

Open source: an opportunity to strengthen farmers' seed systems – nine propositions

Johannes Kotschi, Agrecol

10th June 2020

High-performing farm-saved seed is existential for agriculture and nutrition in the Global South. But the farm-saved seed systems lead a shadowy existence. They receive little public support and are hindered rather than encouraged by national seed laws and international seed agreements. Could an open-source seed licence lead to the strengthening of farmer plant breeding and the expansion of related seed multiplication and marketing, thus capitalizing on a largely untapped potential? In the following nine propositions, the initial situation is presented and a strategic proposal is made.

(1) Farm-saved seed is crucial to feed the world

Farm-saved seed is the basis for crop production in the developing world. In such countries, over 90 percent of the seed comes from farmers' own breeding, multiplication and production activities, or from gifts, exchange and purchase in villages or on local markets. In this way, farmers can obtain local varieties, seed mixtures and replicated seeds of commercial varieties. Traditionally, seed has been predominantly a common good.

(2) Local varieties help to cope with risk

Local varieties bred by farmers are the result of selection over decades, centuries or even millennia. The continuous exchange of seed and the interplay of human and natural selection have created varieties that are ideally suited to local climatic and soil conditions, and that enable further adaptation, for example to a changing climate. Compared to commercial varieties, local varieties are typically less stable and homogenous, so do not correspond to the widely accepted concept of a crop "variety". Rather, they might be described as "populations" that are variable with regard to important characteristics. Heterogeneity and variability limit cultivation risks and improve adaptability. Both features are becoming increasingly important in terms of seed performance.

(3) Property rights and controlled markets serve seed companies

The private plant-breeding industry has developed over the last 100 years, starting in the "developed" world. Its business model depends on protecting plant varieties as "intellectual property" in the same way as technical inventions. This allows the industry to generate income from the use of the varieties.

An appropriate legal framework has been created for this purpose. Most countries regulate the relevant intellectual property rights by means of “plant variety protection”, a system that guarantees protection for a variety in its entirety. Others permit the patenting of individual plant characteristics, a substantially more comprehensive and long-term form of property right.

In addition to plant variety protection, many countries have also introduced laws to control seed that is available on the market. Only seed from officially approved varieties may be traded and exchanged.

(4) Uniformity vs diversity

To enable varieties to be identified clearly and to remove doubt as to legal claims, the identity of a variety is established through testing according to the “DUS” criteria, i.e. Distinctiveness, Uniformity and Stability. These, plus an officially determined “added value” compared to existing varieties, must exist for a variety to be officially registered. Furthermore, a variety must be demonstrably “new”.

Varieties bred by farmers often fail to meet these criteria. They are thereby effectively shut out of the market, even if they have advantages from an agricultural point of view because of their adaptability (see Proposition 2). The often very strict interpretation of the acceptance criteria – especially with regard to uniformity and stability – leads to a loss of plant genetic diversity.

(5) Globalization and standardization marginalize farm-saved seed

The system of varietal protection and controls on the seed market was set up in industrialized countries. This was followed by efforts to promote global trade in seed through the harmonization of national regulations.

The International Union for the Protection of New Varieties of Plants (UPOV) offers an internationally uniform varietal protection system and demands that its member states align their national laws closely with the UPOV Convention. Since the foundation of the Union in 1961, this Convention has been revised several times, further strengthening the property rights of private breeders. In the current version, only in exceptional cases may farmers re-sow the seed they obtain from protected varieties. They are not permitted to sell or exchange this seed.

Since 1994, the World Trade Organization (WTO) has, through the TRIPS Agreement, pressed its member states to introduce national systems for intellectual property protection for plant varieties. These can be patents or *sui generis* systems, such as plant variety protection. Many countries in the Global South have since joined UPOV and have also passed laws to control the seed market without examining exactly how these might affect local, small-scale agriculture. In many countries, this gives rise to the absurd situation that the trade and exchange of farmer-produced seed is illegal, even though it accounts for the majority of the seed available.

