



DYNAVERSITY

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1. Introduction



Across the globe, farmers and home gardeners maintain crop diversity *in-situ*, through dynamic and adaptive management of plant populations in their fields and gardens. The **DYNAVERSITY** project (2017-2020) aims to support such initiatives in Europe by analysing and describing the actors and networks involved with *in-situ* crop diversity in order to suggest management and governance models and to construct new forms of networking between and with them.

Based on the work carried out in WP1, Task 2.2 studied 21 case studies¹ with the objective of better understanding what it is that enables different initiatives to link up and collaborate. This set of case studies represents the different actors and networks, and their interrelationships, involved in *in situ* and on-farm conservation.

During the Kick-off meeting, a first indicative list of case studies was established on the basis of the pre-existing knowledge of the project partners and SKEP members. This list has been refined based on the results of WP1. We validated the choice of case studies and methodology at our first annual meeting (December 2018).

The 21 case studies were conducted according to a common methodology agreed during the Kick-off meeting and the first annual meeting. The completion of the 21 case studies was supervised by ULg-SEED.

2. Distribution of the 21 case studies

2.1 Geographic distribution of the case studies

Most of the case studies have been carried out in Europe but two case studies have been carried out in North America too. The objective of these two case studies was to analyse the situation in other areas than just the EU.

¹ 20 case studies were planned in the DoW



Fig. 1: Location of the case studies performed in the EU



Fig. 2: Location of the case studies performed in North America

2.2 List of the case studies

N°	Name	Geographic coverage	Partner
1	Nordic Heritage Cereal	North europe	ULG
2	Kokopelli	France	ULG
3	ECLLD	European Union	ULG
4	Cross-border Fruit Network	Belgium-France	ULG / Arcadia
5	Maghaz	Hungary	ESSRG
6	Growing Seed Savers	Danemark / Latvia /Lithuania	ESSRG
7	Kaol Kozh	France	ULG / Arcadia
8	Croqueurs de Carottes	France	ULG / Arcadia
9	Kultursaat	Germany	ULG
10	Poma Culta	Switzerland	ULG
11	CSA Brotes Compartidos Segovi	Espana	Urgenci / INRA
12	Asociatia pentru Sestinara Agriculturree Taranesti (ASAT)	Romania	Urgenci / INRA
13	SAVE Foundation	East and North Eupope, Switzerland, the Netherlands	ULG
14	Pétanielle	France	ULG
15	Circulos de semente	Portugal	ULG
16	The Development of Crop Wild Relatives Genetic Reserve in England	England*	ULG
17	Parco NAzionale della Majella - Crop wild relatives	Italy*	RSR
18	Resia Valley Garlic Producers Community	Italy	Federparchi
19	Park's Custodian Farmers Network	Italy	Federparchi
20	Seed savers exchange	USA	ULG
21	Organic seed alliance	USA	ULG

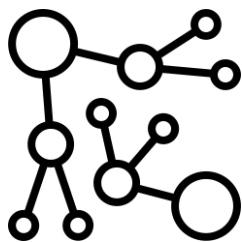
(*): selected in coordination with Farmer's Pride project

3. Theoretical framing

Seeds can be considered a **leverage point** (Meadows, 1997) for the transformation of agricultural and food systems, as underlying goals and paradigms are embedded in the cultivars they produce – high-yielding or robust, uniform or diverse, stable or adaptive. Through the International Treaty for Plant Genetic Resources for Food and Agriculture (TPGRFA), large volumes of diverse plant germplasm - including traditional, local, less uniform cultivars – have been conserved long-term as genetic resources in circa 1700 gene-banks worldwide (Coolsaet, 2016). While this ex situ conservation effort constitutes a valuable safety net for safeguarding crop diversity from being lost to humanity, it isolates crop diversity from the social and environmental contexts of agricultural and food systems.

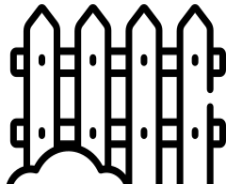


By growing crop diversity in farms and gardens and saving seed, **initiatives concomitantly maintain the diversity of practices linked to it, from sowing to eating.** They also maintain evolutionary and adaptation processes which enable resilience of agricultural systems in the longer term. Bringing crop diversity into fields, gardens, plates and mouths brings more diversity into agricultural systems not only by the mere crop diversity, but also by the diversity it implies for crop management, linked with a diversity of knowledges and social organisations. Therefore, in situ initiatives have the capacity of transforming how food is produced, distributed and consumed. To study the **transformative potential** of in situ initiatives more precisely, we will draw upon Transformatice Social Innovation (TSI) (Balazs B., Aistara G., 2018) theory and its broad categories of **knowing, doing, framing and organizing**. We think that by strengthening networks of in situ initiatives across Europe, their transformative potential can be enhanced in all these domains.



