



How to protect conventional breeding from patent claims

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Legal background - Exclusions from patentability

NGT patents

- The **EU Patent Directive 98/44** on the legal protection of biotechnological inventions for the first time allowed patents on technical inventions / genetic engineering.
- This legal provision was then integrated into the **European Patent Convention (EPC)** and the **national law** of 39 contracting states of the European Patent Office (EPO).
- Therefore, if patents on NGTs plants shall be prohibited, not only the EU Patent Directive 98/44 has to be changed, but as well the EPC. This can not be decided by the EU.
- A **change of** the relevant articles in the **EPC** would need unanimity in the vote of all 39 contracting states of the EPO.



Legal background - Exclusions from patentability

Conventional breeding

- The EU Patent Directive 98/44 and the EPC never allowed for patents on conventionally bred plant varieties as well as on conventional breeding. Such patents are excluded by Art 53 (b) of the EPC.
- An amendment of the wording of the EU Patent Directive 98/44 can close legal loopholes and strengthen the existing prohibitions. A change of the EPC is not needed. This can be decided by the EU.



Over 3.500 patents on plants granted (conventional breeding & GMO)

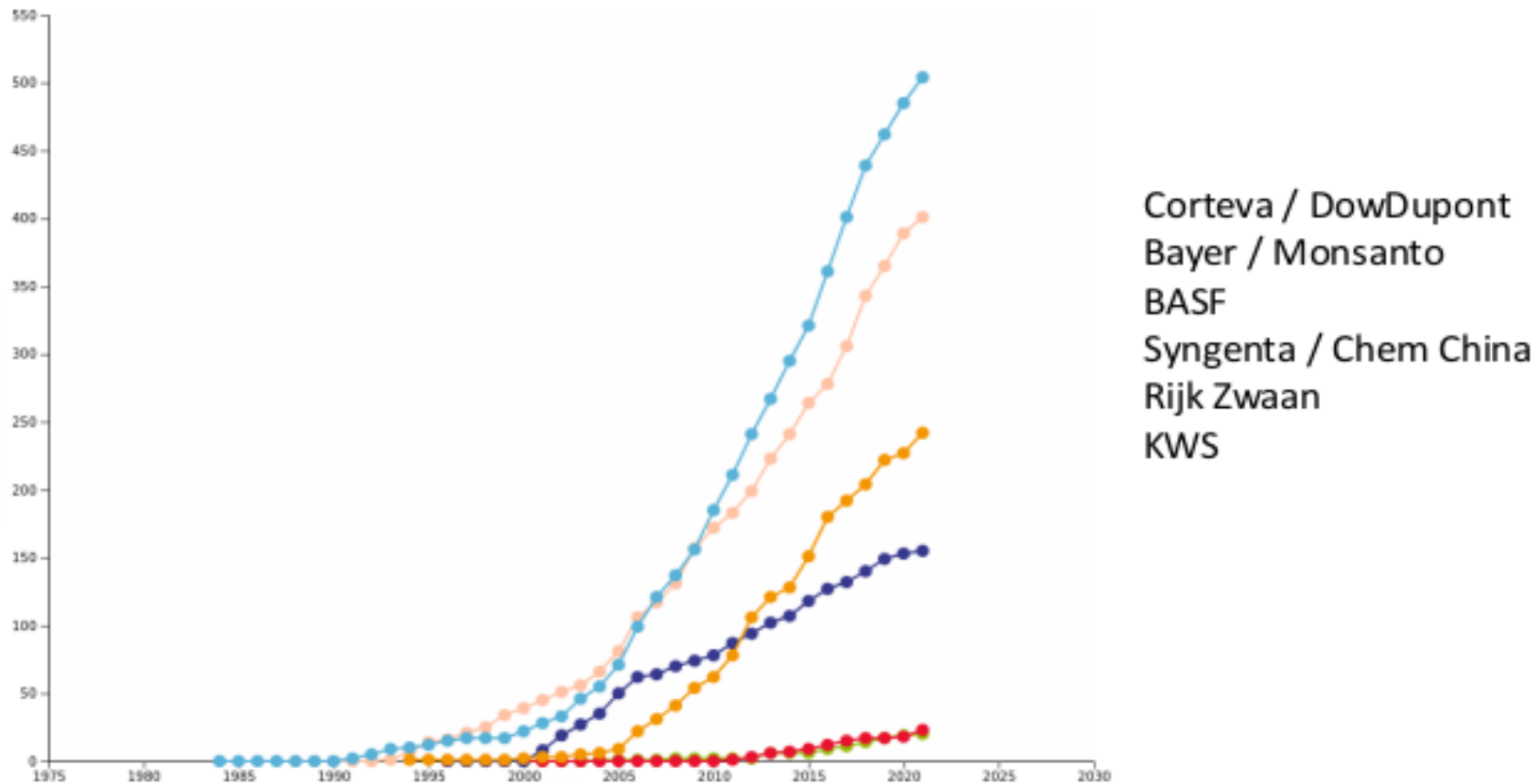


Figure 3: All EPO patents granted on plants, categorized by individual companies and accumulated since 1990. Research according to official classifications (IPC A01H or C12N15/82).

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



Patents on conventional plants - companies

200 patents granted on conventional breeding

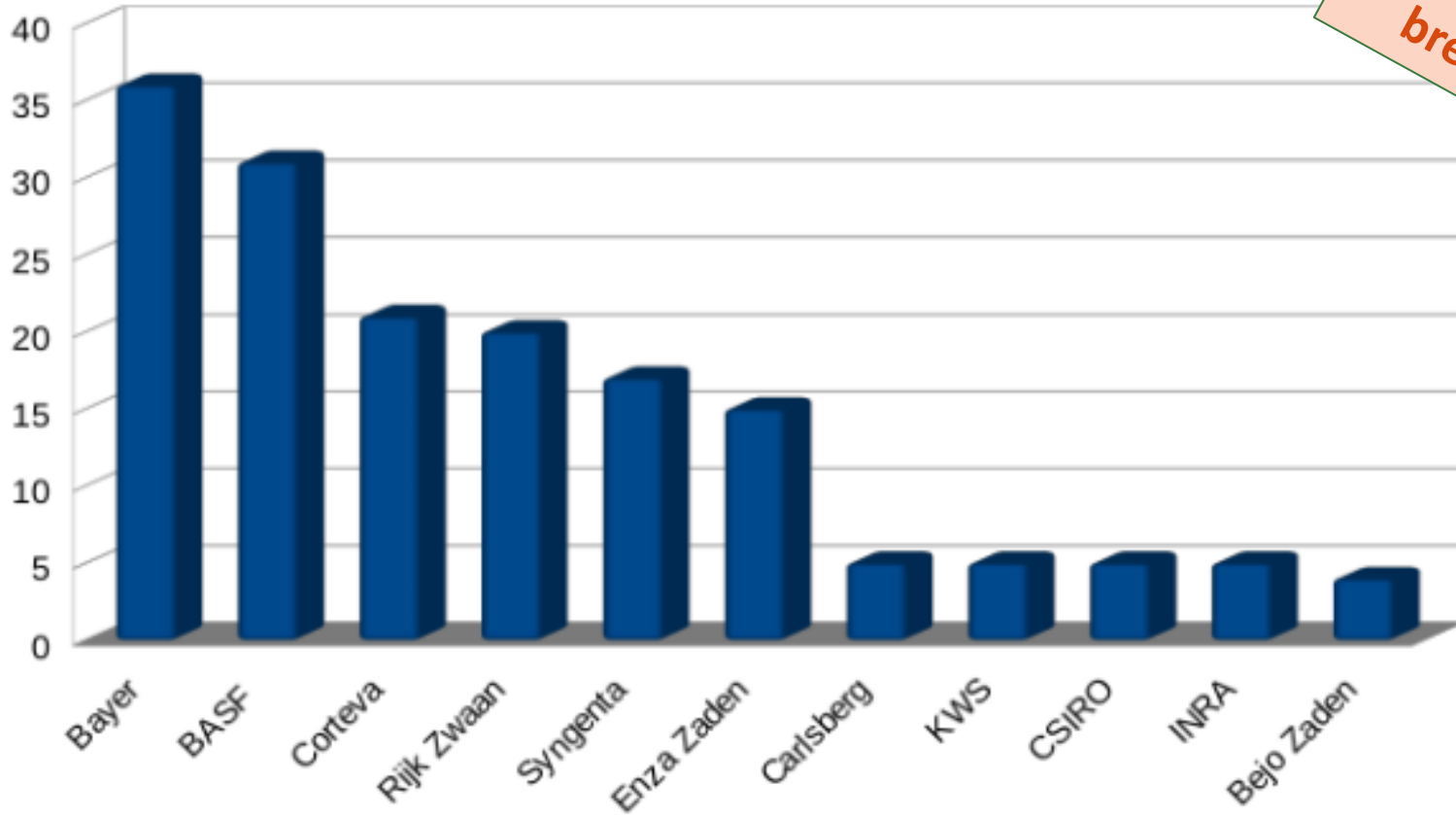


Figure 6: EPO patents granted for conventional plant breeding (international classifications IPC A01H or C12N15/82), between 2012 and 2022, categorized by companies. Source: database of *No Patents on Seeds!*



