Variety registration and the loss of agrobiodiversity in Europe

The European community implemented a regulation in 1966 that made it obligatory to register varieties in an official variety list before their seed could be commercialized. Before being accepted in the variety list, varieties had to meet criteria of distinctness, uniformity and stability (DUS). Cereal species also had to meet the specific criteria set for value for cultivation and use (VCU). These requirements resulted in the spread of just a few varieties that performed well in uniform growing conditions. Practices that had commonly been used in more traditional farming systems were replaced with those of adapting the production environment to varieties, and of encouraging the intensive use of chemical fertilizers and pesticides, as well as an increasingly disproportionate amount of mechanization and, in some cases, irrigation. This process further encouraged the use of an ever-decreasing range of crops and varieties (i.e. farmers were encouraged or required to cultivate only those few varieties or crops as required or demanded by the food industry and major retailers). In this way, the requirement for registration in the variety list can be considered part of a larger process to create uniformity and promote the industrialization of agriculture, which as we now know caused the massive erosion of plant genetic resources (PGR). In each member state of the European Union (EU), a dramatically lower number of uniform and stable, and commonly used modern varieties has replaced a diversity of local varieties.

Variety list: obligations and exceptions

Each country handles the registration of varieties and the compilation of related information in lists in its own way. The common European catalogue is based on these national variety lists. The guidelines of the European regulation specify that only seed of those varieties that are included in the variety list are allowed to be commercialized, and as such farmers can only purchase seed of registered varieties. The guidelines do, however, provide space for the exchange of varieties for the purpose
of research, breeding and PGR conservation. Furthermore, they allow for the purchase and cultivation of seed of non-registered varieties by amateur gardeners, placing restrictions on the quantities of seed marketed, and on the use of those varieties for commercial production.

Vegetable variety list for amateur gardeners in France

An explosion in the sales of seed of traditional varieties that were not included in the list led to the development of another exclusion related to amateur gardeners in France. In 1997, with the aim of structuring the popular informal seed market, the French government introduced an annex, which is not obligatory, to its official vegetable variety list, allowing for the inclusion of old varieties used by amateur gardeners. The costs of registration were lower, and the registration criteria were much less rigid, than those of the official variety list. The registration of seed in this annex placed several conditions on the seed producers and traders targeting this market. The guidelines only permitted the sale of varieties in small packages. In addition, traders needed to maintain a strict administration of the sales of each variety. These conditions resulted in higher costs, which in the end had to be covered by the clients (i.e. amateur gardeners). The motivation to establish this rigid system was that of preventing seed producers and traders from circumventing the common vegetable variety list. Despite these restrictions, the amateur gardeners’ vegetable variety list quickly attained success, notwithstanding the creation of many bureaucratic obstacles by official seed agencies, including their common refusal to register old varieties.

The Kokopelli Association, which sells seed of its heirloom or traditional (non-registered) varieties without any specific labelling, was condemned for its lack of consistent labelling of vegetable seed. Its president was deemed guilty of having marketed the seed of unauthorized varieties; unauthorized because the Kokopelli Association had on principle decided not to register its seed in the annex. Widespread media coverage of this case throughout Europe reinforced the misconception that registration in this amateur gardeners’ vegetable variety list had become mandatory, regardless of the purposes for which the seed was sold. The amateur gardener’ vegetable variety list was discontinued in France, as from 1 January 2012. Those varieties that had been included in the list were transferred either to the list of conservation varieties or to the list of those varieties have been developed to meet specific growing conditions.

EU directives for conservation varieties

First non-binding directive

In line with the Convention on Biological Diversity (CBD, 1992a), and later with the Global Plan for Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture (FAO, 1996b), the European Union (EU) introduced the issue of in situ conservation of PGR into its seed legislation in 1998. EU Council Directive 98/95/EC thus states that ‘Specific conditions may be established
...to take account of developments in the areas of... conditions under which seed may be marketed in relation to the conservation *in situ* and the sustainable use of plant genetic resources, including seed mixtures of species, which... are associated with specific natural and semi-natural habitats and are threatened by genetic erosion’. The specific stipulations of this directive require a ‘known provenance approved by the appropriate Authority in each Member State for marketing the seed in defined areas [and] appropriate quantitative restrictions’.

