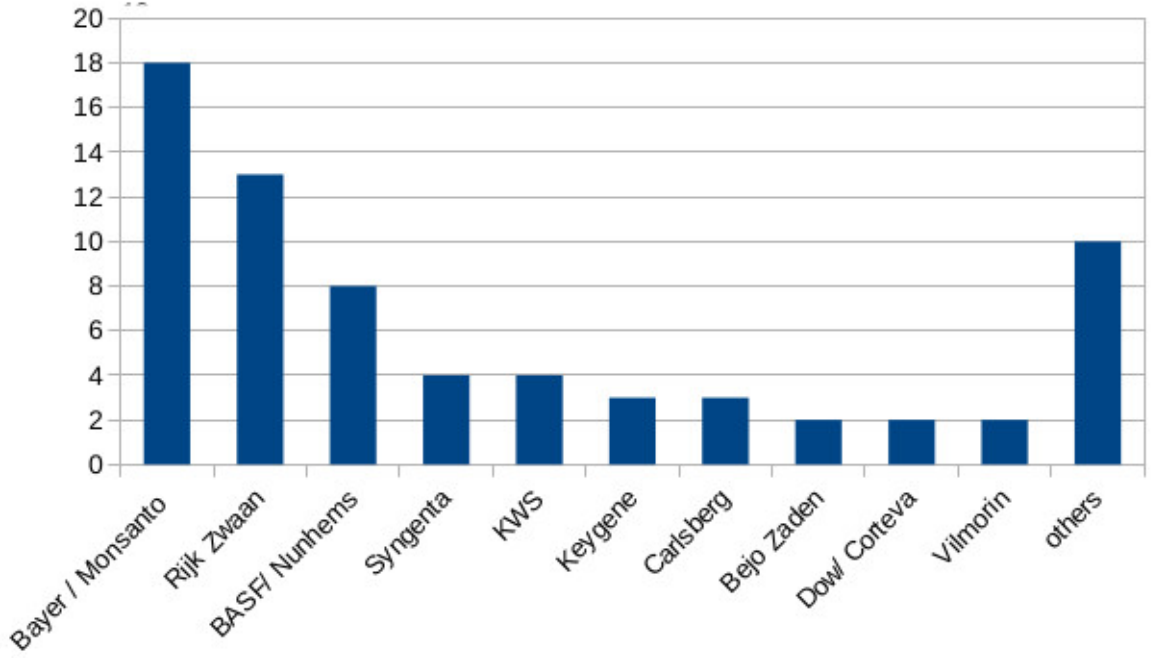
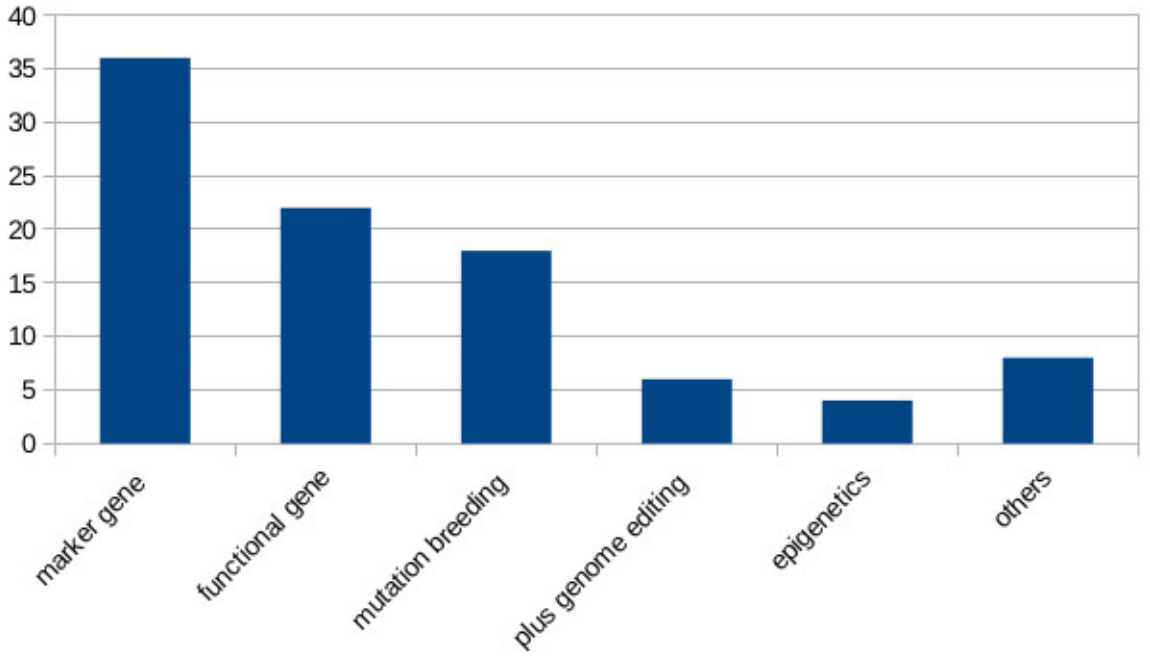
No Patents on Seeds:
Overview on patent applications 2018/ 2019

