NO PATENTS ON SEEDS!

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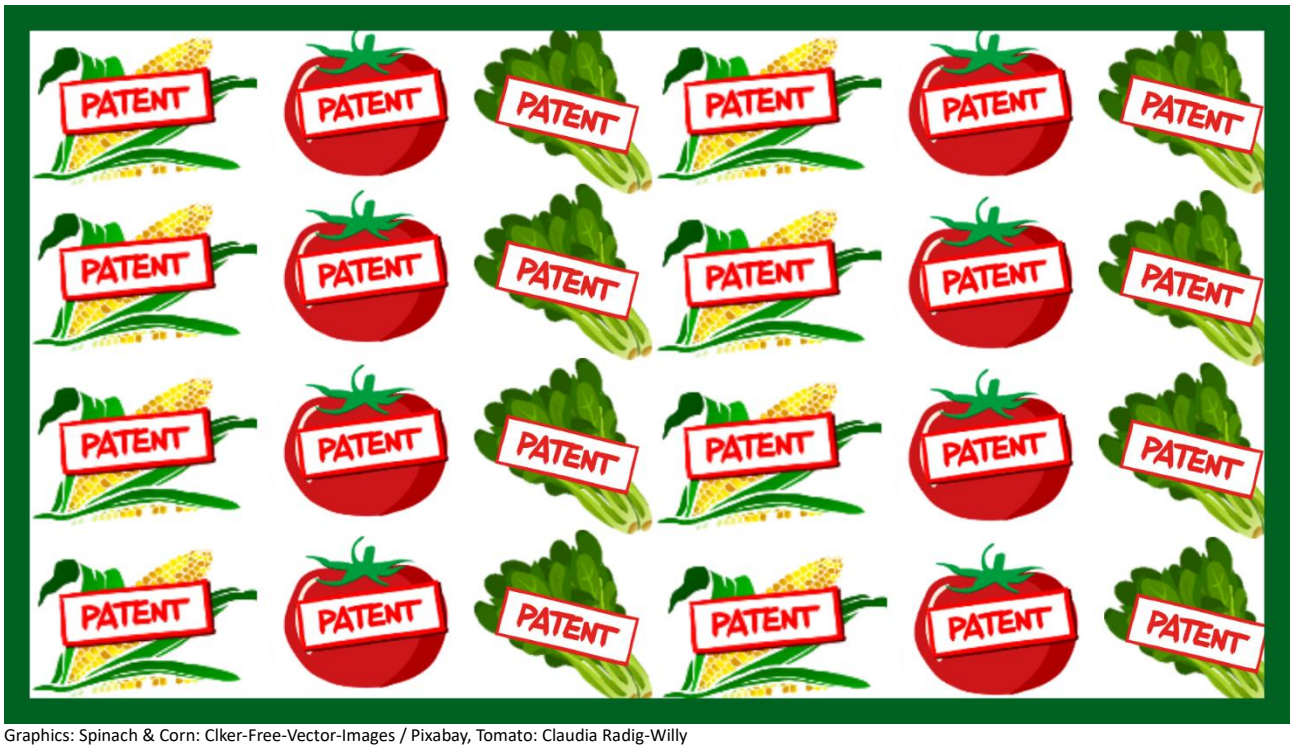
Backgrounder:

Just 7 patents affect 145 conventionally bred plant varieties



Graphics: Spinach & Corn: Clker-Free-Vector-Images / Pixabay, Tomato: Claudia Radig-Willy

Recent research conducted by *No Patents on Seeds!* revealed that the European Patent Office (EPO) granted about 40 patents claiming conventional breeding between January and November 2025. In this backgrounder, we additionally examine which of these patents are included in the PINTO database.[1] PINTO is an industry-organized database and lists some of the conventionally bred plant varieties that are already on the market and impacted by patents.