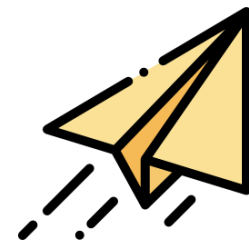
Networks involved with *in situ* crop diversity management emerge from **lower level interactions**. Seed saving as such is only possible because people interact with plants and soil in a given biophysical environment. How these interactions take place at the **farm or garden level** will also shape how people engage in seed saving will interact and network among each other **at community level**. To name only two examples: managing diversity of wheat, an autogamous crop, does not involve the same obligations as managing diversity of maize, an allogamous crop, and therefore also poses different requirements to networks at the community level. Working with numerous vegetable species does not come with the same requirements as working exclusively with cereals. Based on this, community level networks can further link up with others according to shared needs and interests to form **supra-networks** (at the national or transnational level). Assuming that each of these three layers are interdependent and relevant in understanding how a European network and emerge and be strengthened, we take all of them into account in our case studies, although the cases themselves are situated at the community or supra-levels.

Our particular interest concerns « **bridges** » (Granovetter, 2000) which enable communication, coordination and cooperation at each of these layers. By this, we mean any human or non-human element which allows initiatives to link up and form a higher-level network. This can be a formal, or an informal network. The cases under study may also be situated at very different time scales – they can be ephemeral, like a seed swapping event held on a single day, or more durable, as in more stabilised forms of collaboration.



In defining and studying a network, setting boundaries of what we consider inside or outside the network is crucial. On the one hand, networks need to have a certain level of closure and cohesiveness, « which allows for the development of a shared identity and common narrative » (Coolsaet 2015, borrowed from network analysis and social capital theory). In a transformative perspective, this echoes with transition theory: « alterity is created, recognized and claimed within new definite and organized social spaces » (Rossi A., 2017). On the other hand, the world beyond the network is confronted to define, defend and propose alternatives.

Based on all these considerations, an analytical framework is operationalised below in a set of questions. These questions are not necessarily relevant for all the cases we come across, but cases may be selected to inform a subset of questions or field in particular. One relevant aspect in selecting the cases to study is to ensure that they cover the different geographical regions of Europe, different crop types and species and different actor categories (gardeners, farmers, seed companies...).



4. Methodological framing

For each case we rely on the methodological framework which is presented in the table below. This framework has been the support to develop the interview guide which has been used by interviewers. In total, we interviewed 64 people.

At which level is the initiative situated?				
→ Community level: Network which gathers several actors – farmers, gardeners, consumers, or others – often at local or regional level, but may also be national (e.g. seed savers’ network, local market or CSA group, community seed banks)				
→ National or transnational level: Network linking up several community-level networks.				
	DOING	ORGANISING	KNOWING	FRAMING
<u>Properties</u> WITHIN initiative (closure)	How is seed multiplied and circulated within the network, in which aim? By whom?	How is the network structured, coordinated and governed, be it formally or informally? How are different roles attributed among participants?	How are knowledge and know-how created and shared within the network? Are any other types of knowledge excluded? How?	Why and for whom does the initiative operate? Are innovations protected from being taken over against their purpose? How?
<u>Properties</u> BEYOND initiative (outreach)	How does seed circulate beyond the network (on a non-commercial or commercial basis)?	Are there any specific devices, structures or events that allow to reach out beyond the network? Which are they?	How are the knowledge and know-how of the network legitimated beyond the network?	Does the initiative carry seed issues to the broader public beyond the network? How?



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<u>Transformative effects</u> beyond initiative	How does the initiative enable seeds and associated knowledge to be created and shared?	How does the organisational structure of the initiative empower participants to reclaim crop diversity?	How does this knowledge challenge other forms of knowledge concerning agriculture and food?	How are the meanings behind seeds, crops and food redefined by the initiative's activities?
<u>Networking:</u> Connectors, "mediators" or « bridges »	<p>Which particular people, objects or techniques operate as « bridges » allowing different people and networks to link up and collaborate? For example:</p> <ul style="list-style-type: none"> → People who translate between different approaches, forms of knowledge, worldviews or languages → Species, plants, topics or objects which arise a shared interest of people who are not used to working together → Techniques / events / technology / software / documents used to communicate and coordinate → Evolutions in the initiatives trajectory or history that allowed for the involvement of new categories of participants 			

5. Results of the case studies

This section presents the main results and conclusions of the 21 case studies.

