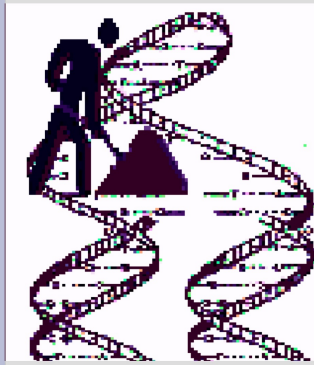


Patents on Seeds and Farm Animals



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- **ethical, legal and economic problems**

ethics in life sciences
Hannover,
24 April 2008

general problems with >patents on life<

- ethical reasons: living nature is not a technical invention
- scientific arguments: a gene sequence is not a normal chemical substance but a code of information with a lot of different functions. A holder of a patent which describes one commercial use should not get a monopoly on all possible functions.
- Social and economical reasons: Patents can block access to genetic resources. This is a problem in agriculture, plant breeding and health care.

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Granted patents in Europe: Overview 1980-2005

Granted:

Gene sequences humans / animals	1800
• Animals	270
• Plants	580

Applications (approximately):

• Gene sequences humans/ animals	20000
• Animals	5500
• Plants	6000

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Behind the patents: growing corporate control

Nearly all big **seed companies** are owned by agrochemical companies:

- Monsanto, Syngenta, Dupont, Bayer became the THE major players, companies like Pioneer, Seminis and DeKalb only kept their names but changed their owners.
- Till 2005 US company Monsanto spent about 10 billions \$ US in 10 years, to buy up companies in agricultural sector, many of them seed companies.

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Behind the patents: growing corporate control

increasing concentration in **animal production**:

- very few breeders in poultry business
- ongoing integration in pig producing
- cattle breeding to some extent still in the hand of farmers
- growing interest of big corporates in the animal **breeding business** (see "Livestock Genetics Companies, Concentration and proprietary strategies of an emerging power in the global food economy", League for Pastoral Peoples and Endogenous Livestock Development, 2007)

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the oncomouse case



Europäisches Patentamt
European Patent Office
Office européen des brevets

Publication number: 0 169 672 B 1

EUROPEAN PATENT SPECIFICATION

Date of publication of patent specification: 13.05.92 Int. Cl.⁵: C12N 15/85, G01N 33/574, A01K 67/027

Application number: 85304490.7

Date of filing: 24.06.85

Method for producing transgenic animals.

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the oncomouse case



- precedent case: the animal and following generations were subjected to patent monopoly
- main argument was benefit for patients (but this model did not turn out to be useful)
- in fact the patent even was a hindrance for research

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case studies: plants



Europäisches Patentamt
European Patent Office
Office européen des brevets

(19)

(11) EP 0 546 090 B1

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:
19.06.1996 Bulletin 1996/25

(21) Application number: 91917090.2

(22) Date of filing: 28.08.1991

(51) Int. Cl. C12N 15/54, C12N 15/82, C12N 5/10, A01H 5/00

(86) International application number: PCT/US91/06148

(87) International publication number: WO 92/04449 (19.03.1992 Gazette 1992/07)

(54) GLYPHOSATE TOLERANT 5-ENOLPYRUVYL-SHIKIMATE-3-PHOSPHATE SYNTHASES
GLYPHOSATTOLERANTE 5-ENOLPYRUVYL-3-PHOSPHOSHIKIMAT-SYNTASEN
SYNTASES DE 5-ENOLPYRUVYL-SHIKIMATE-3-PHOSPHATE TOLERANT LE GLYPHOSATE

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Patent of Monsanto, herbicide resistant plants



Claim 28: "A glyphosate tolerant plant .. Selected from the group consisting of corn, wheat, rice, soybean, cotton, sugarbeet, oilseed rape, canola, flax, sunflower, potato, tobacco, tomato, alfalfa, poplar, pine, apple and grape."

Claim 29: "A method ..planting said crop seeds....and applying to said crop and weeds in said field a sufficient amount of ... herbicide"

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Patent of Monsanto, herbicide resistant plants



On the basis of this patent Monsanto even filed court cases against soy shipments of Argentinean farmers in Europe to enforce royalties.

The patent covers seeds, plants, planting and harvest.