Patents on conventional plants - species

200 patents granted on conventional breeding

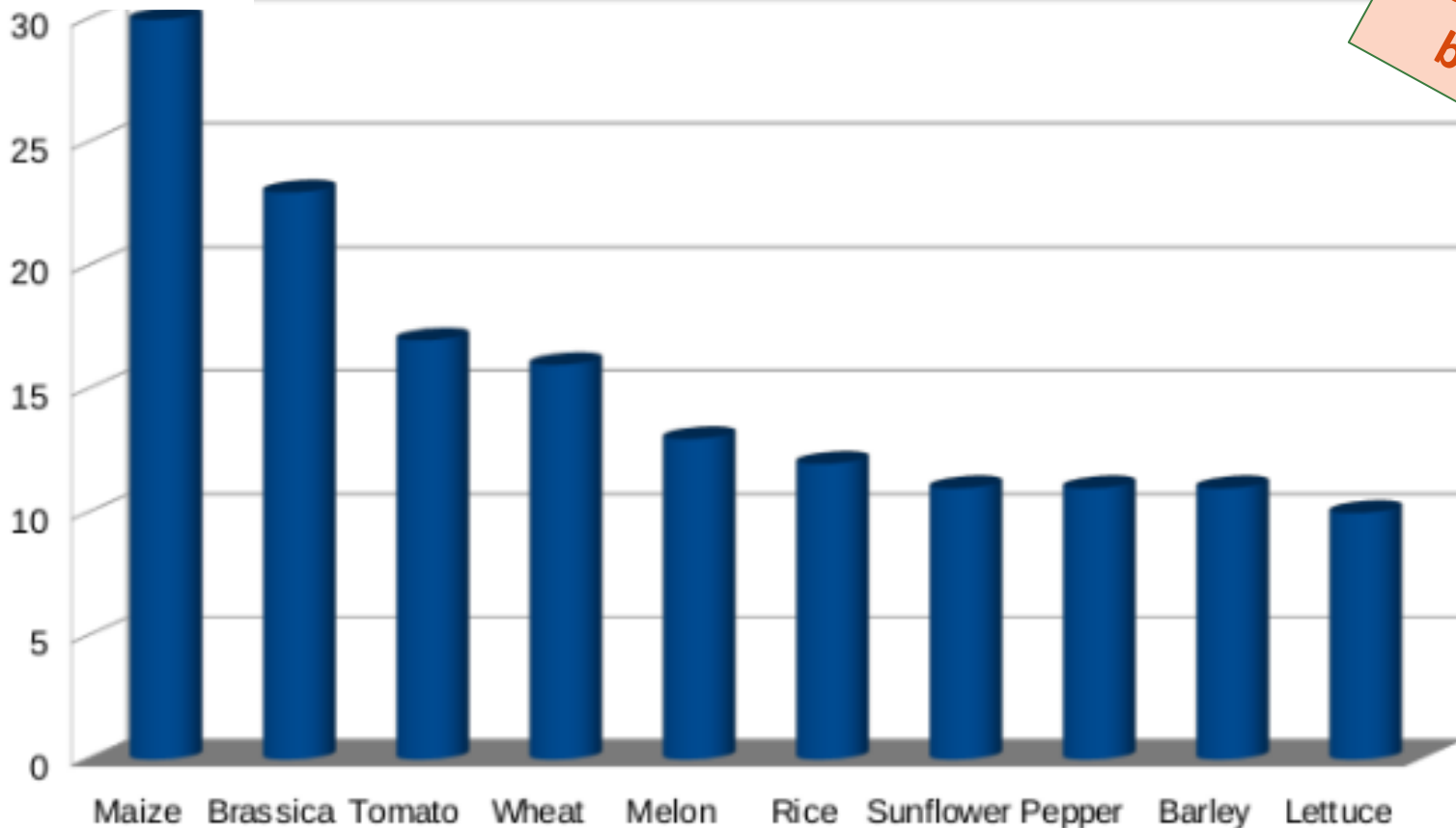
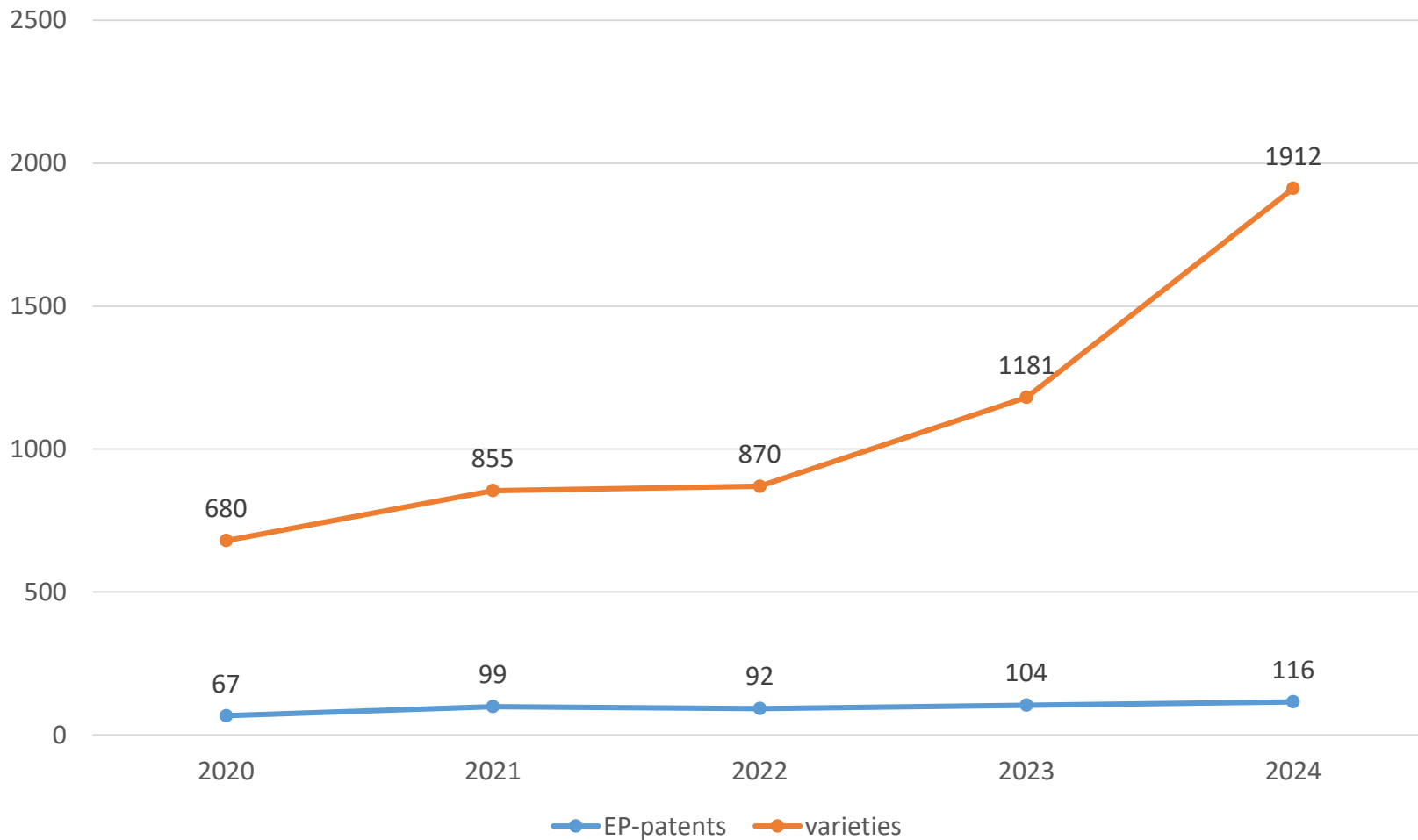