PLANTS (69)

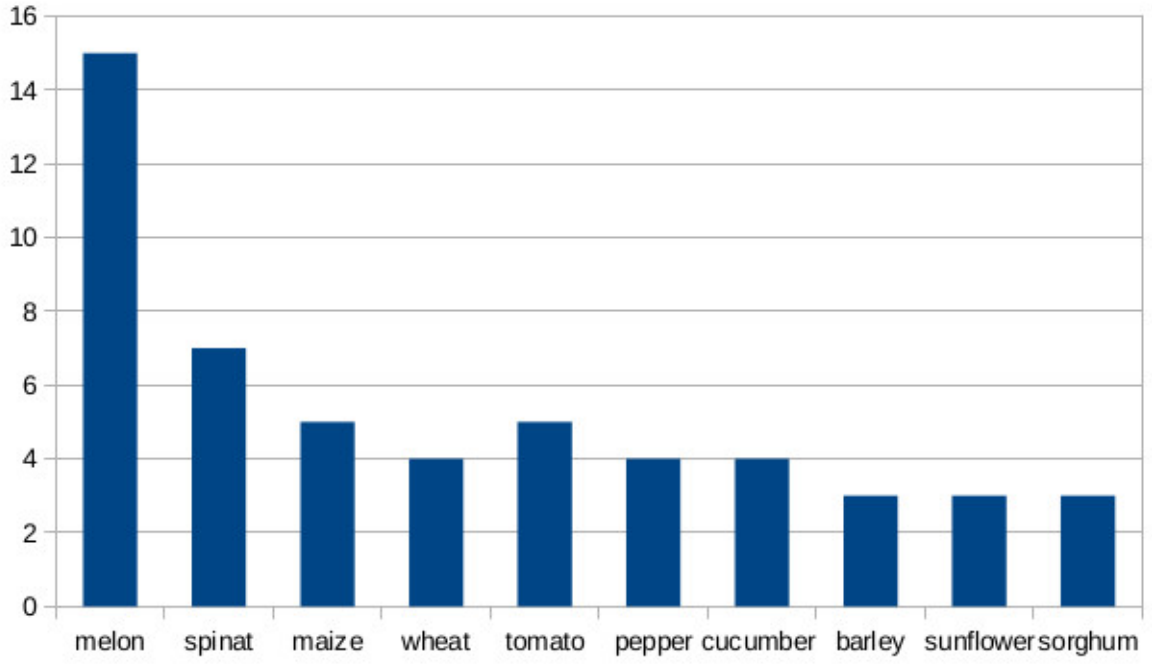
Companies


20
18
16
14
12
10
8
6
4
2
0
Bayer / Monsanto
Rijk Zwaan
BASF/ Nunhems
Syngenta
KWS
Keygene
Carlsberg
Bejo Zaden
Dow/ Corteva
Vilmorin
others

Claims based on …



Species (more than 2 hits)



Others: allium, artichocke, aubergine, banana, basil, beet, broccoli, cassava, cauliflower, cellery, cotton, endivie, potato, rice, sorghum (plus broad spectrum claims)

Traits

- resistance to plant diseases (several)
- resistance to plant pests (several)
- breeding purposes (haploids, restorer, hybrids)
- colour of the fruit (aubergine, melon)
- yield (number of seeds, fruits)
- seedless fruits
- taste
- non-browning
- ripening

Examples: biopiracy

WO2019191675

Applicant: Univ California (US)

Title: Improved chili pepper plants

Claims: Cultivating pepper plant for easy harvesting

Plants were found in Mexico, DNA was sequenced, further crossings pepper plant; no GE.

