



# DYNAVERSITY

## *DYNAmic seed networks for managing European diVERSITY*

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

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

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## Abstract

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This deliverable provides the second version of practice abstracts for the DYNAVERSITY project.

In line with the H2020 policy on multi actor research projects involving the agricultural community, DYNAVERSITY contributes to sharing solutions/opportunities ready to further develop *in situ* valorisation activities in the field of genetic resources.

Two sets of practice abstracts (about 52 in total) have been produced during the 42 months of the project involving the *in situ* communities in genetic resources.

The first set of practice abstracts (17) is presented in D6.5 and the ones (35 in total) presented in this deliverable is the second set of PAs.

Communicating about projects, activities and results is much easier through the use of practice abstracts. The EIP-AGRI common format for interactive innovation projects facilitates knowledge flows on innovative and practice-oriented projects from the start till the end of the project. The use of this format also enables farmers, advisors, researchers and all other actors across the EU to contact each other. The EU template for reporting practice abstracts will be completed and sent to Commission according to the instructions.

## **1. The Romanian association for agriculture CSA network**

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The ASAT (the Romanian association for agriculture) network gathers all national solidarity-based partnerships between producers and consumers, also called Community Supported Agriculture (CSA). Even if the first ASAT groups among producers and consumers date back to 2007-2008, the association was formally established in 2014. ASAT aims at promoting a model of solidarity-based cooperation between farmers and consumers, which guarantees a safe market for small-scale, organic farmers. Since its foundation, ASAT has devoted a special attention to traditional seeds. Indeed, upon the initiative of a core group within the network, an obligation was introduced in all partnerships by which farmers commit to using a minimum of 30% traditional/local seeds on their farm, listing these varieties explicitly in the contract with consumers. The question of seeds within ASAT partnerships cannot be fully dissociated from the country's history: after the communist period, the Western European market-based agricultural model was promoted, with aggressive advertisement campaigns for the use of "modern" seeds. ASAT encouraged farmers to keep cultivating landraces and peasant varieties, including by organizing meetings with experts from other countries who had specific knowledge and experience with traditional/local seeds. In 2018, the ASAT network was composed of 10 vegetable producers and 240 supporting consumer families, organized in different CSA groups.

## **2. Custodian Farmers of the Gran Sasso National Park - Traditional farming and the conservation of local varieties in an Italian national park**

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The Italian Apennines hosts one of the largest national protected areas, the Gran Sasso and Monti della Laga Park. The park's territory preserves notable biodiversity, both wild and cultivated, and a great diversity of agricultural landscapes which are under pressure from land abandonment. Concerned by such issues, the Park has since 2008 promoted a strategy for the conservation of traditional farming activities which have been made possible by the participation of motivated farmers and other value chain actors on the territory, as well as by the National Park's staff. Municipalities and local institutions gradually got on board the Park-led activities as well. The result of this networking effort is that many of the initiatives are now running in a quite independent and self-sustaining manner. A collaboration with the Central Apennines Seed Bank, a facility founded in 2003 and managed in collaboration with the University of Camerino allows for periodically checking the quality of the seeds. Additional activities of the seed bank are collection and conservation of native seeds and cultivation in the Botanic Garden of CRFA; monitoring and in situ protection of the rarest plants of the Park. The collaboration among all these institutions and the farmers is an important example of an interdisciplinary effort to preserve and enhance local knowledge on seeds, sustainable and traditional cultivation techniques, as well as associated cultural values and landscapes.

### **3. Koal Kohz - A market gardener association in France**

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Kaol Kozh is an association of market gardeners and horticulturalists who conserve and reproduce seed of horticultural landraces for exchange and both small and large scale commercialization. It also strives for creating a legitimate legal space for the dissemination of landraces and farmer-bred varieties of horticultural species which are not registered in the formal variety catalogue as well as to raise awareness about seed diversity. Its objective is to provide a legal and market space for landraces and farmer-bred varieties of horticultural species which are not registered in the formal variety catalogue and to raise awareness about seed diversity. Seed circulation within and outside Kaol Kozh occurs on different levels, with some seed (usually in smaller quantities) circulating among members and some (usually in larger quantities) being reproduced under contract for seed companies (until now Germinance and Agrosemence are the companies involved). The latter seeds are produced by a minority of members (around eight out of the 64) who are more experienced. In January 2016, following the registration by the RSP of three terms describing peasant seeds ("peasant seed", "peasant seed in networks", "networked peasant seeds"), retail food chain Biocoop signed a "framework agreement" with some members of the French network for the promotion and sale within the Biocoop chain of vegetables from "networked peasant seeds".