Figure 7: EPO patents granted on conventional plant breeding (international classifications IPC A01H or C12N15/82) between 2012 and 2022, categorized by species. Source: database of *No Patents on Seeds!*



1 patent can cover over 170 plant varieties



<https://euroseeds.eu/pinto-patent-information-and-transparency-on-line/pinto-database/>



Patents on virus resistance in tomatoes

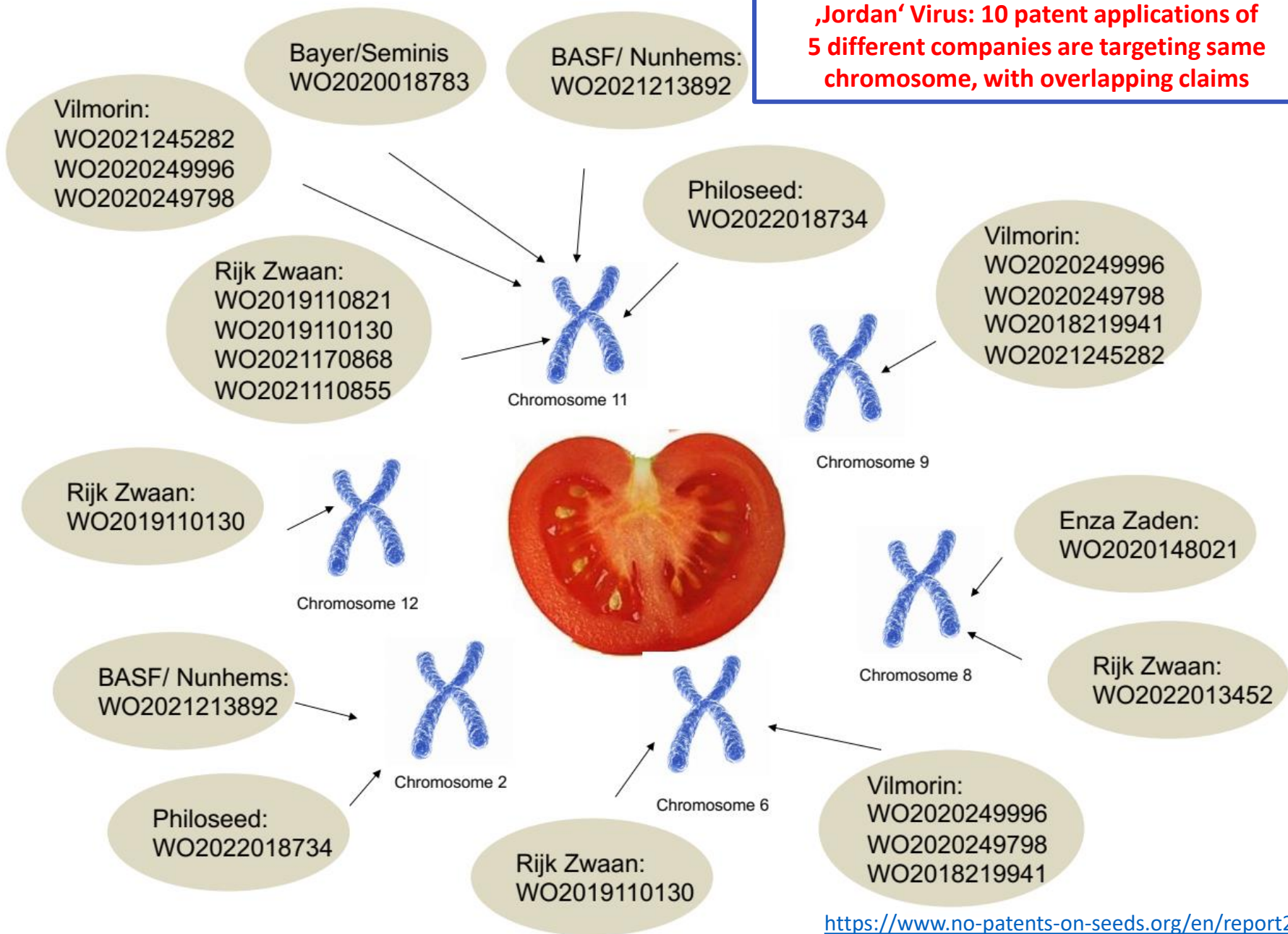


- more than 20 pending international patent applications for tomato plants with resistance to tomato brown rugose fruit virus (TBRF virus)
- companies: BASF, Bayer, Rijk Zwaan, Syngenta, etc.
- naturally occurring gene variants – no need for genetic engineering
- patent applications include examples of NGTs as toppings that raise the impression of technical inventions
- applications cover genetically engineered and conventionally bred plants
- freedom to operate for European breeders under threat

<https://www.no-patents-on-seeds.org/en/report-tomato>

International patent applications on resistance against TBRF-Virus in tomato

Jordan' Virus: 10 patent applications of 5 different companies are targeting same chromosome, with overlapping claims





Patents on lettuce

- patent EP2966992 granted in 2018 to Dutch company Rijk Zwaan Zaadteelt
- lettuce derived from conventional breeding that can be grown under hot climate conditions
- hearing on 7 Feb. 2024: opposition of *No patents on seeds!* was rejected by the EPO, the patent is maintained

