New GMOs, Patents on Seeds and Peasants’ Rights to Seeds in Europe

How are patents on seeds negatively impacting small and medium seed enterprises and Peasants’ Rights to seeds: will the European Union take advantage of the lessons learnt in the past?

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What are patents for?
The aim of the patent system is to enable innovation and make sure that research costs can be recuperated by innovators. Once a patent is granted, an invention is protected and in exchange, there is the obligation to disseminate the invention and the patented processes. Patents were originally developed for chemical and industrial products.

Patents on living organisms: where are we in the European Union?
It is only relatively recently that this system has been extended to living organisms (micro-organisms, plants and animals). This therefore raises the question of whether living organisms can be considered as "inventions" subject to intellectual property. For this reason, the patentability of living organisms is the subject of fierce controversy, particularly between the European Parliament and the European Patent Office (EPO).

In theory, European legislation concerning patents on living matter excludes plants and animals resulting from traditional crossing and selection processes, but the practices of the EPO in recent years have made it possible to patent plants resulting from these so-called "essentially biological" processes. Of the 3,500 patents granted on living matter in Europe by the EPO¹, most concern genetically modified organisms, but some concern organisms derived from conventional breeding processes.
The application of the current European GMO legislation (Directive 2001/18) obliges the breeder to indicate the process by which their GMO can be distinguished from any other organism existing naturally or obtained by traditional breeding processes. However, it does not prevent the scope of a patent relating to a trait obtained by means of a patentable process, (for example resistance to a pathogen) from being extended to any plant (or animal) resulting from traditional breeding and bearing a similar "native" trait of resistance to the same pathogen.

What is at stake with new GMOs?
With the emergence of new GMOs, this extension of the scope of patents may lead to "patent abuse". Seed companies claim to do the same thing with new genomic techniques as nature or traditional breeding, but in a faster and more targeted manner. In their description of the new traits that result from their inventions, they therefore do not make any distinction between similar native traits.

If new GMOs are excluded from the GMO regulations, there is then no obligation for the breeders to describe the new traits that come from the new GM techniques in a way to distinguish them with similar native traits. In the absence of a tool to make this distinction, the scope of a patent on "genetic information", (introduced into a plant or animal using a new genetic modification technique to justify the granting of the patent), then extends to any plant or animal that contains the same "genetic information". This includes plants and animals derived from traditional or peasant breeding without any use of the patented invention or products derived from it. This could lead to a generalised privatisation of living organisms, made possible by the combination of the current patent model and the potential deregulation of new GMOs.
What are the consequences for the global and European seed market?

The patent model encourages the concentration of the seed market in the hands of a few large multinational companies. When a start-up registers a patent on a new genetic engineering process, it cannot use it without falling under the control of one or more patents already held by these transnational companies. If their invention is interesting, the conditions of the licensing market generally force them to be absorbed or to sign exclusive contracts to further grow these multinational companies.

At the global level: the seed market is dominated by four firms (2018 figures): Bayer (which acquired Monsanto in 2018), DowDupont, ChemChina (which acquired Syngenta in 2017) and BASF (which acquired Bayer's seed divisions). These four companies alone control more than 60% of a global market estimated at between US$45-50 billion². Concentration in the seed market is an accelerating phenomenon: in the 1980s, the market share of the 10 largest companies was still less than 15%. A multitude of small and medium-sized enterprises were still active in the seed market. Today, the 10 largest companies control 70% of the market³.

In the European Union: according to figures from a report of the European Commission, five large companies controlled 95% of the vegetable seed market in 2013⁴. Monsanto alone (taken over by Bayer in 2018) controlled 24% of the vegetable seed market in the EU in 2008⁵. In 2014, 5 companies controlled 75% of the maize seed market; 4 companies control 86% of the sugar beet seed market⁶.
What are the consequences for small-scale seed operators and agricultural biodiversity?