### **4. Kultursaat e.V. - German Association for Biodynamic Breeding**

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Kultursaat e.V. is a German non-profit organization with headquarters in the region of Hessen, Germany. It emerged from a group of pioneering biodynamic vegetable producers engaged in reproducing open-pollinated varieties (OPV) as early as the 1950s; these producers founded the Circle for Biodynamically Produced Vegetable Seeds in 1985. In 1994, the non-profit association Kultursaat e.V. was founded, with the mission to foster the development of biodynamic vegetable varieties through breeding. Today, Kultursaat e.V. has close to 400 members and an annual budget of about 1.3 M €. Through this strategy, which culminates in the registration of the final varieties in a national or European catalogue, 110 varieties from 37 crops have been registered by Kultursaat, of which 19 were already existing varieties which performed well under organic conditions and 91 are newly bred varieties. 11 varieties are currently in the process of registration. Information on the varieties can be consulted freely from the Association's web-based catalogue. This long-term financial support has allowed for the registration and release of over 70 new vegetable varieties by 2016. The support from other funding sources have started complementing Kultursaat's budget over the years, with in particular the Association of Organic Processors, Wholesalers and Retailers in partnership with the foundation "Software AG".

### **5. Magház - Hungarian seed network**

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The Hungarian seed network Magház started operating through seed exchange events in 2013 and has grown into an important nation-wide, decentralised network interacting with national research institutes and international partners. Its main focus is to share seeds and knowledge about their agroecological cultivation. An important early product of Magház' is

the booklet entitled “The Practice of Seed Saving”, which was published in Hungarian under the Green Source Program of the Ministry of Agriculture in 2014. This booklet is an important tool for Magház’ outreach and awareness raising; other important instruments are their online platform with their website, Facebook page (1160 followers) and Facebook group (148 members). Seed quizzes, questionnaires, and seed identification games shared by volunteers during seed swaps are useful to attract the interest of new farmers and gardeners towards the topics and activities of the network. The seed production and multiplication activities which underline the association’s seed distribution events are made possible thanks to a central seed-saving facility located in Nagyszékely, where a considerable amount of seed is stored and cared for, to be then distributed within the network (7-800 packages/year). Seeds are packaged and labelled in Hungarian and English and are distributed to different parts of the country by Magház volunteers during seed exchange events. For the time being, seed is sent out under an agreement to return part of the harvested seed, but over the next few years, Magház wishes to sell a portion of its seeds, primarily those varieties that have been preferred by members to provide greater financial sustainability to the network.

## **6. The Majella National Park and the RIBES Network - A synergy between protected area and genetic resources conservation in Italy**

The territory of the Majella National Park itself is located at the biogeographical confluence of the Euro-Siberian, Mediterranean, and Balkan areas and between the Mediterranean and Middle-European regions. The park hosts a flora of over 2100 between species and subspecies, over 65% of these endemic to the region and almost 30% to Italy. About 15% of these are in priority conservation categories. In addition to the cultivated varieties grown within the park, more than 150 wild species of cultivated plants (Crop Wild Relatives, CWR) have been identified. The Park Authority has always strived to reduce the abandonment of rural areas and promote the continuation of farming within its borders, to construct an agricultural system compatible with and integrated in the Park’s territory. There are 25 farms which collaborate with the Park Authority. The Park manages a database to provide information on the consistency of CWR populations, their locations, the level of risk of each species, their morphological and genetic characteristics, and other data useful to successfully protect them. The Park is a founding member of RIBES, a national network for ex situ conservation of plant genetic resources, which involves a number of local germplasm banks committed to preserving the native flora of different regions. RIBES focuses on seeds of wild plants at risk of extinction according to national and European red lists. It provides a space for sharing experience and knowledge, challenges and success stories among members. Occasional courses or internships are organised by members and summer School on various aspects related to in situ and ex situ conservation within RIBES.