(6) Recognizing Farmers' Rights

With the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA, 2001), the international community recognizes the huge contribution made by farming communities to the maintenance and sustainable use of plant genetic resources that form the foundation of the world's food supply. This contribution by farmers forms the basis of the so-called Farmers' Rights.

The signatories to the Treaty have committed themselves to, among other things, protecting and promoting the rights of farmers within the framework of their national legislation. The Treaty lists the following areas for action:

- the protection of traditional farming knowledge
- the fair sharing of benefits that arise from the use of plant genetic resources
- participation in decision-making on their sustainable use
- the rights of farmers to sow or plant the seed or planting material they have produced themselves, to share them with others and to sell them.

The Treaty gives the signatories a wide scope to design laws suited to their own situations, or to amend existing laws, so as to contribute to the maintenance and sustainable use of biodiversity of varieties and seed in the future. However, only a few signatories have so far taken concrete steps in this direction.

(7) Farm-saved vs commercial seed are an odd couple

There thus exists a dual system for providing seed. On one hand is the traditional, farmer-based, property-free breeding and seed system. This still largely guarantees the supply of seed of locally adapted varieties in the Global South, but receives little support from the State, is increasingly marginalized, and is sometimes even being forced into illegality.

On the other hand, a private-sector and increasingly globally organized plant-breeding system is growing. This mainly serves lucrative market segments in industrialized and developing countries with few varieties. It excludes the role of biological diversity in food security from its area of responsibility and asserts ever more extensive property rights over varieties, characteristics and breeding methods. It enjoys widespread national and international support.

(8) Open source to support Farmers' Rights

The open source principle, which protects varieties as a commons, is based on the assumption that plant genetic resources are crucial for agriculture and nutrition, and that this diversity must be continually developed and created anew to suit challenges such as climate change. A basic requisite for this is unimpeded access to seed and its unrestricted use.

In this respect, open source is similar to the traditional farmer-based breeding and seed-supply system, in which the maintenance and further development of varieties and access to seed are guaranteed collectively. The open-source principle contradicts the private-sector business model that is grounded in intellectual property rights and restrictions on use.

Open source could strengthen the farmer-based seed sector and become an instrument that helps realize Farmers' Rights. An open-source licence could, for example, protect varieties that have been developed by local farmers – and that have hitherto been open-access – from appropriation and privatization, if this is not guaranteed by national legislation.

This protection could help maintain and legally secure traditional freedom from appropriation. It could motivate farmers to expand their breeding work, while the production and distribution of seed could be done in various ways to ensure access for many.

(9) Needed: case studies to test the open-source approach

Whether, and to what extent, an open-source licence is applicable cannot be determined in general. Rather, it must be done on a case-by-case basis in individual countries, referring to their national laws and regulations and their regional and international obligations.

At the local level, the following questions arise:

- What goals do local actors pursue with their farmer-based breeding and seed supply?
- What are the promoting and hindering factors?
- What role do intellectual property rights, varietal protection etc play in the view of these actors?
- Can the farmer-based seed sector be strengthened through the legal protection of seed as a commons?

At the national level, priority questions are:

- What is the significance of varietal protection and patents for major food crops?
- Do national laws protect against the appropriation of local and traditional varieties?
- What possibilities for distribution of seed (through replication, exchange and sale) are legal or practised?
- How are international obligations such as UPOV, ITPGRFA and the Nagoya Protocol of the Convention on Biological Diversity implemented nationally?
- Is plant variety protection optional or mandatory in the recognition of varieties?

At the regional level, the following should be investigated:

- Is open source legally valid in the case of the regional distribution and entry in regional variety catalogues (e.g., by the Economic Community of West African States, ECOWAS) or regional plant variety protection (e.g., the African Intellectual Property Organization, OAPI)?

To answer these and other questions, 2–3 countries with presumed potential should be selected. First, the legal framework and the possibilities with regard to the legal protection of the open-source principle should be investigated and an analysis should be made of the relevant actors. Then, the introduction of the licence with suitable actors (e.g. farmer seed initiatives) should be explored.