed Federation <http://www.worldseed.org/>

CPVO: Community Plant Variety Office <http://cpvo.europa.eu/en>

pbr: Plant breeders' rights (Certificat d'obtention végétale)

INOV: Instance Nationale des Obtentions Végétales: French National Instance of Variety Obtention http://www.geves.fr/index.php?option=com_content&view=article&id=54&Itemid=295&lang=fr

INPI: Institut National de la Propriété Intellectuelle : French National Institut of Intellectual Property <https://www.inpi.fr/fr>

Private companies: refer to private companies

GNIS: Groupement National Interprofessionnel des Semences et plants. National Interprofessional Group of Seeds and Plants. <http://www.gnis.fr/>

SOC: Service officiel de contrôle et certification. French official service of control and certification. <http://gnis.fr/index/action/page/id/63/title/Les-missions-du-Service-officiel-de-contrôle-et-certification-%28SOC%29>

SNES: Station Nationale des Essais Semences. French National Station for Seeds Trials. http://www.geves.fr/index.php?option=com_content&view=article&id=35&Itemid=338&lang=fr

SEV: Secteur d'Etude des variétés. French Variety Study Sector. http://www.geves.fr/index.php?option=com_content&view=article&id=21&Itemid=329&lang=fr

GEVES: Groupe d'Etude et de contrôle des Variétés Et des Semences. French Study and Control of Variety and Seeds Group. <http://www.geves.fr/index.php?lang=fr>

CTPS: Comité Technique Permanent de la Sélection. French Permanent Breeding Technic Committee. http://www.geves.fr/index.php?option=com_content&view=article&id=50&Itemid=290&lang=fr

HCB: French High Council on biotechnology. <http://www.hautconseildesbiotechnologies.fr/en> Catalogue: refer to the catalogue

FRB: Fondation pour la recherche pour la Biodiversité. French Foundation for Research on Biodiversity <http://www.fondationbiodiversite.fr/en/>

ITAB: Institut Technique de l'Agriculture Biologique. French National Institute on Organic Agriculture. <http://www.itab.asso.fr/>

Public Research: refer to public research

INRA: Institut National de la Recherche Agronomique. French National Institute for Agricultural Research. <http://institut.inra.fr/en>

CNRS: Centre national de la recherche scientifique. French National Center for Scientific Research. <http://www.cnrs.fr/index.php>

MNHN: Museum National d'Histoire Naturelle. French National Museum of Natural History. <https://www.mnhn.fr/en>

DGAL: Direction Générale de l'Alimentation. General Direction of Alimentation within the Ministry of Agriculture <http://agriculture.gouv.fr/administration-centrale>

BSSV: Bureau des semences et de la santé des végétaux. Office of Seeds and Plant Health.

Gene Bank: refer to gene bank.

Market: refer to the market for amateurs and for professionals



Public research institutes manage *ex situ* collections. These collections are held by **Genetic or Biological Resources Centres**, who are in direct contact with a wide panel of stakeholders including scientists, breeders, and farmers. Certain collections are also managed by **public-private conservation networks**. These networks, set up by the BRG (Bureau des Ressources Génétiques), have established national collections that are freely available.

PGR organisations have also been set up at a more local level, such as **regional genetic resources centres, botanical conservatories, nature reserves** and **local authorities**. These organisations manage their collections in both *in situ* (maintained in their natural habitat) and *ex situ* conservation. In particular, they have put in place initiatives to revive traditional knowledge, help farmers and incorporate old local varieties into the economic sector. **Farmers, associations** and **individuals** have also developed strong skills in PGR conservation, mainly *in situ* and "on farm". These conservation measures aim to promote

varieties that are adapted to local conditions and produced in short supply chains by local actors, using and enhancing traditional knowledge.

These curators are faced with practical and regulatory issues, such as evolving national and international regulations, notably the Nagoya Protocol coming into force.

In order to support and highlight the work of these stakeholders and the diversity of cultivated plant genetic resources in France, a National Coordination, funded by the French Ministry of Agriculture, was set up in 2016.

Its missions are to coordinate and lead the conservation of cultivated Plant Genetic Resources (PGR) and their Crop Wild Relatives (CWR) at national level, and to assist the French government in complying with their international commitments.

This new organisation is comprised of a National Coordination Structure within the French Group for the Study and Control of Varieties and Seeds (GEVES) and a Technical Committee for Plant Breeding (CTPS) Section for the conservation of cultivated PGR and their CWR.

The CTPS Section brings together 46 members representing stakeholders who are involved in *ex situ* and *in situ* conservation, characterisation and use of PGR.

DISCUSSION

Task 4.1 made clear that all the partners managing biodiversity in farmers and gardeners networks have established facilities to ease the exchange of PGRFA. In the last years the exchange of seeds between NGOs and the formal sector has improved considerably despite administrative hurdles that had to be established due to international agreements (e.g. Plant Treaty (ITPGRFA), Nagoya Protocol). The sMTA seems to be an established agreement for seed exchange between NGOs-networks and gene banks and so far the administrative burden doesn't appear to slow down exchanges. We currently detect an improvement of the cooperation between the stakeholders.

The agricultural biodiversity managing NGOs involved in this study have all been active for more than 10 years and are well established in their respective countries. The fact that they have been chosen as partners in a European project can be seen as a proof of their reliability and that they have succeeded in establishing stronger links among each other and with the research community (mostly organic agriculture oriented research institutions including many genebanks as well) during the last decade.

The structure of the NGOs can differ from each other quite considerably depending on the social and economic setting they developed. In general we state, that the project partner NGOs in Italy, France and Spain represent mostly farmers and farmers networks as their members, whereas Austria and Switzerland represent seed saver networks that consist mainly of private gardeners. Farmers are also represented but remain a minority.

The funding backgrounds are very different as well. In the case of Switzerland and Austria the biggest part of the funds come from their own members or from private donors, whereas the other NGOs are mostly funded by national and EU-projects they are involved in. They charge member fees but this generates only minor earnings (up to 5% in the case of France (RSP)).

All NGO-partners have contributed a lot to the political discussions with regard to seeds at national and international level (e.g. food sovereignty, seed law, patents and GMO topics, ITPGRFA and Nagoya protocol) besides their practical work on the field. Their social and political efforts and contributions has won them a certain recognition of the national authorities and in political discussions they are being acknowledged as representatives of the civil society.

The analysis also reveals that many biodiversity managing NGOs have close contacts with small seed companies (micro-enterprises). In some cases these seed companies are partners when it comes to commercializing PGRFA or producing seeds of better quality for the network or they are included as members of the organization. **However cooperation between bigger seed companies and NGOs is completely missing and inexistent.**

The farmer networks like RSP, RSR or RAS are involved in participatory breeding activities because they have been practicing a very dynamic approach to maintaining and developing local and regional PGRFA for generations. These traditional but still living experiences made them very interesting partners for the still small organic researcher community that was developing participatory breeding methods for organic breeding in some European countries. The Italian example shows that farmer networks are connected to the national seed production system and strongly influenced by national seed control and registration systems. This is because their members - the farmers – kept their nexus to the commercial seed systems since their conservation activities have always been a dual activity: producing and selling of products. This is visible in the mind maps of RSP, RSR and RAS that illustrate this connection between the formal and informal seed system. In some countries this situation led

to a growing interlocution with the PGRFA public officials at the national level. This stands in contrast to the biodiversity management system of Arche Noah and ProSpecieRara that has been completely disconnected from the national seed system at the beginning of their activities. First they created their own networks and subsequently reintegrated traditional PGRFA mostly with the help of private gardeners who had no connection to commercial activities and food production for the market. It is only in the last ten years that the sustainable use of PGRFA has been extended from first meaning exclusively "use for breeding" to propagating seeds for food that will be marketed by regional seed companies and artisanal seed producing microenterprises, farmers and horticulturists. Meanwhile it is an integrated part of their PGRFA conservation and management strategy. In those days the biodiversity management of these NGOs and the formal seed production system had some overlapping areas and this created conflicts as we very vividly recall the discussions about the new EU-seed marketing directive that currently are on hold.

As the DIVERSIFOOD project illustrates and task 4.1 confirms **we have well established links between the biodiversity management NGOs, organic agriculture research centres and genebanks.** There are links to universities and small scale farmer networks and smaller seed companies. Some of the NGOs networks report constructive collaborations with their national ministries and in several formal and informal policy platforms. In this context it is very striking that among the partner countries we could hardly detect countries that have an established national coordination platform that integrates all stakeholders to coordinate its national biodiversity management strategy. In Switzerland with one of the most developed national platform, have a poor integration of private seed companies, universities apart from agricultural research institutions. And stakeholders from the food sector along the production chain are completely lacking, and representatives of the consumer side are missing as well. Another example is France where the creation of a national coordination is under process with a new CTPS section. RSP is represented into this section as well as the Croqueurs de Carottes which represent micro-entreprises (members of RSP), UFS and GNIS, private companies, conservatory organizations, producers, researchers and ministry representatives. The in-situ and on-farm conservation is now formally recognized in national law. The implementation needed to make it fully effective is currently in discussion within this section. To date platforms that focus on PGRFA conservation and platforms that focus on breeding approach each other, whereas platforms that represent food industry and focus on commercialization of PGRFA along the food production chain still move in parallel worlds at national level. However, there are projects and initiatives where collaboration happens locally on a small scale. As long as in many countries national strategies for biodiversity management are missing it is plausible that national platforms for the implementation are lacking as well. But it is interesting to note that there are several countries that developed a national strategy but never established a platform for those who should realize the goals in the fields, nor did allocate any financial resources to make such a platform functional. The result of this is that where we can find national platforms, only private companies, researchers and administration representatives have the means to follow the work without additional resources. This is not the case for many NGOs, especially if they want to associate farmers and horticulturists to the work done. So for many civil society organisations it is one thing to be officially part of the discussion but it is another one to have the financial means and human resources to follow them and to participate at the meetings.

ANNEX

ANNEX 1:

Compilation of international and national laws affecting the work with plant genetic resources for food and agriculture (PGRFA) - page 27ff

ANNEX 2:

Description of the formal seed systems on the national level - page 34ff

ANNEX 3:

Description of the informal biodiversity management system on the national level - page 41ff

ANNEX 4:

List of stakeholders in Field 3 and Field 4 - page 45ff

ANNEX 5:

Questionnaire - page 53ff

ANNEX 1:

Compilation of international and national laws affecting the work with plant genetic resources for food and agriculture (PGRFA).

