



English

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Booklet #5

COLLECTED SOLUTIONS ON SEED PRODUCTION

Red Andaluza de Semillas “Cultivando biodiversidad”
Réseau Semences Paysannes



CEreal REnaissance in Rural Europe:
embedding diversity in organic and low input food systems



CERERE aims at sustaining and promoting innovative approaches emerging in Europe from a multitude of practices adopted to introduce and manage agrobiodiversity in cereal production. These innovations are rooted in local traditions, knowledge and food culture.

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This document gathers together considerations and proposals for grain seed production. On the basis of various experiences studied within the context of the CERERE project, collective management of crop diversity is proposed as a solution to obtain seeds suited to the most varied agricultural environments.

Index

Index	pag. 3
Introduction	pag.4
Access to seeds from crop diversity	pag. 6
Participatory trials on farms	pag. 10
Ecological management of seed production	pag.13
The market for organic seeds	pag.15
References	pag.18
Consortium	pag.19

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Introduction



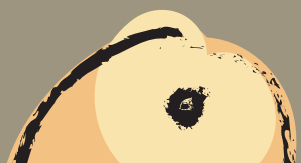
Over the course of the last century, agricultural systems have seen a great loss in terms of crop diversity following industrialization and standardization of agricultural processes in general and of seed production and variety selection in particular. This has led to the emergence of a number of collective initiatives for the recovery, collective management and dynamics of local, traditional and farmer varieties and populations as well as of the knowledge connected to them. Such initiatives have worked to reintroduce these varieties into production and consumption by means of multiplying, adapting and spreading their seeds.

This booklet offers solutions that have been proposed by European initiatives and collected in various CERERE publications with regard to grain seed production for organic production systems.

A significant portion of the cases described here propose collective production and self-production of seeds from varieties which belong to the public domain and which have flexibility and the capacity for adaptation to agro-ecological purposes and to artisanal processing (milling on farms, bread making with sourdough, arti-

sanal production of pasta, etc.): the aim here is to increase the autonomy of producers. The use of these cultivars reduces dependency on large commercial seed producers, who offer standardized products which are subject to intellectual property rights and adapted to an extremely technical, homogenous and dependent agro-industrial system.

A number of findings from CERERE initiatives show that varieties and populations of local and farmer grains represent a real and valid alternative to modern varieties and that their introduction into agricultural and food system allows the farming community ^[1] to have access to and use them. At the same time, collective management of seeds aids in building community spirit and solidarity, which are fundamental tools for the empowerment and survival of farmers.



Access to seeds from crop diversity

Like all other types of agriculture, grain production has been greatly affected by genetic and cultural erosion, by a lack of transmission through the generations, by climate change and by other challenges that food production must contend with today.

In the context of this situation, numerous initiatives have been undertaken by groups of farmers that produce, select, exchange and promote seeds of local and farmer varieties in order to make them available to persons interested in creating alternative agricultural and food processing systems.

In numerous cases described by CERERE, these kinds of collectives self-manage seeds of local and farmer varieties in a decentralized manner. Most of these initiatives aim at recovering and spreading seeds of local grains as well as the knowledge and techniques pertinent to managing these varieties. They further strive to develop selection and breeding activities for adaptation to specific agricultural and socioeconomic contexts. These are the community seed banks (CSBs). These multifarious collective initiatives promote access to biodiverse seeds; in Europe, they manage a great number of crop groups. We should especially point out the importance of grains in CSBs of northern and central Europe, followed by France and Italy ^[2].



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An example of a CSB that manages grains is the *Grupo de Acción Compartida* (GAC) ^[3], made up of farmers mostly from the province of Málaga (Andalusia, Spain). The group is involved in recovering local and old grain varieties as well as the traditional knowledge associated with their agricultural management and with artisanal production. GAC has mainly worked with the local durum wheat variety Ronda, though it has also recovered many other populations, such as soft wheat (*Triticum aestivum*), durum wheat (*Triticum durum*) and Einkorn wheat (*Triticum monococcum*). The varieties managed by GAC come from old, traditional farmers of the region and from public germplasm banks.