## **7. Organic Seed Alliance -A USA-wide alliance for the improvement and dissemination of open pollinated varieties**

The Organic Seed Alliance is a USA-based non-profit that advances ethical seed solutions to meet food and farming needs in a changing world. It focuses on organic plant breeding and seed production research, conducts training and networking at national level, and advocates for national policies that strengthen organic seed systems. OSA monitors the status of organic seed nationally and provides a roadmap for increasing the diversity, quality, and integrity of organic seed available to US farmers. OSA was established in 2003 in the Pacific North-West when US laws on organic agriculture made the use of organic seed mandatory. OSA was created as a national organization, with the aim of providing support to the

development and dissemination of varieties adapted to organic agriculture for commercial distribution. The Alliance's focus broadened over time to include education, research and advocacy on all issues related to seed, intellectual property and organic agriculture. The main objective of OSA is to make high-quality, diverse organic seeds available to farmers, encouraging the free circulation and reproduction of seed and to create regionally adapted varieties as opposed to mainstream conventional breeding which strives for broad adaptation of seeds that can be marketed as globally as possible. Varieties that have been released out of OSA breeding programs can also be taken up by independent seed companies for multiplication and marketing, under a voluntary payment to OSA, that amounts to 5-10% of seed sales. OSA publishes a periodic State of Organic Seed report, which takes a picture of the availability and diversity of organically produced seed in the USA available to any interested grower.

## **8. SAVE - Foundation for the Safeguard for Agricultural Varieties in Europe**

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The SAVE foundation was established in 1993 as a European-wide network gathering national and international organizations involved in the conservation of rare breeds and seeds. In addition to participating to regional projects, it runs a few Europe-wide programs, aimed at promoting conservation of animal and plant agro-biodiversity as a tool for rural development in marginal areas and traditional agro-ecosystems. SAVE main objective is to maintain the existing diversity of both animal breeds and cultivated varieties. SAVE's work links the conservation of animal and plant agro-biodiversity to rural development in marginal areas and traditional agro-ecosystems (TAES), where genetic resources are an important option for local populations to improve their incomes and for sustainable landscape management. SAVE brings together 23 national organizations and 2 regional organizations spread across 16 European countries. SAVE participates (as leader or partner) in projects across different geographical areas (the Balkans, the Alps, the Carpathians and the Mediterranean). The image on the right describes the geographical distribution of SAVE's current members. SAVE organizes a regular annual meeting of the network's members, lasting three days and bringing together 30 to 50 people. Farmers are invited, but are not very numerous, possibly because of their limited time availability and their limited confidence with English. The annual meeting is punctuated by workshops, visits and recreational moments, the outcomes of which are summarized in a final report.

## **9. European Coordination Let's Liberate Diversity! (EC-LLD)**

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The EC-LLD was established in 2012 by a number of organisations which had been interacting since 2005 on themes related to the dynamic management of agricultural biodiversity in Europe. The intention behind establishing a coordination was to strengthen the collaborative management of cultivated biodiversity across the continent and to establish a more formalized space for mutual sharing of knowledge and approaches. The main objective of EC-LLD is to be an open and fruitful space for exchanging knowledge and experiences among its members, fostering their local actions and encouraging common positions. Operating under the shared concern that our food systems are too uniform, and the conviction that promoting biodiversity is key for achieving food sovereignty, the EC-LLD aims at promoting and developing farmers' seeds on organic and biodynamic farms, exchanging and disseminating knowledge and skills associated with farmers' seed, promoting a legislative framework on agricultural biodiversity which recognizes the rights of farmers,

hobbyists and small seed companies, and Encouraging participatory and decentralized breeding and research. In 2017 the network opened to the participation of amateur seed savers (including gardeners) organizations, alongside those of peasants or professional farmers. As of today, EC-LLD gathers 12 members across ten countries. A number of other organizations have recently expressed an interest in joining, from countries such as Sweden, Norway, Denmark, Finland, Hungary, Estonia and others.