The following countries were invited to respond to the questionnaire: Switzerland, Austria, Spain, Cyprus, Norway, France, Italy, The Netherlands

1. International binding documents/agreements

- International Treaty on Plant Genetic Resources for Food and Agriculture ITPGRFA. Regulation (UE) 2015/1866
- Nagoya-Protocol of the CBD Regulation (UE) n° 511/2014
- UPOV convention from 1991 ; regulation (CE) n° 2100/9411, regulation (CE) n° 1768/952 and regulation (UE) n ° 608/2013
- European patent law: Directive 98/44/CE, Regulation UE 1257/2012 and European Patent Convention
- WTO-TRIPS Agreement
- WIPO
- Carthagena Protocol, Codex alimentarius, Directive 2001-18, Regulation 1829/2003, Directive 2015-412.
- CITES

2. Relevant EU-legislation

- EU-directives on plant propagation material
- EU phytosanitary legislation: Directive 2000/29/EC on protective measures and future Regulation (EU) 2016/2031 concerning protective measures against pests of plants
- Directive 2001/18/EC on the deliberate release into the environment of genetically modified organisms.
- Council Directive 2002/55/EC of 13 June 2002 on the marketing of vegetable seed.
- Directive 98/44/EC of the European Parliament and of the Council of 6 July 1998 on the legal protection of biotechnological inventions.
- Council Directive 98/95/EC of 14 December 1998 amending, in respect of the consolidation of the internal market, genetically modified plant varieties and plant genetic resources, Directives 66/400/EEC, 66/401/EEC, 66/402/EEC, 66/403/EEC, 69/208/EEC, 70/457/EEC and 70/458/EEC on the marketing of beet seed, fodder plant seed, cereal seed, seed potatoes, seed of oil and fibre plants and vegetable seed and on the common catalogue of varieties of agricultural plant species.
- Commission Implementing Directive 2014/98/EU of 15 October 2014 implementing Council Directive 2008/90/EC as regards specific requirements for the genus and species of fruit plants referred to in Annex I thereto, specific requirements to be met by suppliers and detailed rules concerning official inspections.
- COUNCIL DIRECTIVE of 14 June 1966 on the marketing of cereal seed
- COUNCIL DIRECTIVE of 14 June 1966 on the marketing of fodder plant seed
- COUNCIL DIRECTIVE 2002/57/EC of 13 June 2002 on the marketing of seed of oil and fibre plants

- COUNCIL DIRECTIVE 2002/55/EC of 13 June 2002 on the marketing of vegetable seed
- Council Directive 2002/53/EC of 13 June 2002 on the common catalogue of varieties of agricultural plant species
- COMMISSION DIRECTIVE 2003/91/EC of 6 October 2003 setting out implementing measures for the purposes of Article 7 of Council Directive 2002/55/EC as regards the characteristics to be covered as a minimum by the examination and the minimum conditions for examining certain varieties of vegetable species
- Commission Directive 2003/90/EC of 6 October 2003 setting out implementing measures for the purposes of Article 7 of Council Directive 2002/53/EC as regards the characteristics to be covered as a minimum by the examination and the minimum conditions for examining certain varieties of agricultural plant species
- Commission Directive 2008/62/EC of 20 June 2008 providing for certain derogations for acceptance of agricultural landraces and varieties which are naturally adapted to the local and regional conditions and threatened by genetic erosion and for marketing of seed and seed potatoes of those landraces and varieties
- Commission Directive 2010/60/EU of 30 August 2010 providing for certain derogations for marketing of fodder plant seed mixtures intended for use in the preservation of the natural environment
- Commission Directive 2009/145/EC of 26 November 2009 providing for certain derogations, for acceptance of vegetable landraces and varieties which have been traditionally grown in particular localities and regions and are threatened by genetic erosion and of vegetable varieties with no intrinsic value for commercial crop production but developed for growing under particular conditions and for marketing of seed of those landraces and varieties
- COMMISSION REGULATION (EC) No 889/2008 of 5 September 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control.
- Horizontal regulation on official controls Regulation (EC) No 882/2004
- REGULATION (EU) No 1151/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 November 2012 on quality schemes for agricultural products and foodstuffs.
- Regulation (EU) No 511/2014 of the European Parliament and of the Council of 16 April 2014 on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization in the Union Text with EEA relevance.
- Council Regulation (EC) No 2100/94 of 27 July 1994 on Community plant variety rights
- Plant variety protection: Regulation EC 2100/94 on EU plant variety rights; Regulation EC 874/2009- implementing rules for the above Regulation on proceedings before the Community Plant Variety Office; Regulation EC 1238/95 - implementing rules for the above Regulation on fees payable to the Community Plant Variety Office, Regulation EC 1768/95 - implementing rules on the agricultural exemption (Article 14 (3) of Regulation EC 2100/94.
- The system of biotechnology patents in the EU, including the TRIPS/WTO, the EU Directive 98/44/EC, the European Patent Convention (EPC), overlap with PVP-protection and patents on breeding methods

- GMO legislation: Directive 2001/18/EC on the deliberate release of GMOs into the environment, Regulation (EC) 1829/2003 on genetically modified food and feed, Directive (EU) 2015/412 amending Directive 2001/18/EC as regards the possibility for the Member States to restrict or prohibit the cultivation of GMOs in their territory, Regulation (EC) 1830/2003 concerning the traceability and labelling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms
- EU-Nagoya-Regulation Regulation (EU) No 511/2014
- COMMISSION DIRECTIVE 2008/62/EC of 20 June 2008 providing for certain derogations for acceptance of agricultural landraces and varieties which are naturally adapted to the local and regional conditions and threatened by genetic erosion and for marketing of seed and seed potatoes of those landraces and varieties.
- Commission Directive 2009/145/EC of 26 November 2009 providing for certain derogations, for acceptance of vegetable landraces and varieties which have been traditionally grown in particular localities and regions and are threatened by genetic erosion and of vegetable varieties with no intrinsic value for commercial crop production but developed for growing under particular conditions and for marketing of seed of those landraces and varieties.
- Common catalogue (Directive 2002/53/CE, Directive 2002/55/CE and Directive 2003/90/CE, Directive 2003/91/CE) and derogations regarding the registration to the catalogue (Directive 2009/145/CE and Directive 2008/62/CE)
- Sanitary: Regulation (EU) 2016/2031
- Control : to be published soon new EU regulation on Official controls and activities performed to ensure the application of food and feed law, rules on animal health and welfare, plant health, plant reproductive material, plant protection products

3. Relevant National laws

Switzerland

- Nagoya directive, and the nature and homeland-protection law: die Nagoya-Verordnung / das Natur- und Heimatschutzgesetz.
<https://www.admin.ch/opc/de/classified-compilation/19660144/index.html>
<https://www.admin.ch/opc/en/classified-compilation/20150120/index.html>
- Landwirtschaftsgesetz: Saat- und Pflanzgutverordnung des EVD 1998, 916.151.1. Since 1.7.2010 the new CH directive 916.151.1 has been put into force.
<https://www.admin.ch/opc/de/classified-compilation/19983468/index.html>
 Sortenverordnung vom 12. Juni 2013 (SR 916.151.6)
 Saat- und Pflanzgutverordnung des WBF SR 916.151.1
- <https://www.admin.ch/opc/de/classified-compilation/19983504/index.html>
 Verordnung des BLW über Sortenkataloge und Sortenlisten landwirtschaftlich genutzter Pflanzenarten (Sortenverordnung)
<https://www.admin.ch/opc/de/classified-compilation/20130648/index.html>
- LwG Art. 159 (e.g. phytosanitary rules)
- [EU-Agrarabkommen] Swiss agriculture-law article 147a and 147b (LwG 1998) and on the executive directives of the ITPGRFA the Swiss government approved a new directive for the sustainable use of PGRFA that was put in force on January 1. 2016 (PGRELV) SR 916.181. Verordnung über die Erhaltung und die nachhaltige Nutzung von pflanzengenetischen Ressourcen für Ernährung und Landwirtschaft.
<https://www.admin.ch/opc/de/classified-compilation/20151992/index.html>

- Bundesgesetz über den Schutz von Pflanzenzüchtungen (Sortenschutzgesetz) SR 232.16 <https://www.admin.ch/opc/de/classified-compilation/19750063/index.html>
- [More information about some regulations concerning the sustainable use of pgrfa can be found under \(only in German\): https://www.blw.admin.ch/blw/de/home/nachhaltige-produktion/pflanzliche-produktion/saat--und-pflanzgut.html](https://www.blw.admin.ch/blw/de/home/nachhaltige-produktion/pflanzliche-produktion/saat--und-pflanzgut.html)
- Verordnung des BLW über Sortenkataloge und Sortenlisten landwirtschaftlich genutzter Pflanzenarten (Sortenverordnung) SR 916.151.6 <https://www.admin.ch/opc/de/classified-compilation/20130648/index.html>
- Bundesgesetz über den Schutz von Pflanzenzüchtungen (Sortenschutzgesetz) SR 232.16 <https://www.admin.ch/opc/de/classified-compilation/19750063/index.html> Bundesgesetz über die Erfindungspatente (Patentgesetz) SR 232.14 <https://www.admin.ch/opc/de/classified-compilation/19540108/index.html>
- Verordnung über den Schutz von Ursprungsbezeichnungen und geographischen Angaben für landwirtschaftliche Erzeugnisse und verarbeitete landwirtschaftliche Erzeugnisse (GUB/GGA-Verordnung) <https://www.admin.ch/opc/de/classified-compilation/19970229/201501010000/910.12.pdf>

Austria

- Saatgutgesetz 1997
- Saatgutverordnung 2006
- Pflanzenschutzgesetz 2011
- Pflanzenschutzverordnung 2011
- Pflanzgutgesetz 1997 und Pflanzgutverordnung
- Saatgut-Gentechnik-Verordnung
- Sortenschutzgesetz 2001
- Patentgesetz
- Nagoya: bisher keine nationale Umsetzung

Spain

- Patents Law (Ley 24/2015, de 24 de julio, de Patentes)
- Variety Protection Law (Ley 3/2000, de régimen jurídico de la protección de las obtenciones vegetales)
- Seeds, plant nursery and PGR Law (Ley 30/2006 Semillas y plantas de vivero y recursos fitogenéticos)
- Natural heritage and biodiversity Law (Ley 33/2015, de 21 de septiembre, por la que se modifica la Ley 42/2007, de 13 de diciembre, del Patrimonio Natural y de la Biodiversidad)
- Royal Decree for the commercial variety register (Real Decreto 170/2011, de 11 de febrero, por el que se aprueba el Reglamento general del registro de variedades comerciales y se modifica el Reglamento general técnico de control y certificación de semillas y plantas de vivero)
- Royal Decree 1891/2008 of the National seed producer register and seed inspection and certification (REAL DECRETO 1891/2008, de 14 de noviembre, por el que se aprueba el Reglamento para la autorización y registro de los productores de semillas y plantas de vivero y su inclusión en el Registro nacional de productores)