It should be noted that the directive is not binding, and leaves the member states free to decide whether they want to impose these specific conditions on marketing or not. Given that PGR conservation was not considered to involve commercial seed marketing, and was therefore not covered by the obligations set by such directives that relate to the variety lists, the majority of member states continued to tolerate the trading or marketing of seed for the purposes of conservation or for amateur gardening, as well as for research and breeding. In this way, the directive followed a similar strategy to that of France, prior to its inclusion of the annex for vegetable varieties used by amateur gardeners.

**Introduction of mandatory directives and administrative acts**

Fearing that the Administrative Act of 1997 did not help the cause of maintaining its vegetable variety list for amateur gardeners, and protecting the seed industry, the French government approached the European Commission at the end of 2003 to ask it to clarify the mechanisms by which the EU directive should be implemented. After lengthy negotiations, the EU published a directive on agricultural crops and potatoes, in 2008 (EC, 2008), and on vegetables, in 2009 (EC, 2009).

These two EU directives, which are both mandatory rather than optional, define two new variety categories in the European variety catalogue: ‘conservation varieties’ of agricultural crops, potatoes and vegetables (EC, 2008), and ‘varieties created to meet specific growing conditions’ for vegetables (EC, 2009). Neither of the two categories of varieties can be protected by plant breeders’ rights (PBRs), and as such they remain in the public domain. This means that the cost of registration cannot be compensated by a marketing monopoly of the seed company or licence holder as is the case when PBRs are applicable. Some member states have consequently decided to take on all or part of the costs of registration.

The directives define conservation varieties as ‘landraces and varieties, which are naturally adapted to the local and regional conditions and threatened by genetic erosion’. Compared with the normal procedure for variety registration, the directives have broadened the criteria for uniformity, allowing up to 10% of off-type plants. They state that no official testing is required if the variety can be shown to be a conservation variety, by providing the following information: (a) the description of the conservation variety and its denomination; (b) the results of unofficial tests; (c) knowledge gained from practical experience during cultivation, reproduction and use, as notified by the applicant to the member state concerned; (d) other information, in particular from the plant genetic resource authorities or from organizations that are recognized by the member states (EC, 2008, 2009).
Constraints of the directives for conservation varieties

Despite the aforementioned relaxed criteria, the directives have numerous constraints. The standards of distinctness and stability are the same as for the normal EU catalogue and the national variety lists. As regards uniformity, the diversity of a population, by definition, covers all its components and not just the 10% that are off-types, as stated in the directives. The proportions of each of the components of a population may vary from one year to the next. No population, let alone a group of populations, can meet the proposed uniformity criteria. In order to register a variety as a conservation variety, the applicant must show that the variety is relevant to PGR conservation, and must prove that the variety is under threat of genetic erosion. Furthermore, proof must be provided that the variety has been cultivated historically in a region or regions, to which it is naturally adapted. Such regions are referred to as the ‘region of origin’. Seed of conservation varieties cannot be marketed outside that region. These restrictions exclude any recently created local varieties and confuse the justified protection of a defined region of origin with an unjustified restriction on their distribution. The production of seed of a conservation variety is limited annually by a quantum, in order to limit the total quantity of seed of those varieties put on the market. The varieties created to meet specific growing conditions, the second category, are not subject to these constraints, but their seed can only be marketed in very small packages corresponding to the need of amateur gardeners, with the stated aim of restricting their spread by increasing their unit price.

Limited implementation by member states

A few European countries have now published regulations on the implementation of these directives. Italy registered a number of conservation varieties in its national and regional variety lists, which had already been established by the authorities in several of its regions. These regional lists operate without altering the conditions for registration and distribution already in place. Switzerland, which is not an EU member, began a conservation list in 2010, but without any quantitative or geographical restrictions on the distribution of seed of the conservation varieties. The fact that shortly after the variety list was initiated a number of varieties had already been listed shows that those restrictive components of the EU directives were limiting their implementation.