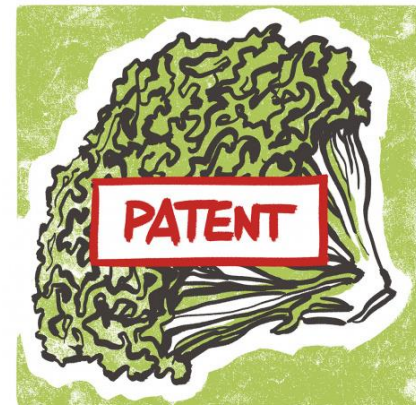


Patent case: <https://www.no-patents-on-seeds.org/en/patent-cases/lettuce-hot-climate>

Report: <https://www.no-patents-on-seeds.org/en/lettuce>



Patents on lettuce



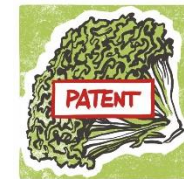
- Pinto database lists seven patents for lettuce - covering 236 varieties
- one variety targeted by three patents and 26 varieties by two patents

report: <https://www.no-patents-on-seeds.org/en/lettuce>

Pinto: www.euroseeds.eu/pinto-patent-information-and-transparency-on-line



Patents on lettuce



Title	Patent number	Company	Number of varieties concerned
Lettuce resistant to <i>Bremia lactucae</i> (downy mildew)	EP2961263	Bejo Zaden	121
Plant resistant to a pathogen	EP2451269	Syngenta	56
Aphid resistance in composites	EP0921720	Rijk Zwaan	38
Screening method for selecting plants that show reduced wound-induced surface discolouration, and plant and plant parts thus obtained	EP1973396	Rijk Zwaan	38
Method of identifying plant material with reduced discolouration	EP2173157	Rijk Zwaan	7
Method of obtaining a plant with lasting resistance to a pathogen	EP1179089	Enza Zaden	4
Multi-leaf lettuce	EP0942643	Rijk Zwaan	1

report: <https://www.no-patents-on-seeds.org/en/lettuce>

Pinto: www.euroseeds.eu/pinto-patent-information-and-transparency-on-line



Solutions

Clear prohibition in national patent law

amendment of Austrian Patent Act in 2023

- limits patents to genetically engineered seeds
- patents are not permitted if they are "*based on natural phenomena such as crossing, selection, non-targeted mutagenesis or random genetic modifications occurring in nature.*"
- the effect of patents "*does not extend to plants or animals with the same specified properties which are produced independently of the patented biological material and by essentially biological processes*".

<https://www.parlament.gv.at/gegenstand/XXVII/ME/229?selectedStage=100>



Solutions

Change wording of the EU patent directive 98/44 to exclude patent on conventionally bred plants

Article 2 (2) is replaced by:

"2. A process for breeding of plants or animals is essentially biological, if it consists entirely of conventional breeding techniques such as crossing, selection, or the use of random or naturally occurring genetic variations."

Article 4 (1) is replaced by:

"1. The following shall not be patentable:

(a) plant and animal varieties,

(b) plant material and parts thereof, as well as genetic information contained therein, which have been obtained by conventional breeding techniques, such as crossing, selection, or the use of random or naturally occurring genetic variations.

(c) plant material and parts thereof, as well as genetic information contained therein, which have been obtained by non-targeted mutagenesis.

(d) essentially biological processes for the production of plants or animals as well as plants or animals exclusively obtained by means of an essentially biological process and the genetic information contained therein.

At article 8, paragraph 3 is inserted:

"3. By derogation to paragraphs 1 and 2, the protection conferred by a patent on biological material, or extending to the use of the biological material, possessing specific characteristics as a result of the invention, shall not extend to biological material possessing these specific characteristics when these have been obtained independently from the patented invention OR through an essentially biological process, nor to the biological material obtained through such processes by means of reproduction or multiplication".

<https://www.no-patents-on-seeds.org/en/report-tomato>

(report tomato patents, p.7)



More info on our homepage

[All research reports of *No patents on seeds!*](#)



[2024 How patents block the breeding of tomatoes resistant to the harmful Tomato Brown Rugose Fruit Virus](#)



[2024 Patents on conventionally-bred lettuce reveal European dilemma](#)



[2023 Annual research report: The future of plant breeding is under threat in Europe](#)

[Examples of patent cases](#)



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