- Royal Decree 323/2000 of the National seed producer register and seed inspection and certification (REAL DECRETO 323/2000, de 3 de marzo, por el que se modifican el Reglamento general técnico de control y certificación de semillas y plantas de vivero, los Reglamentos técnicos de control y certificación de semillas de remolacha, plantas forrajeras, cereales, maíz, sorgo, patata de siembra y el Reglamento general el registro de variedades comerciales).
- Different Technical regulation for the productions and trading of seeds and nursery plants
- GMO Law (LEY 9/2003, de 25 de abril, por la que se establece el régimen jurídico de la utilización confinada, liberación voluntaria y comercialización de organismos modificados genéticamente.)
- Royal Decree 199/2017 which approves the Regulation of the National Program for the Conservation and Sustainable Use of PGRFA (Real Decreto 199/2017, de 3 de marzo, por el que se aprueba el Reglamento del Programa Nacional de Conservación y Utilización Sostenible de los Recursos Fitogenéticos para la Agricultura y la Alimentación)

Norway

- The plant variety protection act
- The food act with the following regulations:
- The regulation on plant variety release
- The regulation on the marketing of seed and propagating material
- The regulation on seed potatoes
- The regulation on plants and efforts against plant pests (regulation on plant health)

Cyprus

- **The Seed Law of 1998 until 2012 (national)**
- **The Seed (Cereals) Regulations of 2002 until 2016 (harmonized)**
- **The Seed (Fodder Plants) Regulations of 2002 until 2014 (harmonized)**
- **The Seed (Oil and Fibre Plants) Regulations of 2002 until 2010 (harmonized)**
- **The Seed (Vegetables) Regulations of 2002 until (No. 2) of 2016 (harmonized)**
- **The Seed (National) Catalogues of Varieties of Agricultural Plant Species) Regulations of 2002 until (No. 2) of 2016 (harmonized)**
- **The Seed (License for Seed Production Company Operation and Seed Marketing License) Regulations of 2003 until 2010 (national)**
- **The Seed (Sampling) Regulations of 2003 (national)**
- **The Seed (Fees) Regulations of 2003 until 2008 (national)**
- **The Seed (Acceptance for Inclusion of Plant Genetic Resources of Agricultural Plant Species to the National Catalogue of Varieties) Regulations of 2009 (harmonized)**
- **The Seed (Acceptance for Inclusion of Plant Genetic Resources of Vegetables to the National Catalogue of Varieties) Regulations of 2011 (harmonized)**
- **The Seed (Fodder Plants-Derogations for the Marketing of seed mixtures) Regulations of 2012. (harmonized)**

France

The French parliament, constrained by EU laws as well as by international regulations (mainly ITPGRFA, Convention on Biological Diversity (CBD) with Nagoya and Cartagena protocols, EPO, UPOV), votes French laws that are implemented by the ministries. International regulation forums are influenced by ESA (or ISF), governments, farmers organizations and civil society (the RSP has members working on that either through LCV and ECVC with the CP or IFOAM-EU).

The seed legislation (directives, laws) affects the work of RSP as mentioned in annexe 1. On one hand, RSP belongs to “Semons la biodiversité”, which is a group of organisations that proposes amendments to the French parliament. On the other hand, the private companies, through UFS in France and ESA in EU are lobbying the parliament as well as the ministries. RSP, UFS and GNIS participated to HCB which delivers recommendations to the government regarding request of authorisations but also GMO legislation at EU level. Then the government takes his position and defends it in Brussels. Note that RSP, as well as 6 other civil society organisations, resigned from HCB since the debate on new hidden GMOs (known as new breeding techniques) was not possible. RSP or its members (especially CP) work with IFOAM-EU and ECVC, which influence the EU legislation.

- Article 59 of the law n° 2014-1170 on the future of agriculture, food and forest, which specifies the object of the marketing regulation: production of commercial seeds and their marketing.
- Decree n°81-605 regarding the marketing of seeds and propagating material
- Regarding the exchange of seeds Biodiversity law n° 2016-1087 from August 8th 2016
- Transposition of EU Directive with Law n° 2004-1338 which leads to articles in our Intellectual property Code
- Article 57 of the law n° 2014-1170 on the future of agriculture, food and forest: the patent protection doesn't work in case of incidentally or accidentally presence of a patented genetic information in seeds, plants material.
- Biodiversity law n° 2016-1087 from August 8th 2016 :
- The Plant Protection Certificate law n° 2011-1843 from 2011 is the main text for the implementation of UPOV 1991 in France. It is dealing with the delivery of PVR, the rights and obligations attached to PVR, Farm saved seeds, legal procedure, held by customs.
- Ministerial ruling n° 2014-869, August 1st 2014: add new 13 derogatory species, to the list of the ones allowed in the regulation (CE) n° 2100/94 for farm-saved seeds → currently there are 34 species allowed for farm-saved seeds in France.

Regarding GMOs

- Law n° 2008-595 from June 25th 2008
- Decree no 2008-1273 from December 8th 2008 concerning the High council on Biotechnologies.
- Decree n° 2007-358 from March 19th 2007

Regarding Genetic Resources

- Law n° 2005-149 from February 21st 2005 : ratification of the International Treaty on Plant Genetic Resources for Food and Agriculture
- The Plant Protection Certificate law n° 2011-1843 from 2011 has also an important article

(n°18) dealing with plant genetic resources → the Decree n° 2015-1731 from December 22nd 2015 relating to the conservation of plant genetic resources lead to the current implementation of criteria for the definition of plant genetic resources + patrimonial plant genetic resources + the process to be recognized as a collection manager. It has to be noticed that this decree recognized as part of in-situ conservation the « dynamic management of a population ».

- Biodiversity law n° 2016-1087 from August 8th 2016: ratification of the Nagoya Protocol + implementation of EU regulation → awaiting for the specific text concerning cultivated plant genetic resources and crop-wild relatives which are not in Annex I of the Plant Treaty.

Italy

- Lay 1971, n. 1096 last update 2015, Italian National law on seed marketing
- Decree legislative n.212-2001 - *Implementation of Directives 98/95/CE e 98/96/CE* concerning the marketing of seed products, the common catalogue of varieties of agricultural plant species and related controls
- Decree of the Ministry of Agriculture 14 January 2012 concerning the regulation 2003/90/CE-- Characters and conditions to be observed for the purpose of entry of the varieties in the national register: -last update **February 2015**
- Decree of the Ministry of Agriculture March 18, 2005 -sharing of conventional and genetically modified seeds of herbaceous species of full field,
- Decree of the Ministry of Agriculture 29 October 2009 n. 149 -*Implementation of Directives 2008/62/CE* concerning exceptions to the admission of agricultural landraces and varieties which are naturally adapted to local and regional conditions and threatened by genetic erosion, as well as' for the marketing of seeds and potato tubers at planting of those landraces and variety-
- Decree of the Ministry of Agriculture December 17, 2010 procedures for the admission to the National Register; of conservation varieties of agricultural species
- Decreto Legislativo 267/2010 - *Implementation of Directives 2009/145/CE*, exceptions for the admission of ecotypes and horticultural varieties traditionally cultivated in specific areas and regions and threatened by genetic erosion, as well as horticultural varieties with no intrinsic value for commercial production but developed for growing under particular conditions for the marketing of seed of those landraces and varieties -
- Decree of the Ministry of Agriculture 18 September 2012 - methods for admission to the National Register of varieties of vegetable species as conservation and the varieties of vegetable species with no intrinsic value and developed for growing under particular conditions
- National Law n. 194/2015 Disposizioni per la tutela e la valorizzazione della biodiversità di interesse agricolo e alimentare.

Netherlands

- Common Dutch seed law (which is related to UPOV), and European law
- In case of tomato: regulations on GSPP
- In case of wheat populations: EU experiment on heterogeneous material...

ANNEX 2:

Description of the seed system on the national level (formal sector) Field 2 and Field 3

Country	What is stored in the formal sector (main crops)?	Do you have a national platform for the coordination of biodiversity conservation	Do you have a national biodiv. Management strategy?	Access to pgr. Easy, formalistic and complicated, very restricted. Seed quantity	Interaction between genebank and private seed companies. Private companies integrated in an official platform yes/no	Special remarks
Italy	<p>No centralized ex situ system. Different collections belonging to the Ministry of Agriculture and Ministry of Research.</p> <p>2,714 industrial crops, 7,776 Forages, 3,744 forestry, 8,787 Fruiting and citrus fruits, 3,243 Olive, 266 ornamental 586 Aromatic and medicinal, 93 vine, 17,496 Cereals</p> <p>http://planta-res.entecra.it/pages/index.php</p>	<p>PlantRes is a national network that involves all the actors. 29 Research Centres and Rete semi Rurali as the only NGO and NPO.</p> <p>A national Database has been developed that documents SMTA's that have been distributed with the pgr.</p>	<p>Since 2008, Italy has a National Plan on Biodiversity of Relevance to Agriculture. Its overall objective is to "introduce a national system for the protection of agricultural biodiversity, in order to effectively re-introduce on the national territory much of the diversity which had disappeared or is at risk of extinction. In 2012 a set of guidelines has been developed to achieve the goals.</p> <p>http://www.reterurale.it/flex/cm/pages/ServeAttachment.php/L/IT/D/4%252Fa%252F8%252FD.49ec9fd3f14eff771155/P/BL0B%3AID%3D9580/E/pdf</p>	<p>In Italy, access to PGRFA from genebanks and ex situ institutions is regulated by Decree 165 of the 5th of March 2001, which establishes that access to materials must be facilitated and for free when requests are for research, training and non-professional purposes. Requests for research purposes must be notified to the Ministry of Agriculture who is in charge of granting authorization. As Italy is a party to the International Treaty on Plant Genetic Resources for Food and Agriculture, distribution of germplasm of species listed in the Treaty's Annex 1 from ex situ public institutions must be accompanied by the Treaty's SMTA (Standard Material Transfer Agreement), that the recipient must sign to agree to its terms.</p> <p>Seed quantity is enough for research and experiments but not for direct use.</p>	<p>No: Italian seed companies are grouped in Assosementi, the Italian Seed trade union. A complete list of the companies can be found at http://www.sementi.it/associate. Arcoiris, member of RSR, is not member of Assosementi.</p> <p>It is not known how genebanks cooperate with seed companies. RSR is cooperating only with Arcoiris.</p> <p>Seed companies are not involved in the national committee on agricultural biodiversity. Only regions and farmer's unions are cooperating here.</p> <p>See picture in the Annex : "Italian seed system, showing the informal one managed by "diversity farmers" and the formal one where conventional farmers are final users of seeds"</p>	