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case studies: plants



 **Europäisches Patentamt**
European Patent Office
Office européen des brevets

(19)  (11) **EP 0 744 888 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent: 30.08.2000 Bulletin 2000/35

(51) Int. Cl.⁷: **A01H 1/02**

(86) International application number: PCT/US95/02076

(21) Application number: 95913485.9

(87) International publication number: WO 95/22598 (24.08.1995 Gazette 1995/36)

(22) Date of filing: 15.02.1995

(54) **CORN GRAINS AND PRODUCTS WITH IMPROVED OIL COMPOSITION**
MAISKÖRNER UND PRODUKTE MIT VERBESSERTEM ÖLGEHALT
GRAINES DE MAIS ET PRODUITS A COMPOSITION HUILEUSE AMELIOREE

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Patent of Dupont, high oil maize corn



- Claim 1: Corn grain having a total oil content of at least
- Claim 8: Animal feed comprising the corn grain
- Claim 11: Method of improving the carcass quality of animals by feeding ...
- Claim 14: The use of the oil .. in food, animal feed, cooking..
- Claim 15: The use of the oil .. To make margarine, salad dressings, cooking oils ..

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Patent of Dupont, high oil maize corn



- Claim 16: A method for producing the corn grain ...
 - planting ...
 - permitting said male corn plants to pollinate..
 - Harvesting the resulting corn grain on all corn plants

Patent was revoked after opposition as not being inventive.

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New controversy about marker assisted breeding

MAB (marker assisted breeding) makes it possible to identify normal occurring genetic conditions which are for example related to pest or stress resistance, important food compounds (minerals, vitamins) or higher yielding.

There is a change in the underlying paradigm: The genomic data are no longer only relevant for genetic engineering in plants, but for optimizing conventional breeding.

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the broccoli case (G2/07) – precedent case in normal breeding



 Europäisches Patentamt European Patent Office Office européen des brevets		 (11) EP 1 069 819 B1
(12) EUROPEAN PATENT SPECIFICATION		
(45) Date of publication and mention of the grant of the patent: 24.07.2009 Bulletin 2009/30	(51) Int. Cl. 7: A01H 5/10	(68) International application number: PCT/IB99/01070
(21) Application number: 95915896.8	(67) International publication number: WO 99/52345 (21.10.1999 Gazette 1999/42)	
(22) Date of filing: 03.04.1999		
(54) METHOD FOR SELECTIVE INCREASE OF THE ANTICARCINOGENIC GLUCOSINOLATES IN BRASSICA SPECIES		
VERFAHREN ZUR SELEKTIVEN ERHÖHUNG DES ANTICARCINOGENEN GLUCOSINOLATE BEI BRASSICA SORTEN		
PROCEDE PAR SELECTION D'ACCROISSEMENT DES GLUCOSINOLATES ANTICARCINOGENES DE LA BRASSICA		
(84) Designated Contracting States: AT BE CH CY DE DK ES FI GB GR IE LI LU MC NL PT SE Designated Extension States: AL LT LV MK RO SI	(58) References cited: • MITTEN, R.F. ET AL.: "Glucosinolates of wild and cultivated brassica species" PHYTOCHEMISTRY, vol. 26, no. 7, 1987, pages 1959-1973, XP052110359 cited in the application • CARLSON, D.G. ET AL.: "Glucosinolates in Crucifer Vegetables: Broccoli, Brussels Sprouts, Cauliflower, Collards, Kale, Mustard Greens and Kohlrabi" JOURNAL OF THE AMERICAN SOCIETY OF HORTICULTURAL SCIENCE, vol. 112, no. 4, 1987, pages 173-178, XP002110360 cited in the application • FAHEY J.W. ET AL.: "Broccoli sprouts: an exceptionally rich source of inducers of	
(30) Priority: 06.04.1998 US 01199 P		
(43) Date of publication of application: 24.07.2001 Bulletin 2001/04		
(73) Proprietor: Plant Bioscience Limited Norwich, Norfolk NR4 7UH (GB)		

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the broccoli case (G2/07)



1. A method for the production of *Brassica oleracea* with elevated levels of (...) glucosinolates (...) which comprises:
 - (a) crossing wild *Brassica oleracea* species with *Brassica oleracea* breeding lines; and,
 - (b) selecting hybrids with levels (...) glucosinolates (...), elevated above that initially found in *Brassica oleracea* breeding lines.