## **10. Lessons learned from the case studies: Nordic Heritage Cereal Conference (NHCC)**

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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” 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 were 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.

## **11. Lessons learned from the case studies: Kokopelli**

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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 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.

## **12. Lessons learned from the case studies: the Cross-border Network of Fruit Genetic Resources between France and Belgium**

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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. This flow of knowledge and competence seems to build the network and gradually brings it closer to its objective. 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. A final lesson concerns one of the network's particularities. Upstream, it is supported by two public institutions. This 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. 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 that 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. Most of the network's structures are developing their marketing channel, which will enable them to economically enhance their work.

## **13. Lessons learned from the case studies: Growing Seed Savers Initiative in Scandinavian countries**

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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.

## **14. Lessons learned from the case studies: les Croqueurs de Carottes in France**

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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.

## **15. Lessons learned from the case studies: Poma Culta in Switzerland**

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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.

## **16. Lessons learned from the case studies: CSA Brotes Compartidos Segovi in Spain**

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The history of the CSA Brotes Compartidos is interesting because the network was created by a farmer who had already been engaged during seven 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 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.

## **17. Lessons learned from the case studies: Pétanielle in France**

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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.

## **18. Lessons learned from the case studies: Circulos de Sementes in Portugal**

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Two main conclusions can be drawn from the case study. Firstly, 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.

## **19. Lessons learned from the case studies: The Development of Crop Wild Relatives (CWR) Genetic Reserve in England**

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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.

## **20. Lessons learned from the case studies: Parco Nazionale della Majella**

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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.

## **21. Lessons learned from the case studies: Resia Valley Garlic Producers Community in Italy**

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Limited production is difficult to promote, 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.

## **22. Lessons learned from the case studies: Park’s Custodian Farmers Network in Italy**

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The goodwill is the main quality to use in these kinds 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.

## **23. Lessons learned from the case studies: Seed Savers Exchange (SSE)**

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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 stabilise 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 company's 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.

## **24. Challenges and bottlenecks in establishing informal seed system networks**

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Over the last 15 years, the idea of networking in situ and on-farm sites and actors has been raised and recommended as a means to improve conservation of PGRFA. As discussed, quite a wealth of scientific data justifying and proposing the methodological foundation has been produced. However, further implementation through adapted policy measures and funding has not followed. This stagnation is determining a loss of interest in PGRFA at EU policy level, which should be corrected with realistic and effective propositions. Based on the data gathered in the project, DYNAVERSITY puts forward the idea of constructing an in situ/on-farm platform, strongly grounded in the participation of those collective social networks or organisations whose initiatives and innovations are already strongly embedded in territories, social contexts and value chains. Through such a platform, existing networks would be linked with other relevant stakeholders, promoting and facilitating knowledge sharing and co-design of conservation strategies. This platform could be seen as complementary to the ECPGR network, funded by Member states. DYNAVERSITY believes that this will be a powerful way to concretely improve the conservation and sustainable use of PGRFA on-farms, gardens and in natural managed areas across Europe.

## **25. Recommendations to further foster consumers involvement in agrobiodiversity issues in the CSA**

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Among the main challenges, the main identified need is for consumer education to the topic. Indeed, depending on the cases, education to agrobiodiversity and traditional/peasant varieties is needed for consumers and/or farmers. Concerning consumers, a list of quotations (coming from the open questions answers in the survey) identified among the main challenges to conduct actions for cultivated biodiversity, the "adaptation to consumers preferences and taste" (Female CSA Network coordinator, France), the fact that "consumers want new products all the time" (male vegetable grower, Ireland), the "choice of quantities to put in the vegetable boxes" (Male vegetable grower, Germany), the difficulty to "convince consumers to use traditional varieties" (Male vegetable grower, France), "consumers ignorance and sometimes the lack of adventurer wanting to taste and live the experience" (Male vegetable grower, France) the fact that "products are not known and there is a reluctance among consumers" (Male vegetable grower, Romania). However, as the case of Botes Compartidos shows, CSA can be a perfect place for education: the journal or the workshops can teach the consumers and acclimate them to traditional vegetable varieties, also giving them some ideas to cook the vegetables.