Switzerland	<p>Swiss genebank Département fédéral de l'économie, de la formation et de la recherche DEFR Agroscope Institut des sciences en production végétale IPV Division de recherche Grandes cultures^{SEP} Rte de Duillier 50, CP 1012, 1260 Nyon 1 / Suisse</p> <p>At the moment 500 vegetable landraces and obsolete varieties important for Switzerland are listed in a so called "positive list". It means that these varieties will be conserved in the national collection because they are considered as an important part of the CH-agrobiodiversity heritage. of 1300 apple varieties, 800 pear-varieties, 400 cherries and 300 prunes, 208 berries, 127 potatoes. About 10'000 cereal-landraces of several species (mostly Triticum spelta, Secale cer., Hordeum vulg. Trit. aest.) an exact overview is given here: https://www.bdn.ch/pan/</p>	<p>Yes: The Swiss commission for the conservation of cultivated plants has been created in 1991 by the Swiss gene bank (CPC-SKEK). On the following webpage (www.cpc-skek.ch) you will get the whole overview of collections and the conservation network in Switzerland. SKEK is an association supported by the 40 members and the state to coordinate the pgr conservation program in Switzerland. The members meet in working groups belonging to the SKEK-network (see above). The activities of the working groups are supported by the state national action plan for pgrfa (NAP-PGREL). ProSpecieRara e.g. holds some collections together with research institutions (e.g. Potato collection with Agroscope Reckenholz. Berry-collection with Agroscope VS and Vine-collection with Recherche institution Mezzana TI etc.</p>	<p>Yes Switzerland set up a national action plan for the conservations and sustainable use of PGRFA (NAP-PGREL) in 1998 and a Biodiversity-strategy in 2014 to conserve, promote and monitor Biodiversity in general. At the moment Switzerland is developing a national breeding strategy.</p> <p>https://www.blw.admin.ch/blw/de/home/nachhaltige-produktion/pflanzliche-produktion/pflanzengenetische-ressourcen/nap-pgrel.html</p>	<p>The seed-exchange within the SKEK-network is without any obligations as long as the work that is done is in relation to the national conservation program. As soon as evaluation, description and breeding work is done outside the program every exchange with the genebank has to be followed by an SMTA.</p> <p>Not for direct use. PSR always had to work on the variety quality and propagate the seeds to get enough quantity.</p>	<p>A few seed companies of the formal sector are involved in the biodiversity management system like DSP (seed-propagation and breeding company). It is a mixture between public and private institution! DSP propagates seeds for the genebank and gets some funds for breeding but acts as a licence-holder for protected varieties as well. Some of the active breeders of DSP are sitting in different working groups of the SKEK.</p> <p>Seed producer-organizations, traders and seed industry are involved in the technical commission (no NGOs) they decide which varieties will be published in the recommendation list for farmers. Farmers rely very much on that list and that for it is a very powerful tool. Neither farmers nor consumers are directly involved in the development of that list. Only the industry – like Swiss Sem – is involved in the decision making process.</p> <p>Further interactions between seed companies and the SKEK members are mostly informal.</p> <p>Syngenta as one of the biggest multinational seed companies isn't involved in any national biodiversity management platform and doesn't have any connections to the gene bank.</p>	
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					There is no formal mechanism for varieties removed from the market to enter in a public genebank.	
Austria	<p>www.genbank.at shows 12.000 entries – that’s also the number used in the PGR secure report; but not all accessions of public and private collections are shown in this database.</p> <p>There are no data published on that question neither by the ministry nor the competent authorities.</p> <p>The biggest groups are probably cereals (about 2-3000), malus (2000), phaseolus (800), pyrus (600) and medicinal and aromatic herbs (1000).</p>	<p>There is no single active PGRFA network like the SKEK in CH. With ARGE Streuobst, such a network exists for fruit trees (strongly based on the commitment of individuals from the public and private sector) www.argestreuobst.at. But there is no such structure for cereals and other field crops, vegetables or herbs. There is one commission for biodiversity in general that has seats for 2 representatives of NGOs, therefore providing extremely limited space for PGRFA.</p> <p>Due to that, interactions between the formal and informal sector generally depend on the individuals and their activities.</p>	<p>There is a national strategy on Biodiversity in general that we find not satisfying because its PGRFA goals are not clear or ambitioned http://www.biologischesvielfalt.at/ms/chm_biodiv_home/chm_biodiv_home/chm_nat_aktivitaeten/chm_oesterreichische_strategie/</p> <p>There is no national action plan for the conservations and sustainable use of PGRFA though the national coordinator has been assigned for a long time to set up a process leading to such a plan.</p>	<p>Yes on the base of a sMTA.</p> <p>Not for direct use. We always had to work on the variety quality and propagate the seeds to get enough quantity.</p>	<p>A list of private companies is available under: Source: http://www.saatgut-austria.at/MEDIA/Factsheet%20Saatgut%20Austria.pdf. But they are not at all involved in a national biodiv. Management system.</p> <p>There is no formal mechanism for varieties removed from the market to enter a public genebank.</p>	Biodiversity strategy in general but no specific strategy for pgrfa.
France	There are 11 genebanks managing different species at Clermont Ferrand for cereals, Bordeaux for Prunus and fruit trees, Montpellier for corn, Medicago and Vitis, Lusignan for fodder crops, Angers for ornamental plants and other fruit trees, Versailles for Arabidopsis (not so useful for RSP members ...), Ploudaniel for artichoke, potatoes,	RSP is represented into the CTPS section as well as the Croqueurs de Carottes which represent micro-entreprises (members of RSP), UFS and GNIS, private companies, conservatory organizations, producers, researchers and ministry representatives. The in-situ and on-farm conservation is now formally	A national strategy to manage PGRFA in France and to answer legal obligations is under discussion within a new section of CTPS.	RSP members regularly ask some sample to these genebanks in order to start breeding programme. Public research work with them. Access to public genebanks is supposed to be open and accessible through the internet site: https://urgi.versailles.inra.fr/siregal/siregal/grc.do . Every exchange with the genebank has to be	Private seed companies are involved in the national “biodiversity management system” through CTPS and FRB. RSP, UFS and GNIS also participate to FRB and CTPS. Private companies have also lots of research programmes with public research institutions.	

	allium and cruciferae, Dijon for proteinaceous, Avignon for vegetables, Toulouse for sunflower, San Giuliano for citrus fruit. There are also numerous regional centers in each region for conservation of regional landraces.	recognized in national law. The implementation needed to make it fully effective is currently in discussion within this section.		followed by an SMTA. Members of CSB (called Maisons des Semences Paysannes : farmers seed houses) do not always get all samples they want as some of them are part of private collection. Amount of seeds are small and not useful for direct use. Work of multiplication has to be done in order to get sufficient amount of seeds to start breeding.		
Spain	<p>Spanish public ex situ collections of plant genetic resources for food and agriculture (PGRFA) are mainly organized in a National Bank Network supported by the National Programme on Conservation and Utilization of PGRFA. Currently, 35 public institutions maintain more than 77.000 entries from which 34.000 correspond to vegetables, pulses, and cereal landraces (De la Rosa and Martin 2016).</p> <p>The National Agricultural and Food Research and Technology Institute's National Centre for Plant Genetic Resources (CRF) (depending on the Economy, Industry and Competitiveness Ministry), in addition to its work in maintaining active collections of cereals and grain legumes and conserving safety duplicates of all seed collections of the network, is responsible for the documentation of the National Bank Network. Following this mandate, CRF developed in 2000 the National Inventory of PGRFA, which is regularly updated and available on-line, in Spanish and English</p>	At a national level there is not an official interaction framework between the National Bank Network and the collective groups of on farm, dynamic conservation and use of PGRFA, like seed networks. The only existing possibility was created last March 2017 with the approval of the Royal decree of the National Programme on Conservation and Utilization of PGRFA. This regulation foresees the creation of a Commission that will coordinate the actions of the Program. This Commission will have an important representation of public administrations (including the Director of CRF) and the public scientific-technical sector in PGRFA, the PBR sector (as the National Association of Fruit and vegetable plant breeders- ANOVE) and the seed traders formal sector (as the Professional Association of Producing Enterprises of Selected Seeds-APROSE) but	<p>There is no a comprehensive National Strategy on PGRFA.</p> <p>There is a Spanish Strategy for Plant Conservation 2014-2020 (approved in 2014) that tries to respond to Spain's commitment to the Global Strategy for Plant Conservation of the United Nations Convention on Biological Diversity. But PGRFA are out of the scope of this strategy.</p> <p>Conservation of PGRFA is managed by the National Program for the Conservation and Sustainable Use of PGRFA that is mainly focused on ex situ conservation. Even though the program was created many years ago, its current version (under the Seed Law 30/2006) is being developed now. So we will see in the following years its possible impacts on the national biodiversity management.</p> <p>One of the demands of RAS and RdS is to develop a comprehensive National Strategy on PGRFA with the participation of the groups that are working on</p>	<p>After several years where it was not easy for farmers and collective organisations to get seeds from certain Banks of the National genebank Network and thanks to the effort of some public officials and the lobby of RdS the situation has changed completely and, from 2007, genebanks respond quickly and efficiently to farmers and seed networks requests. In fact CRF is very engaged with the local seed network work and it helps these organisations if issues with a concrete genebank arise.</p> <p>The steps to get seeds from the National genebank Network are: search for a concrete variety, specie or location in the online National Inventory and contacting the contact person of the bank explaining the purpose of the demand (on farm management, variety description and evaluation, etc). Then, seeds are sent with the corresponding SMTA.</p> <p>Normally seed networks and farmers get everything they ask for. If not the reason is that the bank has faced a multiplication</p>	<p>It is not possible to map the interaction of genebanks and private seed companies as, unfortunately, there is not concrete public information available.</p> <p>Big and medium companies of the very formal sector are mainly associated in 2 structures. The first one is ANOVE, and its objective is the protection of the Plants Breeders Rights (PBR) of its 50 members (48 private and 2 public). The other is APROSE, and is formed by more than 40 companies whose main activity is the commercialization of seeds.</p> <p>These associations have an active and formal interlocution with the public administration and participate in different Commissions for the varieties assessment of the Ministry of Agriculture. Unfortunately, microenterprises, seed networks and experts on Farmers' Right don't participate in these Commissions.</p> <p>Making and exhaustive list of the private companies of the formal</p>	