5.1 Nordic Heritage Cereal Conference (NHCC)

Area of activities: Denmark, Finland, Norway and Sweden

Foundation: 2009

Seed involved: Cereal crops

As an informal Nordic network engaged with heritage cereals from “soil to slice”, participants to the NHCC have seized the need to re-think the way the quality of bread-making cereals are evaluated, and the way economic cycles are designed. In this respect, the exchange of knowledge among participants favours “horizontal proliferation”² through the multiplication of local, community-based economies connected through a network, rather than up-scaling successful enterprises by increasing their size and geographical coverage.

At the 2018 conference, the participation of participants from Western and Southern European countries, made tangible that there are different ways to relate to and motivate work with crop diversity. Whereas farmers’ rights to manage, select and produce their own seed is a central argument in more Southern countries, consumers’ rights to nutritious, wholesome foodstuffs was more strongly emphasized within the Nordic network. Of course, these motivations and arguments are in no way exclusive of each other and are, on the contrary, can most probably be embraced by the different actors. Our hypothesis is that embracing different types of motivations for crop diversity, and perhaps interconnecting them, will be useful in view of building a wider European network for crop diversity.

5.2 Kokopelli

Area of activities: France

Foundation: 1999

Seed involved: vegetables and cereal crops

The Kokopelli case is very interesting in many aspects as it identifies three central points in the construction of a network. First, the grouping of heterogeneous actors (gardener, activists, etc.) is orchestrated by the association and more particularly by its leader. This leads to the question related to the creation of a network: is Kokopelli a network? The association does not seem to set up spaces for the co-construction of knowledge and know-how between its three audiences. The production of the message comes from the

2 Term used by Phil Howard during his talk at the final conference of the European research projet Diversifood, held in Rennes in December 2018. Slides available here:

<https://www.slideshare.net/diversifoodproject/diversifood-final-congress-session-7-cultivating-diverse-food-systems-in-the-shell-of-the-uniform-phil-howard>

association's management. Therefore, people adhere to the message or at least to elements of the message. But they do not seem to be co-producers of it.

This situation raises a second issue: how are the distribution of power and the management of tensions within the association organised? In a book, former employees denounce the association's managerial practices, but what about the distribution and transparency of decision-making? To our knowledge, this seems to be organized in a small group around the founder. Therefore, the construction of the Kokopelli audience seems to be based on a trust established between a few people.

Finally, the last lesson on the construction of an audience concerns the use of trials. Kokopelli's media capacity provides a sounding board for its message and the seeds it markets. This dynamic is reflected in all the organizations involved in the management of cultivated biodiversity.

5.3 European Coordination Let's Liberate Diversity - ECLLD

Area of activities: 12 European countries

Foundation: 2009

Seed involved: vegetables and cereal crops

The development of ECLLD and the difficulty of building a political dialogue between members in particular, contributes, throughout the EC-LLD trajectory, to building a common culture. We here highlight three essential points.

Firstly, ECLLD, in order to bring together differences in a network without erasing them, is evolving from defining policy lines to discussing practices. Discussing these practices, which are not devoid of political implications, stimulate exchanges on how to do things, rather than on values. All members are keen to defend and spread the crop diversity bred and by mass selection. This work reinforces the legitimacy of the practice and the diversity of practitioners.

Secondly, diversity is not just about plants or practices. It also concerns national situations and the ways of acting in response to them. ECLLD has not formalized its operating mode, but the coordination has a kind of "gentleman agreement". This consists in trying to understand the other members' point of view, even if it is not shared. Then, back and forth discussions between the national and European levels lead to a decision. These exchanges allow for greater reflection within each organization. But a member blocking a proposition or idea can constitute a risk. Thus, in the event of non-involvement of ECLLD in a project, due to lack of consent, members who so wish may join and continue to participate, but not on behalf of ECLLD. Thus, ECLLD experiments diversity, searches for viable assemblages. Each partner is invited to listen, discuss and set its limits, in order to identify whatever next is "not possible together".

