

# no patents on seeds

## Stop patents on plants and animals!

A background from no patents on seeds ([www.no-patents-on-seeds.org](http://www.no-patents-on-seeds.org)).

With the rise of genetic engineering in the 1980s, companies started lobbying heavily for patents covering microorganisms, gene sequences, plants and animals. In the United States a patent on a microorganism filed in 1980 (the so-called Chakrabarty case)<sup>1</sup> was seen as a turning point, while in Europe it was the adoption of the European directive “On legal protection of biotechnological inventions” (98/44 EC). The European directive was discussed for more than ten years and adopted by the European Parliament in 1998. It was adopted by the European Patent Office (EPO) in 1999. The directive allows patents on plants, animals and genetic resources, and even on parts of the human body.

### Plant varieties and genetically engineered plants at the EPO

The European patent directive 98/44 drastically changed the legal situation, undermining the existing prohibition of patents on plant varieties. On the one hand, patents on plant and animal varieties are still excluded from patentability (as they were before under the European Patent Convention, EPC), but on the other hand, patents can be granted if the patent claims are not directed to a particular variety. Article 4 of the EU Patent Directive reads:

*“1. The following shall not be patentable:*

*(a) plant and animal varieties;*

*(b) essentially biological processes for the production of plants or animals.*

*2. Inventions which concern plants or animals shall be patentable if the technical feasibility of the invention is not confined to a particular plant or animal variety.”*

The patent directive was then adopted by the EPO, and, following this, the EPO’s Enlarged Board of Appeal decided that patents can even be granted if plant varieties are within the scope of the claims (decision G1/98). If, for example, a particular tomato variety with big red fruit were to be claimed as an invention, this application would probably be rejected. However, if someone applies for a patent on tomato plants in general with bigger red fruit, this might become an invention, even if dozens of varieties are included. As a result opposition to patents such as Monsanto’s patent on *Roundup Ready* soybeans (EP 0546090) covering plant material, gene sequences and plant varieties were rejected. Even legal experts at the EPO perceived this situation as comparable with a law prohibiting bigamy but allowing polygamy (T1054/96). Patents on genetically engineered plants are routinely granted by the EPO; they cover all relevant material, such as seeds, plants and harvest, and subsequent crossings and generations. Meanwhile, around 2000 patents on plants have already been granted in Europe.

### Conventional breeding

Because conventional breeding has become more and more important in comparison to genetic engineering for the purpose of producing complex traits such as those needed for adaption to climate change, a second prohibition in European patent law has become an issue of major dispute. It is Article 4, 1 (b), which prohibits patents on

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<sup>1</sup> [http://en.wikipedia.org/wiki/Diamond\\_v.\\_Chakrabarty](http://en.wikipedia.org/wiki/Diamond_v._Chakrabarty)

*“essentially biological processes for the production of plants or animals.”*

European patent directive 98/44, also offers an industry-friendly solution to this problem—the legal definition of “essentially biological processes” is open to a broad range of interpretations. Article 2 of 98/44 EC reads:

*“A process for the production of plants or animals is essentially biological if it consists entirely of natural phenomena such as crossing or selection.”*

This definition has now been under discussion at the EPO for several years. In 2010, the EPO decided (Decision G1/08) that according to this definition

*“a process for the production of plants which contains or consists of the steps of sexually crossing the whole genomes of plants and of subsequently selecting plants is in principle excluded from patentability as being “essentially biological” within the meaning of Article 53(b) EPC.”*

But still the debate is not settled, since the EPO continues to grant patents such as on breeding material, mutational breeding, selection of plants and animals and even products derived from essentially biological processes (see Then&Tippe, 2012).

In the light of this dispute, it is of high interest that the European Parliament in 2012 adopted a resolution stating:

*“Calls on the EPO also to exclude from patenting products derived from conventional breeding and all conventional breeding methods, including SMART breeding (precision breeding) and breeding material used for conventional breeding.”*

It is an open question if the EPO will now follow the line of the EU Parliament. The EPO is not part of the EU system. But the EPO adopted the EU patent directive 98/44 - now it should also accept guidance from EU institutions on how to interpret this regulation.