Examples: new patent on beer

WO2019134962

Applicant: Carlsberg (EP)

Title: Cereal comprising starch with low gelatinisation temperature

Claims: Barley plant comprising mutation; progeny; mutation by chemical agent; plant, malt, flour, beverage; no GE.

Examples: broad scope of claims (1)

WO2019038339

Applicant: KWS Saat; Univ Zürich (EP)

Title: Increased fungal resistance in crop plants

Claims: Producing plant having increased fungal resistance by wall-associated kinase (WAK-RLKI);

modification by site specific nuclease, ODM, chemical mutagenesis, Tilling;

plant, progeny;

Examples: broad scope of claims (2)

8. The method according to any one of the preceding claims, wherein the modification of the at least one gene encoding at least one wall-associated kinase within step (ii) (a) or (ii) (b) is performed by at least one of a site-specific nuclease (SSN) or a catalytically active fragment thereof, or a nucleic acid sequence encoding the same, oligonucleotide directed mutagenesis, chemical mutagenesis, or TILLING.

Examples: broad scope of claims (3)

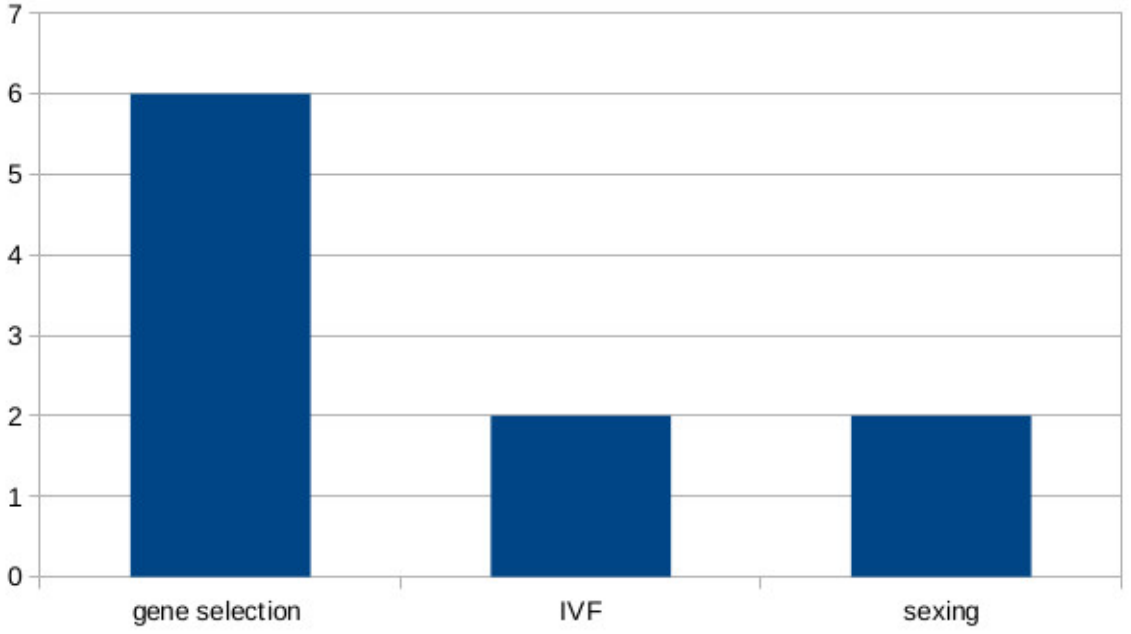
9. The method according to any one of the preceding claims, wherein the at least one plant cell, tissue, organ, or whole plant provided in step (i) is selected from the group consisting of Hordeum vulgare, Hordeum bulbusom, Sorghum bicolor, Saccharum officinarium, Zea spp., including Zea mays, Setaria italica, Oryza minuta, Oryza saliva, Oryza australiensis, Oryza alta, Triticum aestivum, Triticum durum, Secale cereale, Triticale, Malus domestica, Brachypodium distachyon, Hordeum marinum, Aegilops tauschii, Daucus glochidiatus, Beta spp., including Beta vulgaris, Daucus pusillus, Daucus muricatus, Daucus carota, Eucalyptus grandis, Nicotiana sylvestris, Nicotiana tomentosiformis, Nicotiana tabacum, Nicotiana benthamiana, Solanum lycopersicum, Solanum tuberosum, Coffea canephora, Vitis vinifera, Erythrante guttata, Genlisea aurea, Cucumis sativus, Marus notabilis, Arabidopsis arenosa, Arabidopsis lyrata, Arabidopsis thaliana, Crucihimalaya himalaica, Crucihimalaya wallichii, Cardamine nexuosa, Lepidium virginicum, Capsella bursa pastoris, Olmarabidopsis pumila, Arabis hirsute, Brassica napus, Brassica oleracea, Brassica rapa, Raphanus sativus, Brassica juncacea, Brassica nigra, Eruca vesicaria subsp. sativa, Citrus sinensis, Jatropha curcas, Populus trichocarpa, Medicago truncatula, Cicer yamashitae, Cicer bijugum, Cicer arietinum, Cicer reticulatum, Cicer judaicum, Cajanus cajanifolius, Cajanus scarabaeoides, Phaseolus vulgaris, Glycine max, Gossypium sp., Astragalus sinicus, Lotus japonicas, Torenia fournieri, Allium cepa, Allium fistulosum, Allium sativum, Helianthus annuus, Helianthus tuberosus and Allium tuberosum, or any variety or subspecies belonging to one of the aforementioned plants, preferably wherein the plant cell, tissue, organ, or whole plant in step (i) is selected from Zea mays or Triticum spp., or any variety or subspecies belonging to one of the aforementioned plants.