## **26. Recommendations on how to approach the development of biodiversity networks**

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This first recommendation focuses on how to approach the development of biodiversity networks. The case studies highlight the importance of territorial anchoring. The scale of the territory makes it possible to mobilise and create contact between the different actors. Thus, we recommend supporting both anchored networks and structures that facilitate the exchange of "good practices" between these territories. In addition, we recommend developing a space next to the regular catalogues for other seed existences. To allow socio-varietal innovations to develop, it is necessary to have a protected space until they mature. Thus, as well as "incubators" for companies, we suggest raising funds for the development of participatory experimental spaces between researchers and farmers and seed companies (seed craftsmen) to develop varieties with evolving adaptive capacities. More, it seems essential for initiatives to obtain time security at the level of their structure. Project financing does not allow them to deploy their transformation proposal over time. Therefore, we recommend the development of a dedicated funding for network coordination. Eventually, new technologies are currently developing in small-scale agriculture. We propose to draw inspiration from various North American initiatives (SeedLinked; research programme involving chefs) to develop computer tools (application) for data collection, distribution of information on collaborative form at European level on non-DUS varieties adapted to the needs of its users (farmers, amateur gardeners).

## **27. Major obstacles for more integrated and dynamic management of PGRs**

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DYNAVERSITY identified several major obstacles for more integrated and dynamic management. A set of obstacles concerns the financing of gene banks, the current compartmentalization between the different types of actors involved and the genebanks in which genetic resources contained in gene banks are mainly used for research purposes and does not favour a large circulation of diversity for a wider range of activities and objectives. The existing distance between the different types of actors involved, the lack of articulation between the different types of expertise and know-how, and the power games existing between these types of expertise, are detrimental to more fluid interactions. On the more positive side, there is today a growing number of multi-stakeholder networks that consider a plurality of skills and values associated with agrobiodiversity. The emergence of many community seed banks around the world over the last 20 years has led to the recognition of farmers' multi-functionality and their know-how in the collective management of crop diversity, including at the national and international levels. Ultimately, the approach highlighted the need to reconsider the question of the role of gene banks in a broader societal project and place the modalities of ex situ conservation in the context of societal and political issues.

## **28. Innovative mechanisms of governance for genebank management to solve the conflicts between the formal and informal seed systems: the Third Place, a way forward?**

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To what extent does the idea of a Third Place make it possible to overcome the conflicts that have crystallized over the management of crop diversity between the formal and informal seed systems? The Third-Place movement is fertile. It offers a range of inspiring solutions for structuring the collective and the question of the commons revolves around these spaces.

These are all reasons to think that moving closer to the idea of the third place is a way to respond to the challenges of crop diversity management. Third places, by offering a framework for sustainable collaboration with a custom-made forms of governance, allow us to envisage new systems of dynamic management of crop diversity, which better take into account the diversity of both the seeds in all their dimensions and the various actors who manage them. However, it should not be forgotten that a Third Place is a tool at the service of common projects. One of the challenges is surely to take biodiversity issues out of the restricted prism of agriculture and integrate them into the broader social issues of food systems. Questions still remain about the form it will take, but what is essential is the process, not the structure. This activity was joined to the CoEx project (Fondation Agropolis, 2017-2021) and both projects end in 2021. This activity was considered as the first step of a long term process. It is thus necessary now, to continue to work collectively on the next steps, strengthening trust and understanding among participants.