We identified seven patents in PINTO that were granted in 2025; PINTO does not (yet) provide information in regard to the other patents. Most of the patents we identified claim genes conferring resistances to important plant pathogens. The seven patents impact 145 plant varieties. Our researchers even found one patent granted to Syngenta (EP2464213) that impacts 125 maize varieties. Altogether, more than 1000 conventionally bred plant varieties are now affected by patents granted in Europe. Therefore, even though the number of patents may appear small, they still have a huge effect in practice, particularly on the market and on accessibility to conventionally bred plant material. Contrary to provisions in the plant variety protection (PVP) law, these plant varieties may not be used by other breeders without a license agreement.

One of the above patents was granted under the new Rule 28 (2) of the European Patent Convention (EPC). This rule was introduced into the Implementing Regulations of the EPC in 2017 in response to an EU initiative. The new rule was meant to prevent patents from being granted on plants obtained from crossing and selection. However, current EPO practice, e.g. patent EP3560330 (KWS, maize with improved digestibility)[2], shows that Rule 28 (2) is not having the desired effect. Patents on plants that inherit naturally occurring gene variants are still being granted, despite the new rule. In addition, next generation plants obtained from crossing and selection can still fall within the scope of the patents.

Also, the new patent granted under the Rule 28 (2) is a further indication that it is not working as intended. Patent EP3975697 was granted to Enza Zaden in 2025. The patent does not directly claim the plants (spinach) as an invention, but it still claims naturally occurring gene variants that confer resistance to downy mildew. It is likely that the varieties that were selected and bred by using these sequences are also affected by the patent. In any case, eight varieties listed in PINTO are related to this patent.

In the following an tabled overview is given on the seven patents granted in 2025 that also can be found in the PINTO Database.

1 https://euroseeds.eu/pinto-patent-information-and-transparency-on-line/

2 More info: https://www.no-patents-on-seeds.org/en/maize

Table: Seven European patents granted in 2025 affect 145 conventionally bred plant varieties

Patent-Number Company Date of grant	Title	Claims	Comments and number of affected varieties
EP3376853 Rijk Zwaan 19 February 2025	*Peronospora* resistance in *spinacia oleracea*	Spinach plants inheriting resistance genes to downy mildew, seeds, parts of the plants, harvested leaves, use of marker genes.	The resistance was derived from crossing spinach plants. Number of affected varieties according to PINTO: 5
EP3054766 Bayer / Seminis 18 June 2025	Methods and compositions for *peronospora* resistance in spinach	Spinach plants with resistance to downy mildew, seeds, parts of plants and food derived.	The resistance was obtained from crossing with the wild relative species *S. tetrandra*. Number of affected varieties according to PINTO: 1
EP3419414 Bejo Zaden 13 August 2025	Powdery mildew resistance genes in carrot	Carrot plants resistant to powdery mildew, seeds, edible parts, pollen.	The resistance was obtained from crossings with other carrot plants Number of affected varieties according to PINTO: 3
EP3373723 Vilmorin 20 August 2025	Resistance to ToLCNDV in squash	*Cucurbita pepo* plants inheriting naturally occurring genes tolerant or resistant to Tomato Leaf Curl New Dehli Virus (ToLCNDV), seeds and parts of the plants.	The resistance was obtained from crossing with a relative species (*Cucurbita moschata*). Number of affected varieties according to PINTO: 1
EP3975697 Bejo Zaden 24 September 2025	Downy mildew resistant spinach plant	Naturally occurring gene variants and methods of identifying a spinach plant resistant to downy mildew.	In this case, the new Rule 28 (2) was applied. Since the patent claims naturally occurring gene variants, it is likely that the varieties that were selected and bred by using these sequences are also affected by the patent. Number of affected varieties according to PINTO: 8
EP2464213 ChemChina / Syngenta 22 October 2025	Methods for enhancing the production and consumer traits of plants	Sweet maize plants with enhanced vigor during seed germination, and enhanced ability to retain sugar over a period of time.	The plants were derived from crossing existing plant breeding lines. Number of affected varieties according to PINTO: 125
EP3442325 BASF/Nunhems 29 October 2025	Introgression of two yield QTLs in *cucumis sativus* plants	Cucumber plants and seeds inheriting a naturally occurring gene variant that confers an increase in fruit yield.	The gene variant was obtained from crossing with a wild relative of cucumber. Number of affected varieties according to PINTO: 2

Patents on conventional breeding and naturally occurring gene sequences are a well-documented problem especially for small and medium (SME) traditional breeders.[3] Just one single license for access to the patented resources may easily cost more than 100.000 €.

