

# no patents on seeds

Background information:

## **Opposition against Monsanto patent EP2134870 on the selection of soybeans**

In February 2014, the European Patent Office in Munich (EPO) granted a patent to Monsanto on screening and selecting soybean plants adapted to various climate zones (EP2134870). The plants supposedly have higher yields in different environmental conditions. The plants concerned are wild and cultivated species from Asia and Australia. According to the patent, more than 250 plants from “exotic“ species were screened for variations in climate adaption potential and variations in the period of time needed until maturity and harvesting. Monsanto has gained a monopoly with this patent on the future usage of hundreds of natural DNA sequence variations in the conventional breeding of soybeans.

### **1. Some background on the patent**

The title of the patent is “Utility of SNP Markers associated with major soybean plant maturity and growth habit genomic regions”. SNP are so-called single nucleotide polymorphism, which are known as natural variations of genetic conditions within the plant species. The SNP markers can be used in marker assisted selection for screening for specific genetic conditions. The SNPs described in the patent are related to adaption of plants to various climate zones. These genetic traits are of interest for plant breeding because they can be decisive for the time needed until maturity and harvesting. Amongst others, the SNPs can be used to breed soybeans adapted to conditions of climate change.

The descriptions in the patent clearly reveal that this is a case of intentional biopiracy. There is a suggestion that the genetic base of soybeans grown in the US can be expanded by crossing with species from other origins. The species that were screened were found originally in Asia and Australia, and designated just as “exotic” to hide the way they were accessed:

“Soybean varieties grown in the United States have a narrow genetic base. (...) The genetic base of cultivated soybean could be widened through the use of exotic species. In addition, exotic species may possess such key traits as disease and stress resistance.”

It remains completely unclear whether the plants from species originating from the Asia-Pacific region were accessed by sampling from the centers of origin or by material transfer from national, or international gene banks or obtained from private collections. There is considerable doubt about whether access was legal at all. The patent concerns around 20 species taken from around 250 plants screened for relevant genetic conditions:

“the selected plant is from the group consisting of members of the genus *Glycine*, more specifically from the group consisting of *Glycine arenaria*, *Glycine argyrea*, *Glycine canescens*, *Glycine clandestina*, *Glycine curvata*, *Glycine cyrtoloba*, *Glycine falcata*, *Glycine latifolia*, *Glycine latrobeana*, *Glycine max*, *Glycine microphylla*, *Glycine pescadrensis*, *Glycine pindanica*, *Glycine rubiginosa*, *Glycine soja*, *Glycine sp.*, *Glycine stenophita*, *Glycine tabacina*, and *Glycine tomentella*.”

Monsanto is claiming a monopoly on the usage of several hundred genetic markers listed in the patent for selection of soybean plants as their invention:

Claim 1: A method of screening and selecting a soybean plant or soybean seed for maturity group association comprising: (a) assaying genomic nucleic acids of said soybean plant or soybean seed for the presence of a genomic maturity marker genetically linked to a genomic region, wherein said genomic region is associated with a plant maturity group (...)

## 2. Some legal background

According to the text of the European Patent Convention, EPC, patents on plants and animals are mostly excluded from patentability. Article 53 (b) reads:

“European patents shall not be granted in respect of:  
(b) plant or animal varieties or essentially biological processes for the production of plants or animals; this provision shall not apply to microbiological processes or the products thereof.”

This patent concerns “essentially biological processes for the production of plants”. It is not directed at genetic engineering, it does not cover plants and seeds, but processes for breeding and the usage of genetic traits detected in natural diversity.

Currently, the EPO interprets Art 53 (b) in such a way that no patents can be granted on processes for crossing of plants and subsequent selection of plants. However – surprisingly - if selection is performed before crossing it is regarded as being patentable. As a result, the prohibition can be easily circumvented and companies such as Monsanto can gain broad monopolies on the most basic prerequisite in plant breeding - the usage of natural genetic diversity. Patents like this can be used to control all subsequent steps of the breeding process. In addition, they can have a so-called chilling effect even without any further action being taken by Monsanto: Other breeders might very well avoid any further breeding in this context to ensure that they do not infringe this very broad patent.

In a report published by the Coalition of “No Patents on Seeds!” in 2014, the decision-making of the EPO is exposed as an intentionally created legal absurdity. According to the report, this interpretation of patent law was established to serve the interests of industry as well as of the EPO: The European Patent Office itself earns money by granting and examining patents, its budget (2014: 2 Billion €) is mostly based on fees from patent holders (revenue from patent and procedural fees in 2013: 1,5 Billion €).

In 2015, the Enlarged Board of Appeal is expected to make decisions on the patentability of plants and animals derived from conventional breeding, based on precedent cases of patents on tomato and broccoli (G2/12 and G 2/13). However, regardless of the outcome of these cases the EPO will continue to grant patents on the selection of plants and animals.

For this reason the coalition “No Patents on Seeds!” is urging political initiatives to take control at the European Patent Office. Maintaining and safeguarding free access to material needed for plant and animal breeding and agricultural production should become a political priority. We have to make sure that the needs of farmers, traditional breeders and consumers are met and we are not left solely with the vested interests of the 'patent industry'.

A resolution adopted by the European Parliament in May 2012, “calls on the EPO to exclude from patenting products derived from conventional breeding and all conventional breeding methods.” However, this resolution has so far been widely ignored by the EPO. A political initiative to stop these patents could be taken by the Administrative Council of the EPO, which is made up of representatives of the European governments. The German government has already announced a European initiative in this regard. In January 2014, the French Senate asked the government of France to become actively involved. However, so far no further decisions have been made.