Examples: broad scope of claims (4)

10. A plant cell, tissue, organ, whole plant or plant material, or a derivative or a progeny thereof, obtainable by a method according to any one of claims 1 to 9.

ANIMALS (10)

Claims based on …



Traits

- Higher muscle
- Breeding value
- Sex selection
- Speeding up breeding process
- Avoiding deleterious genes

Species

- bovine
- porcine
- ovines
- equine
- caprine
- rabbit
- poultry

Examples: Violating ethical boundaries

WO2018176124

Applicant: Canada Agriculture and Agri Food (US)

Title: Method for identification of swine having elevated muscle carnosine levels

Claims: Identifying swine having elevated muscle levels and improved meat quality; producing swine having given genotype by breeding; no pig claimed; no GE.

Examples: Violating ethical boundaries

WO2019100018

Applicant: Inguran (US)

Title: Methods for increasing the rate of genetic progress and generating lines in non-human mammals using gametes derived from embryo

Claims: A method of generating a line in a non-human mammalian species .. to produce embryos

usage of embryos of many mammalian species for extraction of cells (gametes such as oocytes and sperm cells) used in further breeding. In result, several breeding generations can be created without involving adult animals: “*the invention encompasses selecting one or more embryos - rather than reproductively mature animals - as parents of the next generation in a breeding program*“.

Examples: claiming germ cells

WO2018134281

Applicant: Genes Diffusion (FR)

Title: Device and method for discriminating spermatozoa

Claims: Device for separating spermatozoa, process; sexed spermatozoa from bovine, porcine, ovines, equine, caprine, rabbit.

Examples: Whole genome claims

(this example is only on selection / usage of SNPs – maybe not so relevant).