## **29. Tackling public awareness of crop diversity**

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Citizens and consumers are not often involved in discussions and decisions on the conservation and renewal of crop diversity. Actions carried out by DYNAVERSITY nonetheless showed important potential synergies between farmers, consumers and local networks. The link was made through community-supported agriculture (CSA) schemes, where cultivated biodiversity was one of the top priority action points. CSA actions illustrate new ways of thinking and engaging with crop development, where the identity, origin, quality, and local diversities are considered as inclusive dynamic catalysts for local and regional development. Events involving farmers and professionals focused more on the enhancement of the networks, reinforcing knowledge about both seed regulation and know-how for plant breeding and seed multiplication. These also allow for seed exchange in networks that exist all over Europe to preserve, re-create from untapped diversity and on-farm breeding, and recover knowledge about seeds, towards new sustainable food systems. Events with students and their teachers rather focused on raising awareness about a participatory scientific approach, inform students about issues related to cultivated biodiversity and seeds. Last but not least, events targeting the general public combined sensibilisation and knowledge, showcasing the community of people who experiment new ways to promote agrobiodiversity, combining tradition and innovation in agriculture. This strategy, used in European photo exhibitions and local events, link diversity to festive dimensions, and transmit four main values, i.e. Knowledge, Innovation, Heritage, Networks.

## **30. Management of Community Seed Bank collections**

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Community Seed Banks (CSBs) are fundamental intermediate institutions between ex situ and on farm communities. Often run by volunteers and civil society, which use and maintain many different varieties, initiatives usually do not have training material and deep expertise on how to develop and manage CSBs. DYNAVERSITY developed a technical manual, available in English, French, Spanish, Italian and Hungarian, to palliate the lack of knowledge and guidance for the management of these entities. The manual particularly highlights measures that ought to be taken for the collection of material both from ex situ germplasm collection and farms or gardens. It also provides pathways to establish strong relations with European genebanks for 'direct users' for either reintroduction of specific varieties in cultivation or for participatory on-farm research and experimentation, and arguments that can be put forward to access germplasm from institutional ex situ collections without stringent contractual arrangements, including the standard Material Transfer Agreement set up by the FAO International Treaty. The informality that prevails in the exchange of seeds, the low likelihood that farmers or CSBs, which are small in size and scope, use a new SMTA for

further transfers or claim intellectual property rights over the resources received, and the primary interest of pure conservation and direct use on small surfaces, access agreements can be more flexible. Dialogue and cooperation with genebanks is key to achieve a tailored and proportionate solution for CSBs and farmers wishing to access germplasm from these institutions.

### **31. Collection of material in situ or on farm by Community Seed Banks**

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CSBs are fundamental intermediate institutions between ex situ and on farm communities. Often run by volunteers and civil society, which use and maintain many different varieties, CSB's need to grow their competences regarding legal rules related to access to genetic resources. DYNAVERSITY developed a technical manual, available in English, French, Spanish, Italian and Hungarian, to palliate the lack of knowledge and guidance for the collection of material on farm by these entities. The manual first gives an overview of the legal and policy framework, together with background knowledge, to understand the legal context related to access to and exchange of genetic resources. The international legal framework and the different treaties are analysed. Complex instruments such as the FAO Treaty, the Convention on Biological Diversity, the Nagoya Protocol and their implementation in the European Union are summarised. The means through which resources can be exchanged within this legal framework are then written up in a simplified way. In order to facilitate the understanding of such complex and difficult subjects, prototype cases are also elaborated, as concrete examples to guide CSBs in their daily operations. The manuals not only support CSB's to comply with applicable rules and get access to germplasm from farmers, but also guide them in elaborating a tailor-made strategy to regulate and apply access and benefit-sharing on the seeds they distribute.

### **32. Labelling diversity for its conservation and sustainable use**

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On farm and in situ conservation can be reached only if the society is still using this diversity. For agrobiodiversity it means that citizens should eat diversity products and recognise them on the market. In the past years, many labels or trademarks have been developed by private organisations (e.g. Slow Food, SAVE Foundation) or public bodies (e.g. Natural parks) with the objective of creating a bridge between agrobiodiversity and consumers. DYNAVERSITY analysed different types of labels to understand if they are effective for marketing, and the trade-off between conservation aims and marketing. In a commercial world dominated by brands is there a space for recognizing diversity products? Three labels, developed by the Italian natural parks, the French regional parks and the SAVE foundation, have been analysed in greater details, looking at their specific governance, and execution. From the general labels from Della Donana, Andalucia, Castilla e Leon, which include heavy emphasis on nature protection, the Arca-deli award for delicacies and innovative services from owners of indigenous breeds and varieties, the Heritaste trademark characterising local, extensive, non-industrial production of a cultural asset, different initiatives have developed different pathways to create an added-value for crop diversity. Despite their differences, all labels share the same goal, to explain to the consumers the link between a product, its diversity and its terroir.