Implementation in France

The French government began a conservation list in 2009, retaining the constraints of the European directive but without including any exemptions for small-scale farmers, amateur gardeners or local sales, as permitted under the European regulations. The potential applicants for registration of conservation varieties were put off by all these constraints, and by the associated bureaucracy, and none of them have as yet registered varieties at all in this variety list, despite the promise made by the French state to cover all registration costs.
Despite many efforts, the French government failed to establish its vegetable variety list for amateur gardeners at a European level, and was equally unsuccessful in making it mandatory. It therefore cancelled the specific annex of the vegetable variety list and intends to register all varieties in an annex to the list of ‘varieties created to meet specific growing conditions’, thus following the second category of the EU directive. But it is not very likely that organizations or seed producers and ‘informal’ traders of such varieties will be prepared to register new varieties in this register. Why should they bother with a variety list, if PGR that are exchanged for the purposes of conservation, and seed that is marketed for the purposes of amateur gardening, are not obligated to register varieties? When farmers produce for the agricultural market, how can they accept a quantum that limits them to produce seed that is just enough for a few acres? It would force them to eliminate off-type plants in their diverse populations of local varieties, and insert onerous approvals and checks on the location of seed production. Farmers interested in cultivating conservation varieties do not want to keep them mummified in a small corner of their farm or garden. Conservation is only achieved if farmers cultivate and use the varieties and, above all, contribute to the continuous dynamic renewal of agrobiodiversity by re-sowing a proportion of their crop each year and by exchanging their seed with others. Each year, this dynamism contributes to the continued generation of new diversity. Only in that manner can farmers guarantee adaptation to the soil and progress in agricultural techniques, and meet the requirements of consumers in potentially changing climatic conditions. Why should seed dealers impose additional costs that result from excessively strict geographical, quantitative or packaging limitations, if registration in the common variety list is still simpler, despite the cost?

It can be concluded that the EU directives and their regulations have been designed within the normal paradigm of conservationists, rooted in \textit{ex situ} conservation. They approach conservation and diversity disconnected from production and consequently, they consider those farmers who are interested in conservation solely as amateur gardeners or farmers. The design and formulation of the directives hinder the dynamic management of local and traditional varieties by professional and mostly small-scale farmers that operate within distinct regional or specialized markets, which we now know is vital for achieving \textit{in situ} conservation (Jarvis \textit{et al.}, 2011; De Boef and Thijssen, Chapter 1.8). This mismatch is confirmed by the fact that the new European directives on conservation varieties fail to meet the stated objective of favouring \textit{in situ} conservation through the implementation of new rules for marketing seed of local varieties. The EU directives can in fact be considered failures; and the variety list for conservation varieties has only been a success in one non-member state, Switzerland, where it has been implemented with significant adaptation.

**The need for a legal system that promotes dynamic on-farm management**

As we can see from those efforts that were made to create a legal space for local varieties in the highly organized and regulated formal seed system of Europe, the informal seed system, with its dynamic use and exchange of local varieties, cannot be satisfied with just a small niche within the mainstream regulatory set-up intended
for the industrial seed system. The EU directives and the French regulations created a niche that is too narrow for the conservation and renewal of PGR on farms. More importantly, they created a system that undermines the dynamic processes required for in situ on-farm conservation, or for those practices that contribute to community biodiversity management, as described by various authors in this volume.

The use of standardization procedures that impose uniformity and stability will gradually halt the continuous evolution of varieties, which is part of the goal to achieve in situ conservation of PGR. What is required is a system that promotes the use of diversity and high intra-varietal variability that allow for dynamics and continuous local adaptation. Based on our experiences, such as with the Maison de la Semence Paysanne, as described by Kendall and Gras (Chapter 1.7), and on the multitude of other experiences shared in this book, we suggest that the following limited information should be required for the registration of a conservation variety:

- the variety name, which of is often associated with the place of origin;
- the name of the producer who has propagated the variety;
- indications on the methods of cultivation required;
- the breeding methods used;
- the provision of guarantees concerning the reproductive properties (such as seed quality and viability);
- the guarantee that there has been no contamination by genetically modified organisms or patented genes.

To assist farmers in contributing to the conservation of PGR in a dynamic manner on their farms, the EU should shelve its directives for conservation varieties and transform it to allow for more flexible variety lists. It should accommodate local varieties that are characterized by being populations and therefore are less stable and less uniform. In this way, they can be better adapted to regional and organic cultivation methods. The EU and its member states should move away from restrictive regulations and top-heavy bureaucracy towards creating an enabling environment for farmers who contribute to conservation. The informal seed system and farmers’ practices for conserving, utilizing, exchanging and selling the seed of local varieties from their farms should be recognized, thereby facilitating their role as custodians of PGR. Such recognition would add another dimension to the EU commitment to the International Treaty on Plant Genetic Resources for Food and Agriculture, in terms of contributing to the implementation of farmers’ rights in Europe.