Community-based management of agrobiodiversity
A French initiative on forage crops to design agro-ecological systems

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Author's Background
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Summary
The over-simplification of modern intensive agro-ecosystems in terms of cultivated biodiversity had dramatically increased their vulnerability to stresses and perturbations. In reaction, several community management seed systems are being currently set up in France. In this country where most farmers are used to buying commercial seeds, these innovative initiatives are raising several issues such as: how to obtain, improve and conserve adapted plant genetic resources? How farmers' communities can organise themselves? Which procedures, skills and tools must be developed? With the aim to finding solutions the participatory and multi-actor research project entitled "ProABiodiv" was set up in 2011 on forage crops. It is a good illustration of how we can bridge the gap between scientific knowledge and the know-how of practitioners. Solutions must be locally developed as they are connected to a specific background, producing outputs that guide practitioners in raising the relevant questions rather than providing recipes.

Background
The over-simplification of modern intensive agro-ecosystems in terms of cultivated biodiversity had dramatically increased their vulnerability to stresses and perturbations. This risk is even higher when an artificial environment poor in diversity shifts to input reduction or organic farming. Clearly, the first step of an agro-ecological project would be to create and use a higher specific and genetic diversity that commercial seeds no longer offer. In this respect several community managed seed systems (or "Seed Houses") are being currently set up in France. In this country where most farmers are used to buying commercial seeds, these initiatives are considered innovative. They also raise several issues such as: how to access, improve and conserve adapted plant genetic resources? How can farmers' communities organise themselves to produce and exchange seeds among their members? What are the procedures, quality thresholds, skills and tools that must be developed?

Main Chapter
In order to find solutions the ProABiodiv project (national project funded by the French Ministry of Agriculture), involving farmers, extension services and researchers in genetics, sociology and economy, was set up in 2011. The synergy between project partners allows to expand skills, mutualise knowledge and capitalise experiences, tools and know-how.

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Figure 1. Plant ecotype prospection and exchange with the local farmer in the Framework of ProABiodiv

The ProABiodiv project aims to define and describe various ways to manage collectively plant varieties for cattle feed: esparcet (sainfoin), cocksfoot (orchard grass), clover, alfalfa and maize. Instead of buying commercial varieties from seed companies, farmers organise themselves to produce the seeds they need and make their own selection. The aim is to improve the resilience of farming systems by increasing farmers' autonomy and by developing plant varieties in their place of cultivation. The latter issue is of particular importance in systems with low levels of inputs such as organic farming. It also aims to develop a broader genetic diversity of cultivated species by promoting on-farm conservation. The project brings together scientists and practitioners to:

- Share knowledge and collectively design new modes of participatory dynamic management of local plant genetic resources for organic farming;
- Build-up, formalise and describe new methods for the management of agricultural biodiversity (dynamic on farm management of genetic resources or "Seed Houses"), including selection and management schemes, tools, collective organisation, seed banks, quality insurance and seed laws;
- Design breeding strategies in a co-construction approach;
- Conduct a Strengths/Weaknesses-Opportunities/Threats (SWOT) analysis on the technical, sociological and economic aspects of this type of biodiversity management;
- Train people to create and manage "Seed Houses" by publishing technical guidelines, books, videos, trainings sessions and open-days on farms.

Core messages and conclusions

Shifting from a logic of conservation to a logic of dynamic management (= to generate innovation) of genetic resources is also a human adventure through the collective organisation implied as well as the knowledge and skills which are closely related.

This type of agro-ecological approach is a good illustration of how to bridge the gap between scientific knowledge and practices. Solutions must be locally developed as they are connected to a specific background, ensuring that outputs aim to guide practitioners in raising the relevant questions rather than providing recipes.

In conclusion building a "Seed House" is not building walls but building links between people. It is made little by little, step-by-step: scientists and practitioners are learning together all along the process since at each new step new questions are raised (experiential science). This initiative will persist over time only if the work carried out is recognized. The only opportunities available are those we will be able to generate.

ProABiodiv