### **33. Valorising crop diversity through the market : eco-labelling**

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Several quality labelling systems exist regarding agricultural and food production in Europe. With varying degrees of importance for farmers, markets and consumers, they indirectly, and very rarely directly, recognise the value of crop diversity. For the creation of a "quality" value, on which the differentiation through the eco-labelling is substantially based, the adoption of the European and or National (or even local in case of Protected Areas) brands/labels represents one element of a strategy much more articulated and complex. From quality labels in natural parks to those emphasising sustainability, or those geared towards end products (like geographical indications), there are many pathways to acknowledge crop diversity, its environmental and socio-cultural and economic attributes. Despite the strong attention of most of the citizens of the European Union towards the quality of the products, there is still a very limited level of knowledge of the eco-labels, especially at the level of consumers. Business-territory integration cannot limit oneself, to few (mainly commercial) aspects, but it should be built with a view to competitiveness of the entire socio-economic system, by shifting competition from the local level (between companies producing the same goods), to the broader level of the global market. The development of a Common Strategy (both at EU and National level) for the ecolabelling in food chains pathways aimed at identifying, at least at the level of regions, of the factors that have affected, up to now, the possibilities offered by the European National and local policies policy for enhancement of the products from quality chains.

### **34. An enabling institutional framework for dynamic seed systems**

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The current institutional framework governing seeds needs to be revised in order to account for their dynamic nature, integrate outdated divides between formal and informal approaches and increase the diversity of crops and plant varieties within our food systems. The Seed Systems approach describes seed circulation (from breeding to seed marketing) within local areas or social organisation and challenges the top-down seed policies applied by international organisations and national governments. DYNAVERSITY increase the awareness of the actors on the complexity of policy and governance issues related to seeds, defining a comprehensive diagram of Diversified Seed Systems, based on concrete experiences and social organisations mapped within the project. The results of the drawing activities done with local communities in Italy are included as annexes. Moving beyond the dichotomy between so-called informal and formal Seed Systems, which does not reflect the reality of organisations engaged in the conservation and dynamic management of crop diversity, the concept of Diversified Seed Systems shows the plurality of relations and ties between public institutions, private companies, and civil society, but also the wide range of plant varieties that flow within seed systems, and the very different actions carried out on these varieties. Public policies and legal frameworks thus need to recognize that Seed Systems are complex with different actors, having different and divergent approaches, practices, and visions. They must promote and support a plurality of Seed Systems and not constraint them to just one model, the dominant formal system.

### **35. Scenarios and strategies towards dynamic networks for managing diversity in Europe**

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In order to increase the diversity of crops and plant varieties in our food systems, dynamic networks need to be established and reinforced on farm. Currently, the European Cooperative Programme on PGRFA (ECPGR) managed by Member States, with national focal points, plays a prominent role in governance, with very little participation of on farm



organisation in this process. DYNAVERSITY developed three scenarios for an European platform of in situ and on farm networks, based on the consequential mapping of existing social actors and networks across the EU, from their integration, to their collaboration, or the creation of a new network. Notwithstanding the governance options for crop diversity, any European strategy should support the networking of in situ actors and sites. It should look at different EU policies in an integrated fashion, bridging the EU Biodiversity Strategy post 2020, the seed marketing acquis, the Common Agricultural Policy ("CAP") measures (eco-schemes, conditionality, rural development programmes), and innovation or research actions such as EIP-AGRI. The strategy should allocate dedicated funding lines and structural support for the conservation and dynamic management of agricultural biodiversity. It should support dynamic and networked agrobiodiversity conservation and use, but also the breeding for diversity, not just ensuring the availability of diversity for breeding. Recognising the multi-dimensional nature of dynamic crop diversity, EU policy should support a transition to more sustainable food systems.