Finally, the third element concerns the opening of ECLLD to seed savers. For historical member organizations, this means opening up to the inclusion of partners that have not emerged from peasant struggles. Seed savers are inspired by a culture of open access and open circulation. As such, the American cases, and more particularly Seed Savers

Exchange, show us how open sharing is central. Moreover, this organization is an international reference in this field. We cannot yet say how ECLLD members will manage this difference, how they will open or not the governance of ECLLD.

5.4 Cross-border Network of Fruit Genetic Resources

Area of activities: North-France and Wallonia (Belgium)

Foundation: 1975

Seed involved: Fruit trees

The first lesson learned for this case study come from the layout of the network. Collaboration between public institutions and field actors strengthens the knowledge and know-how resulting from this network. Scientific, technical and practical aspects are mixed within the network and its transport from one structure to another. This flow of knowledge and competence, shared between actors, seems to build the network and gradually brings it closer to its objective.

The second lesson that emerged from this case study concerns the importance of the days of exchange between the network's actors. They make it possible to take into account the needs and necessities of the actors, but also to unite them through the sharing of experience. The network is young and is beginning to consolidate thanks to the construction of a strong group cohesion.

Another learning process resulting from the construction of this network concerns the transmission of knowledge and the involvement of stakeholders. This apprenticeship is a central issue in the fruit network. It can be perceived within structures, but also between them. At CRA-W, C. Populer's aspiration for an input-free arboriculture was passed on to Mr. Lateur, who took it over and maintained it in turn. What about his successor?

Finally, a final lesson concerns one of the network's particularities. Upstream, it is supported by two public institutions. This particular character therefore leads to public funding for the various research projects. Dependency on public funding weakens both structures because they have no assurance that budget envelopes will be renewed. At CRA-W, investment in breeding programs is relatively low, which limits faster progress. The CRRG is 95% funded by the Regional Council, but no one can ensure that this amount will remain the same if the Regional Council takes a new political direction. Currently the operating costs amount to 250,000 euros. The CRA-W and the CRRG regularly work through European and/or regional calls for projects that allow them to obtain funding for a few years. Once again, these funds are sporadic and do not guarantee the viability of research and commercialization projects.

In view of these elements of fragility, the CRA-W and the CRRG have developed tools and structures which allow to move towards the autonomy of the sector. They have created tools and devices capable of transmitting their knowledge and which will be activated through the various structures set up. The majority of the network's structures are developing their marketing channel, which will enable them to economically enhance their work. Thus, these structures, which are being consolidated, will make it possible to maintain an innovative and promising sector, even if the CRA-W or the CRRG gradually withdraws.

5.5 Magház

Area of activities: Hungary

Foundation: 2011

Seed involved: landrace or special vegetable, herb and some fruit seeds.

Magház has no legal organizational framework, the enthusiasm and commitment of its core members are so strong that it allows the initiative to revive from challenging times. Therefore, the people centered on the concept of Magház has great power to carry on issues and flexibly reorganize themselves when it is necessary. I still do believe that an establishment of a legal organization is inevitable if they want to continue their work in a structured manner, without losing volunteers.

Briefly, I would like to share my observations and experience with one of the seed exchanges organised by the Center for Plant Diversity (NöDiK) in Budapest. Magház participated as the second biggest seed exhibitor on this event and also promoted the program via its online platform. The Magház team was comprised of 6 volunteers who shared the tasks among themselves. 100 packages of seeds were brought by Magház, and about 60 seeds by Orsolya Máthé - one of the on-farm volunteers - neatly labeled along with the Practicalities booklet, leaflets, seed quizz, questionnaires and seed recognition game. 29 packages remained at the end out of the 160, which marked the seed swap pretty successful. Magház received 44 packages of new seeds through exchange, some of them were labeled, but the majority of it were not. During the event, the participants received seeds from Magház not just through exchange for another seed, but for filling out a seed quizz, a questionnaire or for playing a seed identification game.

The event was partly official as the Minister of Agriculture, István Nagy and the director of NöDiK opened the seed exchange which was followed by a series of presentations about the advantages of organic farming and the consumption of organic products, on how to build a small organic garden at home and on fruit landraces. There was also an interactive presentation about the grafting of fruit trees.