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the broccoli case (G2/07)



9. An edible *Brassica* plant produced according to the method (...)
10. An edible portion of a broccoli plant produced according to the method (...)
11. Seed of a broccoli plant produced according to the method (...)

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Patent applications from Syngenta on rice genome



More than a dozen patents were filed worldwide, more or less claiming property on the whole genome of the rice plants

Several thousands of gene sequences were claimed as invention of Syngenta.

Related plant qualities are resistance to certain stress conditions (WO 03/008540) and against pest organism (WO 03/000905) as well as compounds of special nutritional value (WO 000906).

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Patent applications from Syngenta on rice genome



All uses of the listed gene sequences were claimed.

Claims are aiming to all gene sequences with similar structures and similar functions.

All other plant species with similar genes were covered by the patent applications

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Monsanto Patent applications on pigs



From 2005 on, the US company Monsanto filed about a dozen global patent applications on normal pigs and related breeding methods.

After public protests, the company withdrew some most controversial claims and sold its animal business in September 2007

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Monsanto Patent applications on pigs



Examples:

WO 2005/015989 covers the idea how to combine the normal elements of breeding and claims whole herds of animals.

WO 2005/017204 refers to genetic diagnosis of pigs for a certain gene, which is related to faster growth. Not only the method is claimed but also the whole animals are subjected to the claims.

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Monsanto Patent applications on pigs



In 2008 the application WO 2005/017204 will be granted by EPO as EP 1651777.

Monsanto withdraw claims on animals and gene sequences, but the patent still covers a process of breeding in normal pigs. The animal business of Monsanto was announced to be sold in September 2007.

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Patent on process for breeding of dairy cows



EP 1 330 552 B1

MARKER ASSISTED SELECTION OF BOVINE FOR IMPROVED MILK PRODUCTION USING DIACYLGLYCEROL ACYLTRANSFERASE GENE DGAT1

Granted 24.01.2007

Opposed by farmers organisations and several NGOs

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Patent on process for breeding of dairy cows



15. A method of determining genetic merit of a bovine with respect to milk composition and volume ...

17. A method of selecting a bovine

18. A method of identifying a bovine which possesses a genotype indicative of altered milk production traits ..

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the Cornell case EP 0637200



Claim 1:

"A method of bovine herd management comprising the steps of:

- a) gathering data on milk production (...)
- b) using a mathematical herd management model (...)
- c) establishing a database (...)
- d) continuously updating said database (...)
- e) making physical changes to said herd based upon information in said database, in order to increase milk productivity of said herd (...)"

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the Cornell case EP 0637200



it took six years and about 100.000 € to revoke a patent which was

- based on a not patentable business method
- not inventive

Revoked in 2007. If the breeders would have lost the case, every breeding of dairy cows could get dependent on licenses fee

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legal framework



EU
27 Member States
controlled by ECJ
Directive 98/44



EPO
32 Member States
Budget based on granting of patents
no independent court
controlled by Administrative Council
European Patent Convention and Dir 98/44

DPMA
European patents finally
get legally binding national patents
controlled by court



EU Legal framework - plants / animals (Dir. 98/44)



Article 4

1. The following shall not be patentable:
 - (a) plant and animal varieties;
 - (b) essentially biological processes for the production of plants or animals.

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EU Legal framework - plants / animals (Dir. 98/44)



Article 4

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**

Article 2 (Definition)

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

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EU Legal framework - plants / animals (Dir. 98/44)



Article 8

- 1. The protection conferred by a patent **on a biological material** (...) shall extend to any biological material derived from that ..
- 2. The protection conferred **by a patent on a process** (...) shall extend to biological material directly obtained through that process and to any other biological material

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EU Legal framework - animals (Dir. 98/44)



Article 6 (ethical boundaries)

not patentable:

(d) „processes for modifying the genetic identity of animals which are likely to cause them suffering without any substantial medical benefit ...“

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legal framework to be amended



- life forms such as gene sequences and living beings should be kept in public domain. If necessary, only soft IP should apply.
- socio economical implications should be acknowledged as criteria to reject patents under ordre public.
- as a first step prohibitions should be reinforced regarding plants and animals.

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Need to act



Patents on seeds and farm animals are concerning most basic resources of food production.

More and more they also concern energy markets.

The patent holder [claiming plants, seeds, harvest and further processing] controls both markets – who pays the price?