	<p>(De la Rosa et al, 2014).</p> <p>Regarding the origin countries of the germplasm conserved, 69% of the accessions come from Spain, the 4% from Portugal, 16% from other countries and 11% has an unknown origin. Concerning the type of materials conserved in the National Bank Network, the 51% are landraces, the 29% are wild materials, the 4% are advanced or improved cultivars and the 4% breeding or research material (De la Rosa et al, 2014).</p> <p>A detailed list of PGR kept in the Spanish national genebank-Network is added in the annex of this report</p> <p>More information about the genebanks: http://wwwx.inia.es/inventarionacional/Bus_inst.asp</p> <p>Apart from the genebanks of the National Network there are PGRFA ex situ collections in some regional banks, botanical gardens and universities and of course private companies but there is no public or “easy to find” information about this.</p> <p>* Address: Autovía A-II, km 36,</p>	<p>a very small representation of the agricultural sector (only representatives of recognised agricultural organizations will participate) and the informal sector, with just one “representative of civil society, associations or national non-governmental organizations whose objectives are related to plant genetic resources.” This Commission is still not created and it could be the only formal space for the participation of the seeds networks at the national level.</p> <p>At the regional level some local networks have formal collaboration agreements with public banks, with the objective of multiplying some accessions on farm, getting seeds to the banks easily, long-term conservation of local variety seed samples, organising training activities or developing common projects. That is the case of the collaboration between BGVA and RAS, the Agrifood Research and Technology Centre of Aragón’s Bank (CITA) and the Aragón Local Seed Network (Red de Semillas de Aragón) and the Center for the Conservation of Agricultural Biodiversity of Tenerife (CCBAT) with the Local Seed Network of Canarias (Red Canaria de</p>	<p>the dynamic on farm conservation and use of these resources like the seeds networks and seeds and nursery plants micro-enterprises.</p> <p>A few Spanish regions have developed strategies on PGRFA, supporting on farm conservation and management in some cases, linked to their Rural Development Programs 2014-2020.</p>	<p>problem and/or they are run out of seeds of a concrete variety the farmer or seed network is asking for.</p> <p>The seed quantities genebanks send are too small (normally less than 100 seeds) for starting a commercial production, but it’s a starting point for seed multiplication and depending on the specie, first trials for the variety assessment.</p> <p>In the framework of DIVERSIFOOD, in 2016 RAS asked to CRF, the Institute for Conservation & Improvement of Valencian Agrodiversity (COMAV) and CITA for more than 20 samples of winter cereals and tomato and they attended the demand on time and correctly. Of course genebanks conserving cereals, legumes and vegetables have more interaction with seed networks.</p> <p>RAS has a collaboration agreement with the BGVA. Every two years RAS sends them interesting varieties from the CSB that are getting too old considering CSB not optimal storage conditions and the Bank put them in good long term conservation conditions.. BGVA is not allowed to give seeds to any institution, organization or person without RAS permission. The objective of this collaboration is to maintain available interesting varieties to farmers for longer. RAS has sent 170 accessions to BGVA in the</p>	<p>sector is complicated because the network of these enterprises and their relations is very complex and it’s not easy to get information. The main source of information has been RAS knowledge, internet, catalogues of the companies and the national register of protected and commercial varieties.</p> <p>A list of relevant companies from the formal sector with a Spanish origin can be checked in the annex 4.</p>	
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		Semillas).		last 3 years.		
France	<p>11 public genebanks for different species</p> <p>Clermont Ferrand : cereals, Bordeaux : Prunus and fruit trees, Montpellier (corn, medicago, vitis), Lusignan (foder crops), Angers (ornemental plants, other fruit tress), Versailles (arabidopsis), Ploudaniel (artichoke, potatoes, allium), cruciferae), Dijon (proteinaceous), Avignon (vegetables), Toulouse (sunflower), San Giuliano (citrus fruit) and numerous regional center in each region for conservation of regional landraces.</p> <p>Most represented species: Cereals, corn, vegetables</p> <p>Several thousands for each species. Ex 16500 varieties of Triticum</p>	<p>A new section of the CTPS (permanent technical committee for seeds) section has been created in 2016 for genetic resources with representant of RSP, Croqueurs de Carottes and organic breeding</p> <p>Strategy to be discussed in the new section of CTPS</p>	Strategy to be discussed in the new section of CTPS	<p>Access to public genebanks is supposed to be open and accessible through the internet site : https://urgi.versailles.inra.fr/siregal/siregal/grc.do. every exchange with the genebank has to be followed by an SMTA.</p> <p>In the case of maize where the collection is partly private and partly public it is difficult to get seeds at all. Not enough seeds for direct use. We always had to work on the variety quality and propagate the seeds to get enough quantity</p>	<p>Many seed companies are producing seeds in France see http://gnis.fr/index/action/page/id/1143/title/Le-Gnis-en-chiffres 21 companies are involved in breeding http://gnis.fr/index/action/page/id/65/rubrique/3</p> <p>Yes through CTPS (permanent technical committee for seeds), GNIS, FRB</p>	In the case of maize where the collection is partly private and partly public it is difficult to get seeds at all.
Norway	<p>The Nordic countries are collaborating and have joint gene bank in Sweden: NordGen, http://www.nordgen.org/index.php/en/content/view/full/2/</p> <p>All other varieties and conserved via: Norwegian Genetic Resource Center: http://www.nibio.no/en/topics/norwegian-genetic-resource-centre</p> <p>Cereals are quite well represented. Also fruit and to some extent berries are well represented.</p>	<p>There is no official collaboration platform but we collaborate with all parts of the formal sector. Norway is a small country with a high level of consensus that we need to collaborate to maintain and develop our crop genetic resources.</p>	Norway has a national strategy to manage PGRFA.	<p>Norway follows the steps lined out by the Multilateral System of Access and Benefit Sharing under the International Treaty on Plant Genetic Resources for Food and Agriculture. The system is quite easy, as a click and wrap system.</p> <p>Our organization is not applying for seeds itself, but we know that those who try normally get what they want, provided it is available. However, the demand is growing, and it has become a challenge for NordGen to follow up. New rules provide some stricter criteria to be allowed to receive material.</p>	<p>Graminor is collaborating with NordGen to some extent, and participate in projects to enhance diversity.</p> <p>Solhatt is active in enhancing diversity and participates in several projects towards this end</p> <p>I do not have any examples, and I think such activities are limited, probably only to some few projects which are aimed at broadening the genetic base of certain crops.</p>	<p>They established a click and wrap system to make exchange of PGRFA as easy as possible.</p> <p>Access to potato seeds is more difficult as for other vegetables like in CH.</p>

				<p>However, that is so far not limiting the work in Norway.</p> <p>The only exception is potato that cannot be imported to Norway from our own genebank in Sweden, due to the regulations. Here, the Norwegian potato seed bank aims to help out.</p> <p>Normally one only get small amounts of seed, and it is necessary to multiply on ones own</p>		
Cyprus	<p>National Genebank, National Plant Genetic Resources GeneBank hosted in Agricultural Research Institute (ARI) www.ari.gov.cy</p> <p>Mainly some older barley and wheat landraces, not or rarely cultivated at present.</p>	Not besides the genebank. No official platform including all the stakeholders.	A comprehensive national strategy for the management of PGRFA is missing from Cyprus, though some efforts are under way.	<p>A formal claim is submitted to GeneBank and within a specific timeframe they have to respond whether they can provide the material or not. It is not always certain that enough quantity will be received, usually not. The quantity of seeds provided depends on the species/genus and possibly other factors.</p>	<p>Private companies are not involved in a national biodiv. Management system.</p> <p>Any exchange of seeds is known.</p> <p>Private companies are often interested in the varieties produced by ARI and they may decide to promote them commercially to farmers</p>	<p>ARI is a part of the formal system. No NGO view is available from Cyprus.</p>

ANNEX 3:

Description of the informal biodiversity management system on the national level Field 4

NGO Country	What is stored in the seed network (main crops) and where do they come from?	Who are the stakeholder of your seed network Do you get national funds?	How is the NGO network involved in the national conservation system for PGRFA	Describe your biodiversity management system	Interaction between private companies and your organization? yes/no	Special remarks
Rete semi rurali Italy	From Genebank, private research centres, private gardeners, private farmers, little seed companies, private collections, nurseries, seed saver-associations	Was founded in 2007 and now has 41 members who represent the farming community throughout the Italian territory (including islands), of which 20 associations of farmers, 3 SMEs, 2 NGOs, 1 environmental group, two economic districts of solidarity economy, 1 park natural and 1 experimental station. Some associations have national coverage, other regional or local. Members are representatives of interests of farmers, private gardeners, breeders, little seed companies, protected areas, consumers. RSR is mainly maintained thanks to projects, the one with the Ministry of Agriculture and the others with the European Union (H2020).	The RSR is working, as the representative of civil society, with the Italian Ministry of Agriculture for the implementation of the FAO Treaty through the project "Program for the conservation, characterization, use and development of plant genetic resources for food and agriculture". We asked to be member of the national committee on agricultural biodiversity but we didn't succeed and the Regions decided to choose the usual farmers' unions as members.	We describe below the case study of example 3 on conservation varieties, based on the concrete experience of Terre Frumentarie the farm of Giuseppe Li Rosi in Sicily, who registered 3 wheat landraces.	We don't know exactly. We can only say that we are exchanging resources with Arcoiris that is one of the members of RSR.	
ProSpecie Rara Switzerland	Landraces, obsolete varieties, open pollinated crops, no hybrids, no gmo's Vegetables: beans, peas, leafy vegetables, tomatoes, cabbages,	private gardeners, nurseries, researchers, breeders, farmers, little seed companies, botanical gardens, city gardeners (employed by the cities), municipalities,	ProSpecieRara is one of the founding members of the SKEK (see formal sector field 2,3). It is a coordination platform for the implementation of the national action plan for pgrfa in	There are two parallel networks one is the seed savers network for biodiversity management. It is a very dynamic system with a centralized seed	ProSpecieRara is coordinating seed production for the seed market together with the seed company Sativa Rheinau AG who is multiplying seeds coming from genebanks and seed savers	

	<p>carrots, (1'400 varieties)</p> <p>Cereals: spelt, emmer, einkorn, rye, barley, (specialities) 50 varieties</p> <p>Potatoes (40 varieties)</p> <p>Ornamentals (500 varieties)</p> <p>Berries: 450 varieties</p> <p>Fruits: 1'800 varieties</p> <p>Private gardeners, private farmers, little seed companies, genebank, private collections, nurseries, seed saver-associations</p>	<p>cantons, museums, etc.</p> <p>Public funds for: Description of accessions, inventories, propagation of varieties. Evaluation of varieties mainly for taste</p> <p>A new directive on PGRFA made funds available for diversity-breeding of "niche varieties."</p> <p>Other: EU-funds Horizon 2020, Leonardo</p>	<p>Switzerland. The program profits from governmental money that is paid for conservation-projects coordinated and realized by ProSpecieRara and other members of the SKEK.</p>	<p>library and 600 seed savers propagating seeds for the seed library and for the members of ProSpecieRara. The seeds are offered throughout a catalogue on paper and on internet. The seed savers are mostly gardeners.</p> <p>A second seed saver group are professional farmers or nurseries who produce seeds for the PSR-collection but in some cases for directed marketing directly to consumers as well. For the third group – see next column.</p>	<p>for bigger quantities needed by farmers who will produce products for the market and under the label ProSpecieRara. This value chain is disconnected with the conservation system and purely working in a marketing context.</p>	
Arche Noah Austria	<p>Landraces, obsolete varieties, open pollinated crops, no hybrids, no gmo's</p> <p>Leguminous crops: ca 1300</p> <p>Solanaceae, Cucurbitaceae: ca 1300</p> <p>Brassicaceae: 330</p> <p>Chenopodiaceae: 130</p> <p>Leafy vegetables: 320</p> <p>Apiaceae: 120</p> <p>Alliaceae: 160</p> <p>Other vegetables: 400</p> <p>Cereals, Pseudo-Cereals, mays: ca. 650</p> <p>Herbs: ca 300</p> <p>Potatoe: ca. 200</p> <p>Other field crop: 250</p> <p>Ornamentals: 200</p> <p>Fruit tree varieties: ca. 400</p> <p>Private gardeners, private farmers, little seed companies, genebanks, private collections, nurseries, seed saver-associations</p>	<p>organic farmers & organic farmers association, private and public research institutions and university, breeders, small seed companies, private and urban gardeners, retailer / supermarket, consumers</p> <p>National, regional and EU funds, mainly from LEADER-Programme, RDP, Leonardo, Sparkling Science, Horizon 2020</p>	<p>There is no national biodiversity management system that formally includes NGOs</p>			
Réseau	<p>The main crops managed in our</p>	<p>A majority of members of</p>	<p>At civil society level RSP is</p>	<p>The main important point</p>	<p>There is no cooperation</p>	