WO2019113818

Applicant: Univ China Agricultural (CN)

Title: Whole swine genome 50K SNP chip and application thereof

Claims: SNPs of European and Asian pigs for breeding including QTLs; application in Chinese.
„The all-genome 50K SNP chip of the pig is characterized in that the 50K SNP chip comprises SNP molecular markers as shown in SEQ ID NO: 1-50.000“

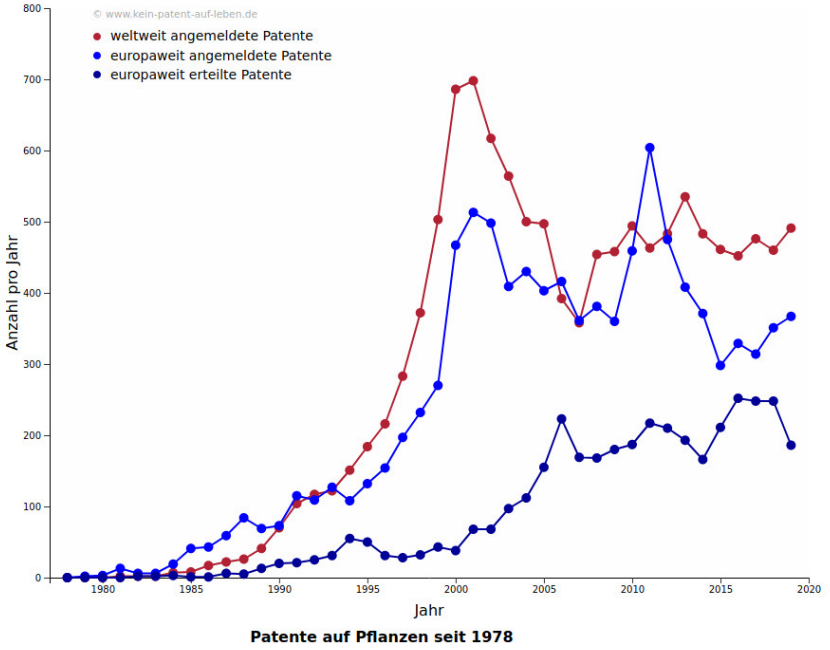
Further analysis

Plants overall

www.kein-patent-auf-leben.de/patentdatenbank/

mehrere EP-Anmeldungen.