What I observed during this event is that it can be an exceptional platform to bring people together who are essentially doing similar things back at home like seed saving, but they do not know each other yet. For instance, the volunteers met a very young farmer at the table of Magház asking for seeds who turned out to be an amateur breeder and tester. The conversation unfolded quite quickly, and he joined the table of Magház as an “exhibitor” bringing his crops and seeds out of his car and putting them next to Magház’s seeds. This is the type of networking that makes these seed exchanges unique and could potentially link strangers to the work of Magház. Hopefully, Magház has expanded by new volunteers.

Finally, I would like to emphasize the potential of digital and online tools such as social media advertisement, videos, website optimization that are essential to target and to reach a wider audience in a more directed way. They are currently not used as their usage requires financial input, which is not available for Magház, this also points toward their plan of forming an organization.

5.6 Growing Seed Savers Initiative

Area of activities: Denmark, Latvia, Lithuania, Estonia

Foundation: 2018

Seed involved: Vegetables and cereal crops

The joint initiative shows us that diversity can breed cooperation, and that international seminars and meetings, such as LLD and the Arche Noah legislation workshops do bring new actors into networks, and facilitate the formation of more in-depth cooperative links that can help create and spread new knowledge about seeds and old plant varieties. Nevertheless, it is important that each local network find its own distinctive grounding in cultural values to strengthen its resonance. Finally, legislative debate and change can be quite important for bringing the importance of seed issues to the public eye, and thus inspiring more people to become involved.

5.7 Kaol Kozh

Area of activities: Brittany (France)

Foundation: 2007

Seed involved: Vegetables

The study of the Koal Kozh case allows us to draw several interesting conclusions:

-The first main conclusion is to highlight that such project could not have been initiated nor developed without the support of testing capacities and infrastructures over a long period.

- The second main lesson of the case is related to the communication objects of the project which has moved from seed to the final product (the vegetable itself). What is valorised in the project is the final product sold to consumer and the seed itself.

- As third lesson, the Koal Khoz case shows that breeding objectives are different based on commercial channels (short vs conventional supply chains). Differences in breeding approaches have to be respected, recognised via a dedicated labelling approach, and can co-exist under such project. Under such approaches, Kaol Khoz promotes the social heterogeneity (and demand) of consumers while acting under the same project.

Eventually, the application of the principles of diversity at any level of the project has led to the recognition of Kaol Khoz as an “expert” on the subject of farmer seeds. This recognition builds on the size of the project, its impact, the capacity to co-manage the needs of various customers (short vs conventional food supply chain) through the respect of individuals and networks of individuals based on trust.

5.8 Croqueurs de Carottes

Area of activities: France/Belgium/Spain

Foundation: 2005

Seed involved: Vegetables

The various companies involved in the project Croqueurs de carottes have developed companion relationships with each other. This allows them to transmit know-how and value in the practice of seed production. Members are involved in a co-evolutionary relationship. It is collective action and reflection that allows them, beyond the individual enterprise, to develop an identity that differentiates them from conventional seed production.

The effects excluding from the regulatory framework on the release of varieties by seed artisans, and thus on the population's access to the biodiversity cultivated in fields, gardens and plates, can thus be denounced with a stronger voice by the collective.

5.9 Kultursaat

Area of activities: Germany

Foundation: 1994

Seed involved: Vegetables

From the early stages, Kultursaat has been embedded in a network of actors – funds and foundations (Zukunftsstiftung Landwirtschaft, Software AG), seed company (Bingenheimer) and seed producers (Initiativkreis) – who share a worldview stemming from a background in bio-dynamic agriculture and broader anthroposophy. This network has helped greatly both in generating funds for breeding programs and producing and marketing seed of newly released varieties. In a second stage, this network was extended to the value chain of organic vegetable produce and end-consumers, again basing the partnership with organic wholesalers and grocery stores on a shared vision of what an ideal organic value chain should look like, starting from the seeds and varieties used. Therefore, in the case of Kultursaat, shared values and worldviews stemming from bio-dynamic agriculture have been a facilitator for networking and successful breeding programs.

In the communication with end-customers in the framework of the “Gemüse mit Character” marketing initiative, the marketed vegetables themselves, and their taste in particular, has been used as a support for communication, including with wholesalers (Zukunftsstiftung Biomarkt, see part 1.3.2). Opting for the sensory experience of taste as an entry point, rather than factual information on breeding processes and techniques that is difficult to summarize and communicate effectively, seems to have been a successful choice for awareness-raising.