semences paysannes FRANCE	network are cereals (several hundreds), fruits (several hundreds), maize (several dozens), vegetables (several hundreds) and fodder crops. The seeds come from CSB farmers, little seed companies, gardeners, genebanks, nurseries, seed saver-associations.	RSP deal with the topic of PGRFA. Members of RSP are organisations of: farmers, private gardeners, nurseries, researchers, breeders, little seed companies, botanical gardens, communities carrying for collections (see http://www.semencespaysannes.org/les_membres_du_reseau_semences_paysannes_205.php). Most of these organisations are CSBs. Other actors which are not member of RSP are dealing with PGRFA such as Croqueurs de Pommes, ferme de sainte-Marthe or Kokopelli.	involved in: Semons la Biodiversité, LLD and IFOAM as well as ECVC and LVC via CP which is member of RSP At official institutional level : such as CTPS, FRB, HCB Members of RSP are involved in some research programs with public research such as INRA, CNRS or MNHN.	for RSP is the possibility to exchange seeds between as many farmers as possible and sell population-varieties and create a wide recognition of on-farm biodiversity management with adapted financial support from public policies and a ban of patent on living organisms that will condemn the on-farm biodiversity management. Exchange within the MLS could be a good opportunity so that on-farm management would better interact with the ex-situ system but, as previously explained, engagements must be taken.	between RSP members and big private companies. On the other side, micro-entreprises (RSP's members) are producing organic and no-hybrid seeds. Some are working with other RSP's members in participatory plant breeding program (ex : tomatoes).	
Red Andaluza de Semillas Spain	The varieties that have passed through RAS CSB and other activities related to production, research and consumption are local, traditional, farmers' varieties and, in some cases, commercial varieties in the public domain (non protected varieties). Since the opening of the CSB in 2007 more than 2500 varieties have been available in the CSB. Seeds come mainly from farmers and gardeners and in the case that RAS is trying to reintroduce a missing local variety or varieties of concrete species, from public genebanks	Farmers, gardeners, processors, technical staff, dynamizers of rural areas, researchers, consumers, collective organisations (cooperatives of farmers and/or consumers, organic movement, consumers movement, ecologist movement, etc.) and other stakeholders. Currently, the main source of RAS funding comes from EU projects. In the last few years regional and national calls and/or funds have deeply decreased, however RAS has get some national funding from specific projects in 2008 and 2010 and regional funding in 2013 and 2016.	There is no national biodiversity management system. The Spanish Seed network (Red de Semillas "Resembrando e Intercambiando" –RdS), the national umbrella organisation of more than 25 local seed networks, is a space for the collective coordination of the on farm and dynamic agricultural biodiversity management at the national level. RAS is strongly committed with RdS and participates very actively in its board of directors where it proposes political, productive and social positions, strategies and actions related, among others, to the access, use, management, trade and misappropriation of PGRFA, and helps to build alliances at the	RAS collaborates closely with different organization to improve the collective management of the agricultural biodiversity. In this sense RAS has implemented different strategies and actions as supporting seed and nursery plant micro-enterprises; creating and advising CSB; developing promotion activities with consumers; training courses for farmers in technical, methodological and legislative issues; raising awareness activities with civil society, variety assessment and description projects, monitoring and	Exchanges are happening between artisanal microenterprises supported by the seed networks and seed networks, farmers and collective organisations. RAS has an excellent relationship with artisanal microenterprises and farmers selling their own seeds of local, traditional and commercial varieties in the public domain in Andalucía. RAS cooperates with these initiatives by: <ul style="list-style-type: none"> • Exchanging seeds and information of the varieties. • Supporting their needs vis-à-vis public administration. 	

			<p>national and international level.</p> <p>An informal anti-GMO alliance among different organisations has been created and different organisations cooperate together publishing press releases, writing political and legislative demands to different public administrations and developing and putting into effect concrete action plans.</p> <p>RAS also lead an on farm and dynamic agricultural biodiversity managing system at the regional level with the collaboration of many organisations.</p>	<p>lobbying public policies, etc.</p> <p>Apart from the results of its works, RAS also shares the protocols and methodologies used with members and partners organisations in order to improve the collective results of the dynamic use of the agricultural biodiversity.</p> <p>In particular:</p> <ul style="list-style-type: none"> • The operating methodology for the creation and management of CSB and seed exchange tools (including data bases) • The methodology for the local variety describing and assessing and the recovery of traditional knowledge linked to local varieties. 	<ul style="list-style-type: none"> • Advising the initiatives to progress technically, bureaucratically and legally. • Developing research projects tackling variety assessment. • Organising training activities. • Organising raising awareness activities with farmers and consumers. <p>There are some enterprises of the formal sector that are registering local varieties in the conservation variety register and RAS has organised several meetings in order to share with them our vision and discuss about the best way to proceed in terms of type of register and variety denomination.</p>	
<p>Réseau semences paysannes France</p>	<p>Cereals : several hundreds, fruits : several hundreds, maize: several dozens, végétales : several hundreds</p> <p>farmers, little seed companies, gardeners, genebank, nurseries, seed saver-associations</p>	<p>farmers, private gardeners, nurseries, researchers, breeders, little seed companies, botanical gardens, communities carrying for collections</p> <p>Through european research project only. Some farmers of certain groups in two region should receive European subsidies for cultivation of certain landraces.</p>	<p>RSP is member of the new section of CTPS and member of FRB</p>			

ANNEX 4: List of stakeholders in Field 3 and Field 4

List of private seed companies:

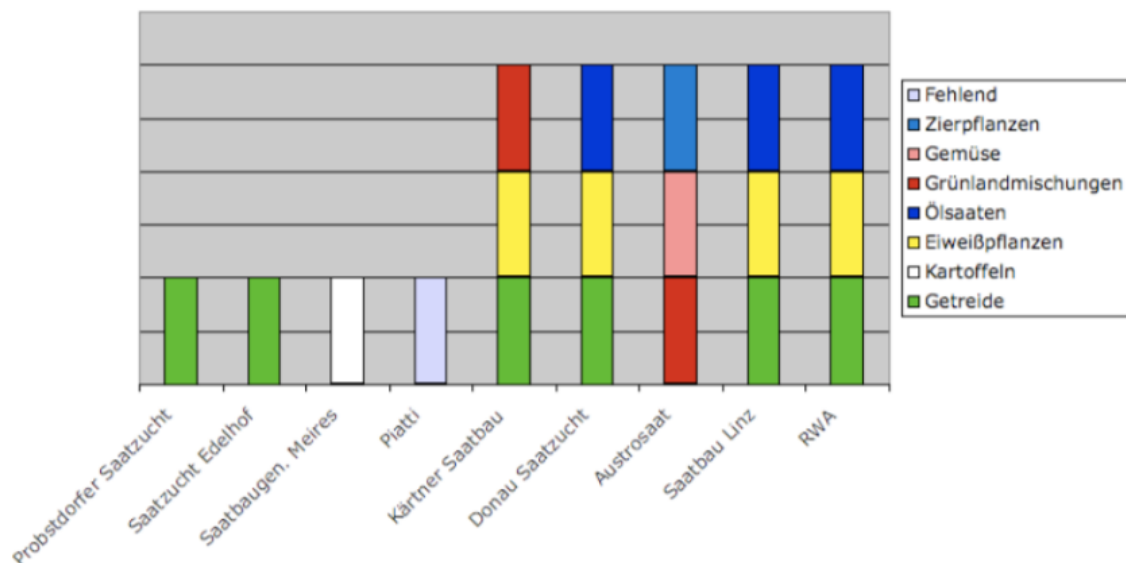
Switzerland

Company (name)	Activity (propagation, breeding, evaluation, selling...)
Sativa Rheinau AG and Bioverita	Propagating and breeding new varieties for organic agriculture. Commercializing new varieties under the label BIOVERITA.
Samen Mauser Sperli Samen Samen Wyss AG	Commercial seed sellers. Mostly hybrids and some open pollinated seeds. No breeding work.
Zollinger Samen	Propagating and improving quality of traditional varieties or landrace by selecting better trades out of the population.
Delley Samen und Pflanzen AG	Evaluating and propagating plant material coming from the genebank. Producing seed for conventional farmers and seed companies FENACO. Is an official seed propagating organization in Switzerland. Breeding and commercializing varieties (mostly cereals).
Artha Samen	Little organic seed producer
SGPV	Production organisation for cereal seeds. http://www.fspc.ch/fspc/index.php?page_id=203

Swisspatate	www.patate.ch Producer-organisation for potato-seeds
Saatzuchtgenossenschaft St. Gallen	Mainly potatoes, some oil-plants
Swiss Granum	http://www.swissgranum.ch/76-0-Portrait.html
Swiss Seed	The most important and official representative of varieties in Switzerland is a cooperative called "Swiss Seed". They provide services for breeders (variety protection, Licences, VAT- and DUS Evaluations). This service-centre is called Swiss-Seed-Service. http://www.swiss-seed.ch/de/
Swisssem	http://www.swisssem.ch/de/home/ Here you can find a quite exhaustive list of seed propagation companies. Swisssem, Route de Portalban 40 1567 Delley
Fenaco/ UFA Samen	Biggest trader of agricultural products in Switzerland and Seeds: http://www.ufasamen.ch
SYNGENTA	

Austria

Betriebsschwerpunkte



List of plant breeders in Austria. Of the above list, Austrosaat and RWA have only very limited breeding activities – v.a. propagation and retail.