Another CSB experience reported by the CERERE initiative is the case of the French association Péta-nielle ^[4], which joins pro-

fessional and amateur professionals with the common aim of preserving and developing crop diversity through multiplying and distributing seeds to its members. Reproduced material is distributed in a quite flexible manner, even if participants have to give back a certain quantity so that an adequate supply is always available, enough, that is, to guarantee conservation of the varieties and redistribution of the seeds. Together with the seeds, amateurs with limited technical knowledge are provided with specific information on the crops. The association organizes various collective events, such as planting days,

field visits and threshing days, in which exchanges of seeds and knowledge are organized.

Small farmers represent another way of obtaining seeds: in many parts of the European Union (EU), they use local and farmer varieties on their farms, promoting their products through self-consumption and/or selling them at local markets.

Finally, another venue where producers can find seeds of these kinds of varieties are the public germplasm banks, where phyto-genetical resources for food and agriculture are preserved *ex situ*. Usually these institutions provide small seed samples free of charge to applicants to begin the work of multiplying; usually they also possess databanks of the items preserved by them. EURISCO ^[5] is the online European catalogue of cultivated plants and their wild relatives

conserved *ex situ* by nearly 400 institutions. Here it is possible to consult germplasm databanks and the items they contain: For *Triticum* these amount to 194,562, for *Hordeum* to 122,512 and for *Zea* to 65,122.

Participatory trials on farms

Generating local and farmer grain varieties suitable to the specific practices of each farmer and to different soil and climate conditions requires years of observation, characterization, evaluation and selection. This work on the part of producer collectives which manage crop diversity can be facilitated by the collaboration of research groups, researchers and persons with technical expertise in creating methodologies and protocols which meet the established objectives.

Participatory trials have proved effective with regard to the selection of varieties adapted to the needs of farmers in their local contexts. Furthermore, these alliances provide the opportunity for agricultural initiatives to both receive financing for research projects and obtain seeds of a wide range of varieties – which are sometimes conserved in institutions that cannot be easily reached – such that farmers can choose those which are best suited to their needs.

In the case studies examined by the CERERE project, we find numerous examples of participatory trials ^[6]. This is the case of a group of participatory studies on grains connected to the French organization Réseau Semences Paysannes, which brings together roughly 130 members of various collectives (CETAB, ARDEAR AURA, Pétanielle,

Triptolème, etc.). The objectives of this group include strengthening the independence of professional and amateur producers in collectively managing crop diversity and seed selection, building new relationships of horizontal collaboration with researchers, and involving all members in each of the decision-making processes that concern them.

In its 15 years of existence, the group has created several new varieties through mass selection, manual crossings of varieties, and population blends, while adapting populations to local soil and climate conditions and to the management and use requirements of the member farmers. This work forms part of a continuous process that evolves according to the selection objectives which each member of the collective establishes and the seed exchanges that take place.

We find another example of participatory trials in the initiatives launched by the Red Andaluza de Semillas (RAS) [Andalusian Seed Network] in southern Spain ^[7]. Various Andalusian farmers have actively participated in developing these trials, which characterize and evaluate local grain varieties in the context of research projects such as DIVERSIFOOD ^[8]. Their involvement has been fundamental in choosing trial objectives, materials to be tested, protocols to be applied and data collection. Furthermore, the expansion and strengthening of RAS through the involvement of artisanal and organic bread makers and millers has made possible baking trials of local wheat varieties that have been tested on participating farms ^[9].



PHOTO: RSR



Ecological management of seed production

In order to use seeds suited to the needs of each farm, their production and selection must be carried out on the farms themselves or in environments with similar edaphological and climatic conditions and management and use contexts, with the means available to these businesses.

Yet seed cultivation, like any other agriculture production, may be influenced by a variety of biotic and abiotic factors. In particular, the onset of diseases transmitted by seeds can hinder self-management of materials for plant reproduction and have serious consequences for the exchange and diffusion of these seeds. One of the diseases that has the most impact on wheat seed production is common bunt or rust, caused by the presence of the *Tilletia caries* fungus. The CERERE project has published a summary of the practices which provide the solutions for managing these diseases ^[10].