5.10 Poma Culta

Area of activities: Switzerland

Foundation: 2004

Seed involved: Fruit trees

The first learning that can be drawn from this case study concerns the arrangement between Poma Culta and FiBL. Collaboration between a research institute and a private actor allows to give scientific value to the data produced. Thanks to their scientific nature, these data are recognised by other actors and go beyond the network's borders.

A second learning can be drawn from the tension between the development of a personal project and the need to pass through an association for fundraising.

A third learning concerns the reflections around marketing. Indeed, it is necessary to think about distribution channels simultaneously to the selection work. Market research and/or the investigation of potentially interested actors is a key step in selection programs. The implementation of an economic project, where supply and demand meet, ensures the sustainability of the project.

The last lesson is also linked to the sustainability of the project. Today, Nicklaus' selection work is entirely dependent on the subsidies collected by the Poma Culta association. These private and public funds depend on the registration of members in small parts and mainly foundations, which can stop their donations overnight. This funding does not ensure the sustainability of the selection work. However, in order to fill this gap, Nicklaus plans to register and protect one of these varieties in the catalogue in order to have a constant cash inflow.

5.11 CSA Bروتes Compartidos Segovi

Area of activities: Spain

Foundation: 2013

Seed involved: Vegetables

The history of the CSA Bروتes Compartidos is interesting because the network was created by a farmer who had already been engaged during 7 years in working with traditional varieties. During her experience as a traditional seed multiplier, Estefania could get to know people willing to create the CSA in order to support her work.

The CSA creation is a real economic security for Estefania and Raul, who can thus earn a fix income every month. The network also aims at creating a collective dynamic on the farm, and people often come to help during the open doors or during the “Market Garden Day”, where they can participate to workshops. The network seems to be active and strong because of its democratic governance with the General assembly and the 6 to 8 different working groups. Moreover, the internal journal and the newsletters also help to strengthen the network.

This CSA shapes a community around the objective of changing the food system by integrating itself in a more global movement called “Transition Network”, and also by making collective solidarity/supportive purchases of other kinds of products, accompanied by a collective reflection on the products bought.

5.12 Asociația pentru Susținerea Agriculturii Țărănești (ASAT)

Area of activities: Romania

Foundation: 2014

Seed involved: Vegetables

The ASAT network started in an informal way but the need was felt by the founding members to formalize the network, in order to protect itself from cooptation, clarify its leading principles and ensure its financial stability and recognition at a national level.

The network seems to be well known and recognized thanks to the wide diversity of actors involved (consumers, farmers, teachers, universities...) that allow the issues dealt within the network to reach a broad public.

Moreover, the collective dynamic which has been set up allow all the members to exchange knowledge and to manage problems collectively. The issue of traditional seeds has been placed, with some success, among the top priorities of the network, and yearly events have been organized to ensure the high profile of this particular issue. This dynamic has been secured through the collective obligation for ASAT farmers to use at least 30% of traditional/local seeds. Furthermore, periodic evaluations of the partnerships are done, which pave the way for further improvement, to create new activities, or to raise awareness on new topics if necessary.

5.13 Safeguard for Agricultural Varieties in Europe – SAVE Foundation

Area of activities: 15 European countries

Foundation: 1993

Seed involved: Animal breeds & crop varieties

With regard to the case of Safeguard for Agricultural Varieties in Europe - SAVE Foundation, we highlight two elements. First of all, the importance within SAVE of linking the protection and enhancement of biodiversity with the socio-economic development of the territories where this diversity is found. Generally, according to SAVE, these territories are more marginalized. Thus, SAVE proposes a link between agricultural, economic and environmental issues. A second element concerns the relationship between competition and collaboration between organisations working towards the same objective of recognising and enhancing agro-biodiversity, as these organisations are competing in terms of access to similar financial resources. SAVE offers mechanisms for solidarity, dialogue and sharing between members. Through these, SAVE has resolved the potential tension between its members. At present, this same type of tension may develop between organisations operating at supranational European level.

5.14 Pétanielle

Area of activities: France

Foundation: 2009

Seed involved: Cereal crops

This case study highlights two central points in the management of cultivated biodiversity. First, Pétanielle comes into the political debate on seeds through concrete practice. It does not present the commons as a political element, but as a concrete response to end with a capitalist approach based on private property.

The second lesson concerns cooperation between gardeners and farmers. To bring together these people who consider themselves citizens, the association gives them different roles. Both know and recognize each other's role and the distribution, between time and available space. Gardeners have more time than farmers, but less space. While farmers have less time, but more space. Thus, the link between safeguarding, conservation, pre-multiplication and multiplication allows the dissemination of population varieties adapted to the territory. This avoids reducing the question of diversity to an exclusively agronomic subject, or even to purely economic interests.