Plus ReinSaar (small organic breeder and seed company)

	Züchter	Produzent	Händler
AGROS Service			x
Austrosaat	x	x	x
Beiselen Ges.m.b.H.			x
HBLFA für Landwirtschaft Raumberg-Gumpenstein	x		
HESA		x	x
Ing. Friedrich Etter			x
Kärntner Saatzuchtgenossenschaft	x	x	x
Kwizda Agro		x	
KWS Austria Saat		x	x
Maribo Seeds	x	x	
Niederösterreichische Saatzuchtgenossenschaft	x	x	x
Österreichische Rübensamenzucht		x	x
Pioneer Hi-Bred	x	x	x
Polanz Samen			x
Probstdorfer Saatzucht		x	x
RAGT Saaten Österreich			x
RWA - Raiffeisen Ware Austria		x	x
Saatzucht Linz	x	x	x
Saatzucht der LFS Edelhof	x		
Saatzucht Donau	x		
Saatzucht Gleisdorf	x		
Samen Schwarzenberger		x	x
SteirerSaar eGen		x	
Stift Schlägl	x		
Syngenta	x	x	
tec2trade			x
Tiroler Saatzuchtgenossenschaft		x	
Universität für Bodenkultur	x		

Source: <http://www.saatzucht-austria.at/MEDIA/Factsheet%20Saatzucht%20Austria.pdf>

France

many industrial seed companies producing seeds in France.
<http://gnis.fr/index/action/page/id/1143/title/Le-Gnis-en-chiffres>

21 companies are involved in breeding
<http://gnis.fr/index/action/page/id/65/rubrique/3>

Spain

The 4 private companies with a Spanish origin chosen are:

Company Tomato, carrots	Activity (propagation, breeding, evaluation, selling...)
Semillas Batlle S.A.	Important enterprise of the horticultural sector. They develop breeding activities, variety evaluation, seed production and selling to the final users. They produce and sell seeds of open pollinated varieties (some of them are registered local varieties) and hybrids. They sell organic seeds.
Semillas Fitó S.A.	Important enterprise of the horticultural sector. They develop breeding activities, variety evaluation, seed production and selling to the final users. They produce and sell seeds of open pollinated varieties (some of them are registered local varieties) and hybrids.
Rocalba S.A.	Important enterprise in the horticultural sector. They develop breeding activities, variety evaluation, seed production and selling to the final users. They produce and sell seeds of open pollinated varieties (some of them are registered local varieties) and hybrids. They sell organic seeds.
Ramiro Arnedo S.A.	Important enterprise in the horticultural sector. They develop breeding activities, variety evaluation, seed production and selling to the final users. They produce and sell mainly hybrids but also some open pollinated varieties. They don't produce organic seeds..
Company for Potato	Activity (propagation, breeding, evaluation, selling...)
SEYCO S. COOP	Farmers cooperative They do variety evaluation, seed production and selling to the end user. They offer 16 commercial varieties.
Cooperativa Santa Isabel	Farmers cooperative They do variety evaluation, seed production and selling to the end user. They have registered varieties (protected and commercial)
Oposa S.A.	The only Spanish enterprise producing organic seed potato.
Company Bread Wheat, Durum Wheat	Activity (propagation, breeding, evaluation, selling...)
Agromonegros	The have registered commercial varieties They do variety evaluation, seed production and selling to the end user. They offer 6 commercial varieties. They sell certified seeds. They don't have organic seeds.
Agrovegetal	The have registered commercial and protected varieties They develop breeding, variety evaluation, seed production and selling to the end consumer. They offer 10 commercial varieties. They sell certified seeds. They don't have organic seeds.
Eurosemillas S.L.	The have registered commercial varieties They do variety evaluation, seed production and selling to the end consumer. They offer 5 commercial varieties. They sell certified seeds They don't have organic seeds.
Company Maize	Activity (propagation, breeding, evaluation, selling...)
Rocalba S.A.	The have registered commercial varieties

	<p>They develop breeding, variety evaluation, seed production and selling to the end user.</p> <p>They sell hybrids</p> <p>They offer 27 commercial varieties.</p> <p>They sell certified seeds</p> <p>They don't have organic seeds.</p>
Semillas Fitó S.A.	<p>The have registered commercial varieties</p> <p>They develop breeding, variety evaluation, seed production and selling to the end consumer.</p> <p>They offer 4 commercial varieties.</p> <p>They sell hybrids and GMO varieties</p> <p>They don't have organic seeds.</p>
Eurosemillas S.L.	<p>They do variety evaluation, seed production and selling to the end consumer.</p> <p>They offer 1 commercial variety.</p> <p>They sell certified seeds.</p> <p>They don't have organic seeds.</p>

In the following list you can see the farmers' initiatives that are producing and selling seeds or plants of local and traditional varieties of the species linked to this task.

REGION	NAME INITIATIVE	ACTIVIDAD	4.1 species
ANDALUCÍA	Plantaromed	<p>Production and trading of vegetable and cereal seeds</p> <p>Local, traditional and farmer's varieties</p> <p>Aromatic and medicinal nursery plants</p> <p>Organic production</p> <p>Farmers' initiative</p> <p>Trading at local level in farmer's markets</p>	Tomato, carrot, wheat and maize
	La Verde S.C.A.	<p>Farmers' small cooperative</p> <p>Producing vegetables and fruits for the local market</p> <p>Production and trading of vegetables and cereal seeds.</p> <p>Local, traditional and open pollinated farmer's varieties</p> <p>Organic production</p> <p>Trading at local level</p>	Tomato, carrot and maize
CASTILLA LA MANCHA (ALBACETE)	Viveros Mahora	<p>Production and trade of vegetable nursery plants of local and traditional varieties</p> <p>Trading at local level</p> <p>Organic production</p>	Tomato
CASTILLA Y LEÓN (SALAMANCA)	Centro Zahoz	<p>Production and trade of vegetables and cereal seeds. Also fruit plants.</p> <p>Local and traditional varieties</p> <p>Association for the conservation and use of biodiversity</p> <p>Trading at local level</p> <p>Agroecological production</p>	Tomato, carrot and maize
CATALUÑA	Esporus	<p>Production and trade of vegetables and cereal seeds</p> <p>Local and traditional varieties</p> <p>Association for the conservation and use of biodiversity</p> <p>Trading at local level</p> <p>Organic production</p>	Tomato, carrot, wheat and maize
	Les Refardes	<p>Production and trading of vegetables and cereal seeds</p> <p>Local and traditional varieties</p> <p>Farmers' microenterprise</p> <p>Trading at local level</p> <p>Organic production</p>	Tomato, carrot and maize
	Triticatum	<p>Production and trading of cereal seeds</p> <p>Local and traditional varieties</p> <p>Farmers' microenterprise</p> <p>Trading at local level</p> <p>Organic production</p>	Wheat
CANARY ISLANDS	Asociación Agrogranadera El	Production and trading of cereals and pulses	Wheat and maize

(LA PALMA)	Frescal	seeds Local and traditional varieties Farmers' initiative Trading at local level	
	Vivero biológico natur-park	Production and trade of vegetable nursery plants and fruit trees. Local, traditional and commercial varieties (all open pollinated). Farmers' microenterprise Trading at local level Organic production	Tomato
	Red de semillas de La Palma	Production and trading of vegetables and cereal seeds Local and traditional varieties Association for the conservation and use of biodiversity Trading at local level Agroecological production	Tomato, carrot and maize
CANARY ISLANDS (TENERIFE)	Asociación La Trilladora.	Production and trading of vegetables and cereal seeds Local and traditional varieties Agroecological production	Tomato, carrot and maize
	Red Canaria de Semillas	Production and trading of vegetables and cereal seeds Local and traditional varieties Farmers' initiative in a Seed Network Trading at local level Agroecological production	Tomato, carrot and maize
MADRID	Asociación La Troje	Production and trade of vegetable seeds and nursery plants of local traditional varieties Trading at local level Farmers' initiative Agroecological production	Tomato, carrot and maize
BALEARIC ISLANDS (MALLORCA)	Associació de Varietats Locals de les Illes Balears	Production and trading of vegetables, cereals and pulses seeds Local and traditional varieties Farmers' initiative in a Seed Network Trading at local level	Wheat
BALEARIC ISLANDS (MENORCA)	Es Viver del Gob, plantes de Menorca	Production and trade of vegetable nursery plants. Also aromatic plants and forest trees. Local, traditional and commercial varieties (all open pollinated) Trading at local level Organic production	Tomato and wheat
	Ecoverd Vivers	Production and trade of vegetable and medicinal nursery plants Local, traditional and open pollinated commercial varieties Trading at local level Organic production	Tomato
EUSKADI	Olako semillero agroecológico	Production and trade of vegetable nursery plants Local, traditional and open pollinated commercial varieties Farmers' microenterprise Trading at local level Organic production	Tomato
GALICIA	Red de Semillas de Galicia	Production and trading of vegetables and cereal seeds Local and traditional varieties Farmers' initiative in a Seed Network Trading at local level Agroecological production	Tomato, carrot and maize

MADRID	Asociación La Troje	Production and trade of vegetable, auxiliary, aromatic and medicinal nursery plants Trading at local level Local, traditional and open pollinated commercial varieties Farmers' microenterprise Trading at local level Organic production	Tomato, carrot and maize
MURCIA	La Almajara del Sur	Production and trade of vegetable, auxiliary, aromatic and medicinal nursery plants Trading at local level Local, traditional and commercial varieties (all open pollinated) Farmers' microenterprise Trading at local level Organic production	Tomato
	Biosecura	Production and trading of vegetables and cereal seeds Varieties from all around the world Association of organic producers and consumers Trading at local level Agroecological production	Tomato, carrot and maize
VALENCIA	L'hort sostenible de Vicent Gil i Monrós.	Production and trade of vegetable nursery plants Trading at local level Local, traditional and open pollinated commercial varieties Farmers' initiative Trading at local level Organic production	Tomato

Norway

Company (name)	Activity (propagation, breeding, evaluation, selling...)
GRAMINOR	Breeding
Solhatt	Propagating and selling seed of old as well as new and rare organic varieties of vegetables, herbs and flowers
Felleskjøpet	Propagating and selling seed
Strand	Propagating and selling seed

Cyprus

Company (name)	Activity (propagation, breeding, evaluation, selling...)
Stavrinides LTD	Selling, propagating and evaluating varieties
Shiouiouoglou LTD	Selling varieties
Cyprus Seed Production LTD	Selling, propagating and evaluating varieties
Josephides LTD	Selling, propagating and evaluating varieties

List of NGOs that are involved in the topic of PGRFA and biodiversity management of your country:

Switzerland

Name/address/www	Activities (politics, policies, lobbying, farmers cooperative or association, etc.)
Fructus	Fruits, research and conservation
Retropomme	Fruits, conservation
Rhytop	Grape varieties, fruits, some vegetables
Verein Ribbelmais	Commercializing old variety of maize (landrace)
Slow Food Switzerland	Fruits,
IG Dinkel	Commercializing old landraces of spelt
Swissaid	Politics in CH and international sustainable agriculture
Public Eye,	Politics, Nagoya, Patents on seeds
Uniterre	Ernährungssouveränität, Food-soverainity
SAG (Schweizerische Arbeitsgemeinschaft gegen Gentechnologie)	Anti - GMO
Kleinbauernverband	Small scale farmers network, lobbying, policy
Etc. a list of 49 member of the SKEK is available on the internet http://www.cpc-skek.ch/skek-verein/mitglieder.html	Many of them are NGOs (50%). The other 50% are public institution (Research, Univ.) and commercial seed companies