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Need to act



“Because of the generally negative effects of patents in plant breeding, the UK Commission on Intellectual Property Rights explicitly advises developing countries to completely ban patents on plants and seeds.”

(UK Commission on Intellectual Property Rights, 2002, Integrating Intellectual Property Rights and Development Policy, <http://www.iprcommission.org>)

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Need to act



„If this trend isn't halted, some experts claim, tomorrow's supercrops may end up like many of today's medicines: priced out of the reach of much of the developing world's growing population. `We are headed down the same path that public-sector vaccine and drug research went down a couple of decades ago,´ says Gary Toenniessen, director of food security at the Rockefeller Foundation in New York.”

Crop improvement: A dying breed, Nature 421: 568-570, by Jonathan Knight, Feb 6, 2003

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Need to act



IAAST (International Assessment of Agricultural Science and Technology for Development), 2008:

“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. “

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

www.scouting-biotechnology.net

Adresse: <http://www.no-patents-on-seeds.org/index.php>

no patents on seeds

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NO PATENTS ON SEEDS AND ANIMALS

Stop the expropriation of farmers and breeders

The continuing patenting of seeds, conventional plant varieties and animal species leads to far-reaching expropriations of farmers and breeders: farmers are deprived of their rights to save their harvested seeds, and breeders are under strong limitations to use the patented seeds freely for further breeding.

The European Patent Office (EPO) has repeatedly broadened the scope of patentability and undermined existing restrictions, in the interest of multinational companies. Our food security is increasingly dependent on a few transnational chemical and biotechnological companies.

Now the European Patent Office deals with the basic question: Patents on conventional plants and animals!

The Enlarged Board of Appeal of the EPO will use a patent on broccoli (EP 1069819) for a fundamental ruling, on whether or not conventional plants are patentable. The decision of the Enlarged Board of Appeal (case T 0083/05) will be binding for all other pending patent applications and even for animals and their offspring. [[Read more](#)]

In a joint letter to the Enlarged Board of Appeal the organisers of this website and numerous farmers' organisations from around the globe restate their opposition to patents on conventional seeds and animals.

WE INVITE OTHER ORGANISATIONS TO CO-SIGN THE GLOBAL APPEAL! [Click here!](#)



Fertig

Start Netzwerkverbindungen No Patents on Se... No Patents on Se... Unbeantwortet - Open psp web npos ppt - Internet 07:26

Adresse: http://www.no-patents-on-seeds.org/index.php?option=com_content&task=view&id=10&Itemid=27

no patents on seeds

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THE GLOBAL APPEAL

A Global Appeal against patents on conventional seeds and farm animals

A joint Open Letter addressed to

*Enlarged Board of Appeal of the European Patent Office,
Government Representatives,
The Executive Boards of Agrobusiness Companies*

Keep out patents on conventional seeds and animals

For several years, patents on genetically modified seeds and animals have been granted worldwide. The damaging impacts on farmers, who are deprived of their rights to save their seeds, and on breeders who can no longer use the patented seeds freely for further breeding, are well known.

In Canada and the US, for example, the multinational seed company Monsanto has sued many farmers for alleged patent infringements.¹ The same company has also filed court cases against importers of Argentinean soy to Europe.² Furthermore, the possibility of patenting seeds has fostered a highly concentrated market structure with only 10 multinational companies controlling about half of the international seed market. Many farmers organisations and NGOs around the world are fighting against these patents. Because genetically modified organisms (GMOs) are still not grown in most countries, or only used in a small number of crops, the negative impacts of these patents are not being felt everywhere.

However, there is an alarming new trend for patents not only to be claimed on GMOs (such as Round-up ready soybeans), but also on conventional plants. For example, patent claims have been made for soy beans with a better oil quality³ covering parts of the plant genome when used in conventional breeding and technologies to improve conventional breeding (such as marker assisted breeding).

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Neue Seite

Adresse: http://www.no-patents-on-seeds.org/index.php?option=com_content&task=view&id=30&Itemid=24

no patents on seeds

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DER GLOBALE AUFRUF

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Unterzeichnen Sie den Aufruf!

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DIE UNTERZEICHNER

Der Globale Aufruf wurde von Bauernverbänden der ganzen Welt unterzeichnet



Organisationen sind eingeladen den Globalen Aufruf zu unterzeichnen! [Zum Formular!](#)

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Thank you very much for your attention!

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