5.15 Círculos de Sementes

Area of activities: Portugal

Foundation: 2012

Seed involved: Vegetables and cereal crops

Two main conclusions can be drawn from the case study:

- First, the association, is only composed of volunteers and doesn't have any operating resources, which reduces the deployment of the association. At the same time, this situation facilitates decentralized autonomous management. The role of the two persons in national coordination is to support members based on their requests rather than to follow up on them.
- Secondly, autonomous management makes it possible to propose a free management of seeds without any intellectual property rights. Thus, the dissemination of varieties is open to the functioning of the group.

5.16 The Development of Crop Wild Relatives (CWR) Genetic Reserve in England

Area of activities: The UK

Foundation: 2000

Seed involved: Crop wild relatives

Three lessons can be drawn from this case study. They are hypothetical because the objective of using CWR has not been yet achieved.

First, the heterogeneity of the actors of the network seems to be a determining factor in implementing an effective and relevant conservation strategy. Thanks to a heterogeneous collective, the resources that can be mobilized are greater, the different stakes of each part of the collective can be brought together around a common objective, and a greater diversity of actors can thus be affected by the initiative. The CRW purpose is based on a scientific

framework concerning the production of knowledge and the capacity to interest political and administrative actors.

The second learning concerns the economic value of the conservation strategy. The involvement of stakeholders, apart from conservation organizations, requires highlighting the economic interest in safeguarding CWR. That is why the priority protected species are those with a socio-economic interest, and why it is important to remember that the final use of CWR is through commercial exchange.

Thirdly, there seems to be a gap between strategies that are intended to be long-term and others that act in the medium and/or short term. The conservation of plant genetic resources is a long-term strategy that requires funding now for its implementation. The breeding programs are on the medium term, requiring about fifteen years are necessary to create a new variety. Political strategies are on a much shorter time scale and where the actors are regularly renewed. Thus, several time scales come under tension, which can weaken the implementation process.

5.17 Parco Nazionale della Majella

Area of activities: Italy

Foundation:

Seed involved: Crop wild relatives

Based on experience, the main lessons have been in the challenge of bringing the different banks together. In fact, being all institutional partners, the bureaucratic aspect had an impact on the construction. In order to maintain it, we have seen how important it is to be active and to propose meetings during the year.

5.18 Resia Valley Garlic Producers Community

Area of activities: Italy

Foundation: 2000

Seed involved: Garlic

Little production is difficult to promote cannot be increased, therefore the related economy and commercial opportunities, combined with the needs of nature conservation and cultural values preservation make the experience actually difficult to maintain without a wider strategy.

Another issue could be is the labelling of the product and the recognition at wider scale; nowadays the Resia garlic is a “niche product” and it is appreciated also in different regions, very far from the original one. Today the Association is therefore increasingly in evidence of the need to protect the originality and originality of the product, as well as its healthiness. This is a slow process and perhaps “patience” is the most important quality a local farmer must have, in order to keep the production

5.19 Park's Custodian Farmers Network

Area of activities: Italy

Foundation: 2008

Seed involved: Lentils

The goodwill is the main quality to use in these kind of initiatives. At the beginning it is important to overcome the distrust and discouragement of people who know, for personal historical experiences that life in the mountains is difficult and full of sacrifices. But then when farmers begin to understand that tradition can still co-exist and, in some cases, prosper through the application of new approaches, models and contexts, both in production and in the market, then the real challenge is not to create unjustified expectations and not to betray the confidence gained with so much effort so slowly. In this transformation process of is crucial the role of young people that can be the Custodian of our past in the future.

5.20 Seed Savers Exchange (SSE)

Area of activities: USA

Foundation: 1975

Seed involved: Heirloom varieties

In the USA, the history of the heirlooms reflects the history of the people, descending from native Americans and/or settlers. OP varieties operate as a means to make that link between human beings and their varieties visible. However, SSE does not only look back in history, but seeks to stabilize varieties and their histories momentarily for present-day and future gardeners to take them into stewardship and create an ongoing trajectory for the varieties.