Austria

Name/address/www	Activities (politics, policies, lobbying, farmers cooperative or association, etc.)
Members of ARGE Streuobst www.argestreuobst.at (local initiative associations, environment/conservation)	Fruits, research, conservation, awareness raising
Via Campesina Austria	Awareness raising, advocacy, Ernährungssouveränität
Gartenpolylog (co-ordinating local initiatives of community gardens)	education
Slow Food Convivien	Events, Farmers markets
FIAN	Ernährungssouveränität
Global 2000, Greenpeace	Anti GMO
(Many informal local initiatives, CSAs)	farmers working with PGRFA

Italy

RSR and its members	
Slow Food Italy	

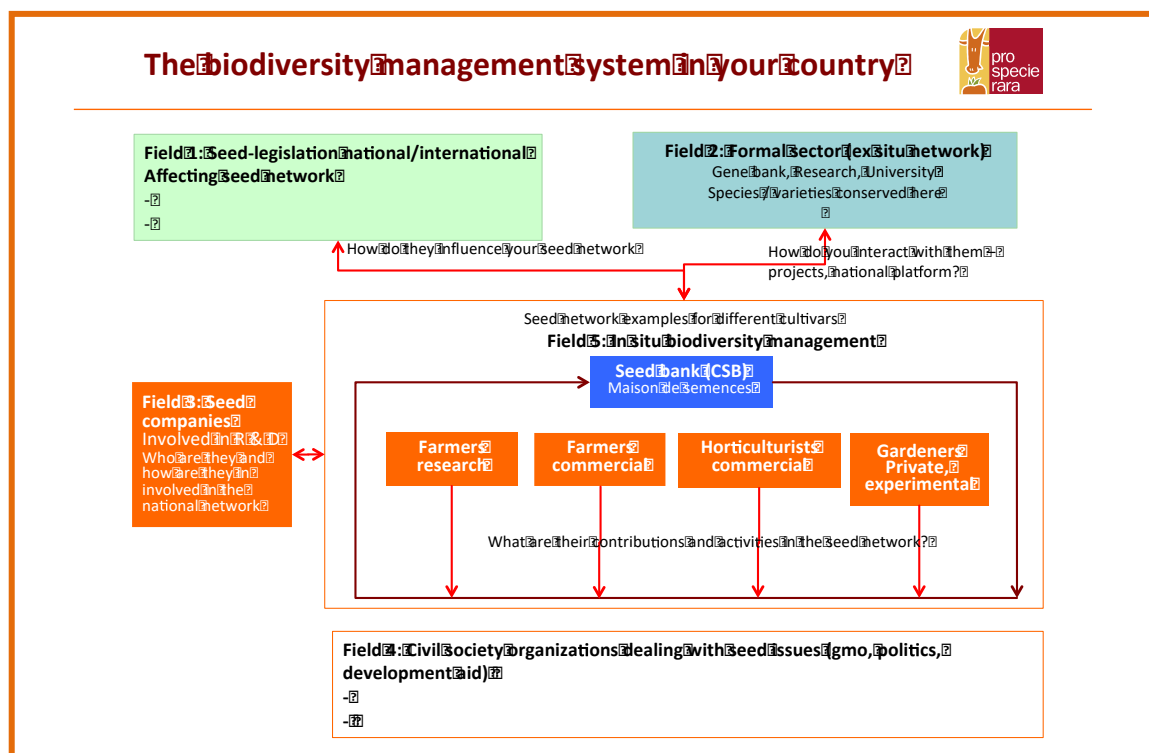
Spain

Name/address/www	Activities (politics, policies, lobbying, farmers cooperative or association, etc.)
Red estatal de Semillas “Resembrando e Intercambiando” (RdS) www.redsemillas.info	National coordination of local seed networks
Asociación ALBAR (Valencia)	Local seed network, member of RdS (promotion of the

www.elrincondelabiodiversidad.org	production and consumption of local varieties)
Associació de Varietats Locals de les Illes Balears (Balearic Islands) http://www.ib.varietatslocals.org/	Local seed network, member of RdS (promotion of the production and consumption of local varieties). They sell vegetable seeds.
Grupo de Semillas de APAEM (Islas Baleares) www.apaem.menorca.es	Organic farmers' organisation. Member of RdS. They manage a CSB.
Centro Zahoz (Centro de conservación de la Agrobiodiversidad y la Etnobotánica de las Sierras de Béjar y Francia) (Castilla y León) http://www.centrozahoz.org/	Member of RdS. They sell vegetable seeds.
CIFAES – Universidad Rural Paulo Freire (Castilla y León) http://amayuelas.es/index.php/universidad-rural	Local seed network, member of RdS (promotion of the production and consumption of local varieties).
La Troje (Madrid) www.latroje.org	Member of RdS. They sell mainly vegetable nursery plants.
Grupo Biltar (Asturias) http://semillasturias.blogspot.com.es/	Local seed network, member of RdS (promotion of the production and consumption of local varieties).
Llavors d'Aci (Valencia) www.llavorsdaci.org	Local seed network, member of RdS (promotion of the production and consumption of local varieties)
Nafarroako Hazien Sarea (Red de Semillas de Navarra) https://sites.google.com/site/baztangohaziak/nafarroako-hazien-sarea	Local seed network, member of RdS (promotion of the production and consumption of local varieties)
Red Andaluza de Semillas “Cultivando Biodiversidad” – RAS (Andalucía) www.redandaluzadesemillas.org	Local seed network, member of RdS (promotion of the production and consumption of local varieties)
Red de Agroecología y Ecodesarrollo de la Región de Murcia – RAERM (Murcia)	Organisation that promotes agroecology at the regional level. Member of RdS
Red Murciana de Semillas (Murcia) www.redmurcianadesemillas.org	Local seed network, member of RdS (promotion of the production and consumption of local varieties)
Red Canaria de Semillas – RCS (Canary Island) https://www.facebook.com/RedCanSemillas/	Local seed network, member of RdS (promotion of the production and consumption of local varieties). They sell seeds.
Red Extremeña de Semillas (Extremadura) https://es-la.facebook.com/Red-Extreme%C3%B1a-de-Semillas-1686215481658050/	Local seed network, member of RdS (promotion of the production and consumption of local varieties)
Rede Galega de Sementes (Galicia) http://redegalegadesementes.wordpress.com	Local seed network, member of RdS (promotion of the production and consumption of local varieties)
Red de Semillas de Albacete (Castilla La Mancha) http://www.reddesemillasalbacete.org/	Local seed network, member of RdS (promotion of the production and consumption of local varieties)
Red de Semillas de Cantabria (Cantabria) www.reddesemillascantabria.es	Local seed network, member of RdS (promotion of the production and consumption of local varieties)
Red de Semillas de Aragón (Aragón) www.redaragon.wordpress.com	Local seed network, member of RdS (promotion of the production and consumption of local varieties)
Red de Semillas de Euskadi – Euskal Herriko Hazien Sarea (Euskadi) http://www.haziensarea.org/	Local seed network, member of RdS (promotion of the production and consumption of local varieties)
Red de Semillas de La Rioja (La Rioja) http://redsemillas.wordpress.com/	Local seed network, member of RdS (promotion of the production and consumption of local varieties)
Xarxa Catalana de Graners (Cataluña) www.graners.cat	Local seed network, member of RdS (promotion of the production and consumption of local varieties)
Ecologistas en Acción https://www.ecologistasenaccion.org/	Ecologist organisation part of the anti-GMO Spanish movement.
Amigos de la Tierra www.tierra.org/	Ecologist organisation part of the anti-GMO Spanish movement.
Greenpeace http://www.greenpeace.org/espana/es/	Ecologist organisation part of the anti-GMO Spanish movement.
CECU - Confederación de Consumidores y Usuarios www.cecua.es	Consumers' organisation part of the anti-GMO Spanish movement.
Coordinadora de Organizaciones de Agricultores y Ganaderos (COAG) http://www.coag.org/	Farmers Union supporting the dynamic and collective management of cultivated biodiversity.

Questionnaire

Characterization and description of the biodiversity management system in your country.



Starting position:

You are a partner-organization of the DIVERSIFOOD project. You are working with plants and producing seeds. You are doing that in a network, with farmers, with gardeners or you are working in a research institution.

In this task 4.1. we want you to characterize the biodiversity management system of your organization and how it is linked to other stakeholders in your country. In addition to that we would like to know in which legal environment you are practicing your work - meaning how legal aspects and which laws are influencing your work.

An additional task is to give us a picture (description and sketch) how the biodiversity management system in your country looks like and how your organization is positioned in it?

Field 1: Seed-legislation (directives, laws) affecting your work.

Please make a list of the different seed laws and directives influencing your work most in your country. Your list of legal instruments can be based on the list from Fernando Mathias Task 4.4.

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Please describe in short which of these laws affect your work most and how (3 examples).

Field 2: Description of the formal sector in your country

Where are the PGRFA (plant genetic resources for food and agriculture) stored ex situ?

Genebank, University, Agricultural research centre, other.....

Name, address, www

How many varieties are stored in the genebanks or formal sector:

Which species are the most represented?

How does the formal sector interact with you?

Do you have a national strategy how to manage PGRFA in your country?

How do you get access to PGRFA in the formal sector? Which steps do you have to take?

Did you always get what you wanted? If no why?

Did you get enough quantity of seeds?

Field 3: Do you have private seed companies in your country that are producing seeds and doing some breeding work? (in general or/and concerning species involved in Task 4.1.)

Please list the companies and describe their main activities:

Company (name)	Activity (propagation, breeding, evaluation, selling...)

Are they involved in a national biodiversity management system?

(are they active in national platforms, in national project-activities)

No / Yes

Please describe how they are involved and what is their role?

Are private companies exchanging PGRFA with the informal sector and other institutions in your country? If yes which ones?

Which forms of cooperation does your organization have with them?

Field 4: Do you know any civil society organization (NGOs) that is dealing with the topic of PGRFA and biodiversity management in your country:

Name/address/www	Activities (politics, policies, lobbying, farmers cooperative or association, etc.)

How are they involved in the national biodiversity management system?

Which forms of cooperation does your organization have with them?

Field 5: Describe your seed conservation and management system. Describe the system/structure and take the example of the species that you have chosen before (carrot, maize, tomato, cereal or potato) and place it in the national biodiversity management system of your country.

Who are the stakeholders involved in your network?

What are the main crops you are conserving in your network and how many accessions do you have?

Where do the seeds come from (accession)?

Are you involved in a national biodiversity management system/platform and how?

Do you get public funds? If yes describe for what kind of work and project?