The market for organic seeds

Beyond the cases of self-production and collective production of seeds, described above, CEREERE provides other ways of managing these resources. These are companies that provide commercial seeds of improved varieties ^[1].

According to current European regulations for the production and labelling of organic products, "...only organic seeds and reproduction materials can be used", and for at least one generation in the case of grains ^[2]. However, many organic seeds on the market come from varieties selected for conventional

agriculture, which were cultivated without the use of synthetic chemicals and which are therefore not suitable for organic production systems. The regulation states that "each Member State must create a computerized database which contains the varieties of seeds and tuber seeds which are available in its territory and which have been obtained with the method of organic production". Registering the varieties in this database takes place upon the request of the seed providers, who must be certified by a recognized agency. Both the varieties and the seeds must respect current general norms regarding production and marketing ^[3].

In Spain, this databank is managed by the Ministry of Agriculture, Fisheries and Food ^[4]. Organic seeds are available for 4 varieties of soft wheat, 4 varieties of durum

wheat, 11 varieties of barley but no variety of emmer. In Spain, only 7 companies are authorized to sell commercial organic seeds of these grains.



PHOTO: RSR

Conclusions

Seeds are the origin of any system of food production and one of the key elements of its resilience potential. Through collective management and production of crop and seed biodiversity, together with collaboration in participatory research projects, farmers can obtain quality seeds which are suited to their needs, aims and practices.

For this reason, we hope that norms relative to the marketing of organic seeds evolve in such a way as to facilitate the promotion of plant reproduction material of varieties that are suited and adaptable to complex, varied and changing edaphological, climatic and management conditions, such as those which characterize local, traditional and farmer-centred contexts.



references

Cerere dissemination contents.



PHOTO: RSP

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consortium

Participating organisation

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Progressive Farming Trust LTD LBG

SEGES PS

Institut Technique de l'Agriculture Biologique

Debreceni Egyetem

Country

UK

Italy

Italy

France

France

Finland

Ireland

Spain

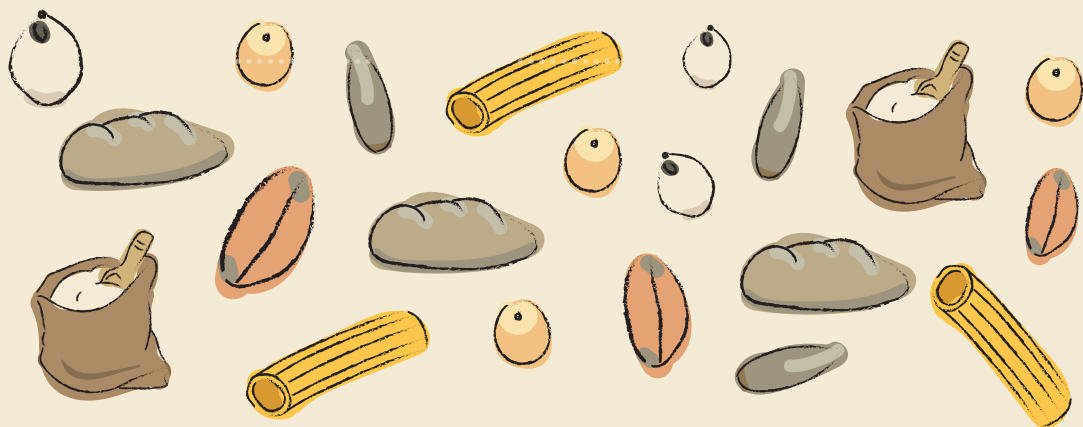
Italy

UK

Denmark

France

Hungary



"CERERE is a thematic network that brings scientists and practitioners together. Its aims are to raise awareness about the value of good food, to identify cereal supply chains which use low inputs, to empower farmers and those actors who work with alternative food systems"

- CERERE consortium, Kick Off Meeting, University of Reading, November 2016



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