## **Some consequences of patents on seeds**

The big players in the international seed market such as Monsanto, Dupont, Syngenta and Bayer originated in the agrochemicals sector and have shown a special interest in the global seed market ever since the 1980s when genetic engineering in plants became technically feasible. From the beginning, the introduction of genetically engineered seeds was strongly connected with the idea of a new quality of corporate control. For example, a 1992 OECD publication<sup>2</sup> stated that, within the seeds sector, the main company focus should be on the reorganisation of the seed market, leading to a greater integration and dependency with the agrochemicals sector. Genetic engineering and patents served as a major tool in this context. Any gene sequence introduced into plant material also confers its patent protection to seeds, plant and progenies, all along the chain of farm and food production up to markets such as food and biofuels.

Patents on seeds and methods for conventional breeding interrupt the process of innovation in plant breeding and block access to essential plant genetic resources. Furthermore, they foster market concentration, hamper competition, and serve to promote unjust monopoly rights. Such patents have

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<sup>2</sup> OECD, Biotechnology, Agriculture and Food, Published by OECD Publishing, (1992), OECD Code: 931992031P1, ISBN 92-64-13725-4.

nothing to do with the traditional understanding of patent law or with giving fair rewards and incentives for innovation and inventions. Based largely on trivial technical features, such patents abuse patent law, using it as a tool of misappropriation that turns common agricultural resources needed for food production into the intellectual property of some companies.

Moreover, particular methods, genetic conditions or plant characteristics are being claimed in parallel by several companies by just varying a few technical details. In the future, these claims are likely to create legal uncertainties for all breeders and cause many court battles due to patent infringements. While large companies may (eventually) find solutions to this situation, smaller enterprises, breeders, and farmers will get lost in a jungle of 'patent thickets' and monopoly claims. This will further foster market concentration, leaving only a few dominant companies standing. In this scenario, the future of seeds and foods in Europe and other areas could look like the present situation in the United States with respect to genetically engineered plants. Competition, choice for farmers and diversity in crops are all in danger of rapidly shrinking if large seed companies take global control.

## Some conclusions and political demands

Patents on seeds and plants derived from conventional breeding can severely obstruct access to plant (and animal) genetic resources necessary for plant breeding and agricultural production. The spread of such patents will foster concentration, cause price increases, and create even stronger dependencies for farmers and breeders and, in the longer run, for consumers.

The current situation of patents has been heavily criticised by International Assessment of Agricultural Science and Technology for Development (IAASTD), a global consultative initiated by the World Bank and the Food and Agriculture Organization of the United Nations, and conducted by 400 scientists over a period of three years. The assessment concluded that,

*“In developing countries especially, instruments such as patents may drive up costs, restrict experimentation by the individual farmer or public researcher while also potentially undermining local practices that enhance food security and economic sustainability.”<sup>3</sup>*

Coming from this background, the coalition of 'no patents on seeds' is demanding no patents on:

- Plants and animals
- Process for breeding plants and animals
- Gene sequences from plants and animals
- Food derived from plants and animals

### Further reading:

Then, C. & Tippe R., 2011, Patents on melon, ham and broccoli? Change of paradigm in patent law: From protection of inventions to control of genetic resources, Environmental Law Network International 2/11, elni review, Seite 53-57, <http://www.elni.org/home.0.html>

Then, C., & Tippe, R., 2012, European Patent Office at Crossroads, Report – Patents on Plants and Animals Granted in 2011 Christoph Then & Ruth Tippe, [www.no-patents-on-seeds.org](http://www.no-patents-on-seeds.org).

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<sup>3</sup> <http://www.greenfacts.org/en/agriculture-iaastd/1-2/3-biotechnology-for-development.htm#0>