According to a report by IPES-Food, concentration in the seed market has led to the disappearance of most small and medium-sized seed companies, a narrowing of the range of varieties developed, and a dependence of farmers on a handful of suppliers. This concentration also reinforces the industry's tendency to focus research on a limited number of commercially profitable species and varieties. For example, in 2017, 40% of private sector research efforts were focused on a single species: maize.

An FAO report (2019) states that: "Overall, diversity in farmers' fields has declined and threats to diversity are increasing. (...) There is a broad consensus that, overall, the shift from traditional production systems using farmers' varieties/breeds of land to "modern" production systems relying on officially released varieties is leading to genetic erosion. Many peasants’ varieties/species would have disappeared or become rare". Thus, less than 200 plant species are cultivated at significant levels of production, and only 9 plant species account for 66% of production.

Why are seed patents incompatible with peasants’ rights to seeds?

Until this point in time, patents have limited the right of farmers to use their own seed from varieties protected by a Plant Breeders' Rights Certificate and containing a patented trait, as well as from their own selections in case of contamination by a patented gene.
In the event of deregulation of new GMOs, the multinationals that hold the largest patent portfolios could claim a monopoly on the use of all seeds and other "genetic resources" available on the planet, demand licence fees for the use of varieties developed by their competitors and suppress the right of farmers to save, breed, use, exchange and sell their own seeds and animals as long as these varieties, seeds, genetic resources or animals contain genetic information that they have patented.

**Why is it essential for peasants’ rights to seeds to be respected in society?**

Peasants’ rights to seeds have been recognised in the Declaration of Peasants’ Rights, adopted by the UN in December 2018. It is therefore a human right that has to be respected by States. Moreover, the protection of peasants’ rights to seeds is also beneficial to agricultural biodiversity and food security. Indeed, there are no less than 2,1 millions peasant seeds varieties and 7000 listed species¹⁰.

Peasants’ seeds, unlike industrially selected varieties, are guarantors of genetic and agricultural diversity. This diversity enables them to better adapt to varied territories and climates, without resorting to chemical inputs, with a consequent greater resilience to climate change. It should also be pointed out that today 80% of farmers use farmers' seeds and produce 70% of the food available worldwide, ensuring a major part of food security without using patented varieties or GMOs¹¹.
The recommendations of the European Coordination Via Campesina for the implementation of farmers' rights to seeds in Europe:

1. Strict and sustainable application of the current European regulations to all new GMOs;
2. Immediate implementation of a research programme to develop the technical procedures necessary for the routine identification of undeclared GMOs;
3. Establishment of sanctions that are sufficiently severe to discourage any attempts at fraud;
4. Obligation to publish information on all breeding, selection and multiplication techniques for all seeds on the market;
5. Protection of peasants’ collective rights to save, use, exchange and sell their seeds. No limitations for "small-scale" peasants;
6. Immediate implementation of massive on-farm peasant-breeding programmes in collaboration with research;
7. Prohibition of the patentability of plants and animals obtained exclusively by essentially biological processes, including their components and the genetic information they contain;
8. Prohibition of the extension of patent protection to a product containing or consisting of genetic information to biological materials exclusively obtained by essentially biological processes;
9. Cancellation of patent protection in the case of fortuitous or accidental presence of patented genetic information in seeds, plant propagating material, plants and plants or parts of plants;
10. European and national implementation of farmers' and peasants' rights to seeds on the basis of Article 9 of the International Treaty on Plant Genetic Resources for Food and Agriculture and on the basis of Article 19 of the United Nations Declaration on the Rights of Peasants and Other Persons Working in Rural Areas. This means that the EU and the EU Member States shall ensure that seed policies, plant variety protection and other intellectual property laws, seed marketing laws, variety registration and certification systems respect and take into account the rights, needs and realities of farmers.

References

³ Public Eye. (s.d.). Semences : La dangereuse concentration du marché: https://www.publiceye.ch/fr/thematiques/semences/concentration