Political implications and claims of the work with seed are not made explicit. SSE focusses its resources and efforts on practice and sharing. As opposed to what we know from initiatives in the EU, SSE does not have to deal with or resistance against a legal framework restricting the access of heirlooms and crop diversity in general to markets. It seems that this allows SSE to focus on the socio-material and the socio-cultural aspects of OP and heirloom varieties, whereas Semailles in Belgium, for example, focusses on the socio-material and socio-political aspects.

Open pollination enables SSE to widely share varieties impregnated/steeped with history. The main objective of SSE is to disseminate them as widely as possible and independent seed companies contribute to the dissemination of OP varieties. Therefore, it is seen as positive when independent seed companies appropriate varieties first shared or marketed by SSE and sell them abundantly. The appropriation of SSE varieties by multinational companies has not been an issue within SSE until now, perhaps this is because the general legal framework has not prevented the association to operate according to its mission. Thus, SSE manufactures and makes available a potential that can freely be appropriated by others.

5.21 Organic Seed Alliance (OSA)

Area of activities: USA

Foundation: 2003

Seed involved: Vegetables (including sweet corn)

Although enhancing the genetic diversity of varieties available to organic farming is explicitly stated among the aims of OSA, we think it may be worthwhile to further explore to what extent this is the case through OSA breeding programs. OSA describes an important part of its breeding work as “variety improvement”, based on selecting existing OP varieties, sometimes heirlooms, to adapt them to the needs of present-day organic agriculture or specific needs. According to the program director, more varietal and genetic diversity is brought into organic farming by pursuing the objective of creating regionally adapted, rather than broadly, nationally adapted, varieties for standardized conditions. According to one public breeder collaborating with OSA, organic breeding introduces more genetic diversity into the agricultural landscape in two different ways. A first aspect is when "heirloom varieties" are used as parents in crosses. The second aspect, which according to him is more frequent and significant, concerns the introduction of germplasm into the USA that is not present or used in the USA, such as modern European varieties which do well in organic farming. Having this in mind, it seems relevant to not confound the varietal diversity made available to organic farms with genetic diversity, as several varieties can be released based on same or similar parents and backgrounds.

We have also identified an underlying tension between the culture of sharing and retaining knowledge at the Organic Seed Growers' conference, as multinational seed and breeding companies, who base their economic model on IPR, get increasingly interested in the conference, which is based on the open sharing of knowledge. From our point of view, the question of how to manage the presence of large, transnational seed companies at the Seed Growers' Conference remains pending..

Two breeding networks developed at the periphery of OSA, the Culinary Breeding Network and the Seed2Kitchen collaborative, are using taste as a way not only to differentiate the quality of organically bred varieties, but also to sensitize the general public. This is coherent with a more general US wide trend of renown chef cooks, like Dan Barber, getting interested and raising public opinion about sustainable, local food systems, and seed issues in particular. In Europe, such an interest from chef cooks has not arisen, or not as much by far, but public opinion on seed issues have rather formed over political and legal issues. We emit the hypothesis that this culinary perspective steps in to raise awareness more strongly in the USA than in Europe, partly because a legal framework restrictive of crop diversity has mobilised public attention in Europe. According to one interviewee, this attention from the upscale culinary domain comes with two risks: Firstly, attention must be paid for seed issues not to become an elitist topic. Secondly, experience has shown that chef cooks are always interested in novelty, which is not easily compatible with the fairly slow process of breeding.

We have learned about the important role of undergraduate and graduate students within academic teams, , including in public plant breeding, both as labor force and as a force that can orientate research toward organic breeding in some cases. This is an opportunity of students to get trained in organic and participatory plant breeding, which could even further be strengthened. The OSA research and education associate in the Midwest noted a need

for facilitation skills and techniques to “spark” local or regional dynamics on her own behalf, and it occurred to her that this would be useful to include in any students’ curriculum. By supporting the Student Organic Seed Symposium (SOSS) and the Society of Organic Seed Professionals, OSA has seized the opportunity to get involved in the training and networking of young professionals in the organic seed sector.

Overall, during our visits with different OSA staff, farmers and partners, we experienced the importance of connecting to each other as people and building a community, which goes hand in hand with going out to the fields to work on seed production and selection. At a talk at the final conference of the Diversifood project in Rennes in 2019, OSA program director Micaela Colley had mentioned how the research done at OSA, like in several European networks, is based on a community spirit and a feeling of belonging. It is through informal exchange and connecting that OSA staff get a feel for farmers’ needs that should be pursued. It is the ability of OSA staff to favor community building that has without a doubt also contributed to building an extensive and fluid network.

6. References



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