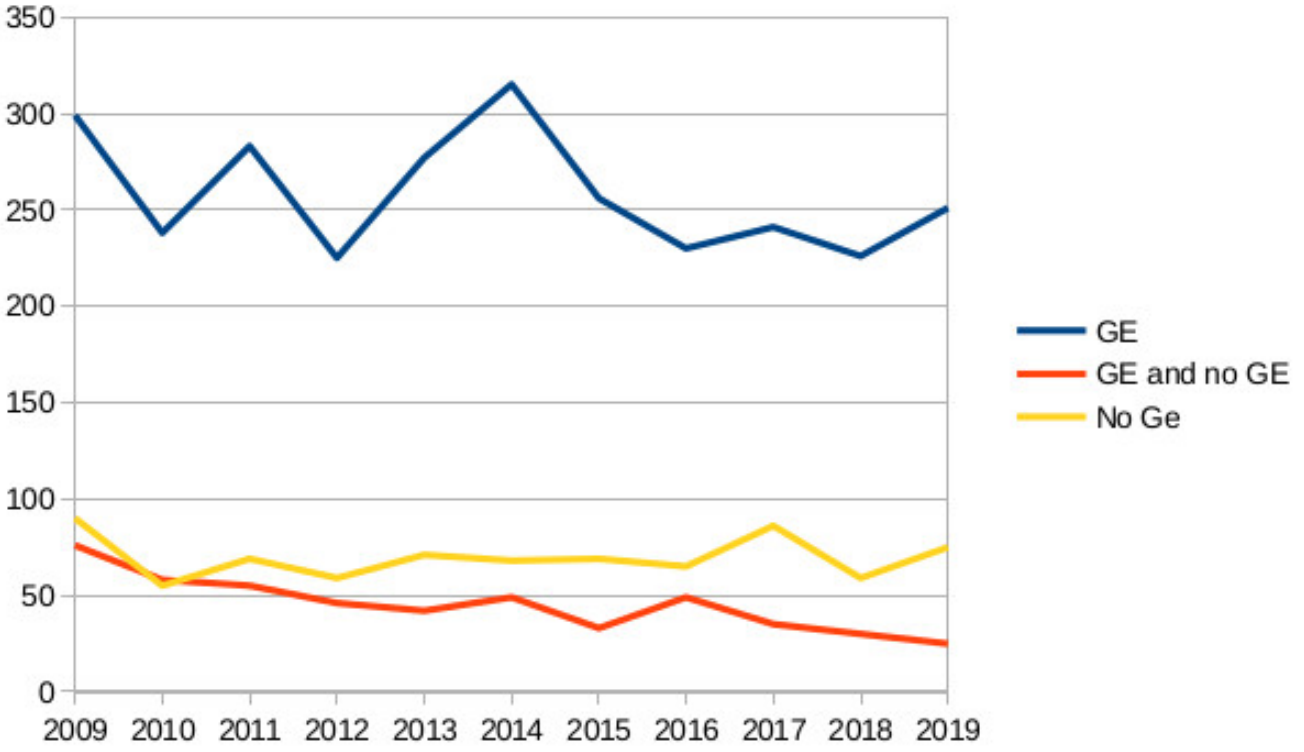
Patente auf Pflanzen



Patente auf Pflanzen seit 1978

Grafik downloaden

Plants no GE / GE



How patents give control on breeding

Claims on

- Processes of selection and / or propagation
- Genes
- Uses of marker
- Process for production, generating ..(products derived)
- Products derived from biological methods (cells, gametes, plants, seed, harvest)
- Products derived from technical processes with undefined scope absolute product protection

Basics: biological vs. technical

Examples for breeding/ essentical biological processes:

Exposing plant material to diseases → selection of phenotype → identification of markers or functional genes (for subsequent crossing and selection)

Screening natural diversity → selection of phenotype → identification of markers or functional genes (for subsequent crossing and selection)

Enhancing genetic diversity by mutagenesis → selection of pheno- or genotype → identification of markers or functional genes (for subsequent crossing and selection)

Enhancing genetic diversity by crossing (hybridisation) → selection of pheno- or genotype → identification of markers or functional genes (for subsequent crossing and selection)

Enhancing variation in gene expression by interfering with epigenetics → selection of phenotyp (for subsequent crossing and selection)

Characteristics of technical processes:

Targeted direct change / insertion / introduction of defined nucleotids

The legal impact of biological vs. technical

According to the decisions of the Enlarged Board of Appeal G2/07 and G1/08, the application of simple technical tools, does not turn an 'essentially biological process' into a technical, patentable invention:
„Such a process does not escape the exclusion of Article 53(b) EPC merely because it contains, as a further step or as part of any of the steps of crossing and selection, a step of a technical nature which serves to enable or assist the performance of the steps of sexually crossing the whole genomes of plants or of subsequently selecting plants."

Only a technical intervention which directly introduces a new trait would be eligible for patent protection:
„If, however, such a process contains within the steps of sexually crossing and selecting an additional step of a technical nature, which step by itself introduces a trait into the genome or modifies a trait in the genome of the plant produced, so that the introduction or modification of that trait is not the result of the mixing of the genes of the plants chosen for sexual crossing, then the process is not excluded from patentability under Article 53(b) EPC."

Activities

Demands

- Exclude all methods used in conventional breeding (not targeted technical intervention on the level of genomes) → IR
- Exclude all products (cells, genes etc) → IR
- No absolute product protection → IR or EPC

- Overall: freedom to operate in conventional breeding (for breeders and farmers).

Scenarios

- EboA confirms new rule 28 (2) → Problem with freedom to operate still has to be solved for conventional breeder (new decision / declaration to be taken by the Admin Council, amending rules for examination OR changes in law).
- EboA does not confirm rule 28 (2) → new political solution has to be found

  > new Implementing Regulation

  > changes in the EPC

  > activities in the EU

  > activities in Member States

Priorities

- Member States demanding diplomatic conference / changes in law in case freedom to operate for conventional breeding is not achieved. Identifying pioneering countries. This activity has to be started around (even before) the decision of the EboA.
- Exposing the problem (patent research, oppositions)
- Finding further allies (organisations, professionals, stakeholders with interest)
- Developing strategies for the global south
- Develope a long term strategy (for the goals, for the organisation)