The most problematic patents are those which claim natural resistance to plant pathogens, e.g. viruses or fungal diseases.[4] For example, a patent thicket has already built up around the genetic resources needed to breed tomatoes with resistance to Tomato Brown Rugose Fruit Virus (ToBRFV or TBRFV): the first patent applications in this case were filed in 2017. Meanwhile, more than 20 international patent applications filed by ten different companies, e. g. BASF, Bayer, Rijk Zwaan and Syngenta, have been published. The patent applications cover dozens of gene variants. In several cases, the claims of the different companies overlap in the targeted genetic regions.[5]

In 2025, breeders, market gardeners, developmental and environmental organisations filed a joint opposition against the Vilmorin patent, EP 3629711, which claims tomatoes with natural resistance to a virus as a 'technical invention'. The list of opponents includes more than 40 breeders and other organisations. Frans Carree from the Dutch organic breeding company DeBolster, which is one of the opponents, expressed his concerns to the media:[6] "*If the monopolisation of conventional seeds is not stopped, we and other companies, may no longer be able to afford to carry on with our traditional businesses. This would have major negative consequences for gardeners and farmers interested in having access to a broad range of food plants.*"

A recent study published by the EU Commission[7] has confirmed that the current practice is having a deterrent effect on traditional breeders. It states that: "*Interviewees reported instances where breeders had abandoned breeding lines if they were under the impression that they may require a (cross-)license. The risks and costs related to the procedure and the potential high license fee provide a strong deterrent.*"

It also can be concluded from the study that a decrease in the market share of European breeders has to be expected due to the high number of patent application on NGT plants filed by Chinese and US companies. Consequently, within the ongoing negotiations about future regulation of NGT plants, this problem should be solved before any other decisions are taken.

The EU must now make it clear in their policy decisions that at very least patents on conventional breeding and naturally-occurring gene variants can no longer be granted. This only would need minor clarifications in the interpretation of the current law.

However, if patents on conventional breeding and naturally-occurring gene variants are not stopped, many breeding companies will have to close down due to excessively high costs and legal uncertainties. This would have major consequences not only for plant breeding, but also for agriculture and food production. We will all become dependent on decisions made by those companies that apply for the highest number of patents. The EU has to stop these patents now to protect the future of our food.

Some stakeholders and the European Commission have suggested that enhancing transparency in regard to patents and/or introducing mandatory compulsory licenses should be sufficient. However, even then patents will continue to have a deterrent effect due to the excessively high costs for (several) licenses and the dependencies associated with license contracts.

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3 https://www.no-patents-on-seeds.org/en/report-2025
4 https://www.no-patents-on-seeds.org/en/report-patents
5 https://www.no-patents-on-seeds.org/en/report-tomato
6 https://www.no-patents-on-seeds.org/en/tomato-opposition
7 https://single-market-economy.ec.europa.eu/industry/strategy/intellectual-property/patent-protection-eu/protection-biotechnological-inventions_en

As the European Commission now wants to wait for the outcome of another expert group and is unlikely to take any effective measures in its current term, the harmful consequences for traditional breeding will continue to increase. As shown above, even a relatively small number of patents can have a huge impact on the market and accessibility to conventionally bred plant material that is essential for future plant breeding.

There are several ways of solving this problem through a change in the Implementing Regulation of the EPC, all of which could be put forward by the EU: either a definition of what is patentable (such as genetic engineering processes[8]) or a clarification of what cannot be patented, e.g. random processes to introduce mutations. In addition, a full breeders' exemption in patent law (at least for conventionally bred varieties) could be integrated.[9]

However, the outcome of the so-called trilogue[10] on the proposal for the future regulation of NGT plants did not take any of these solutions on board. As no solution was achieved during these negotiations, *No Patents on Seeds!* urges the Members of the European Parliament and the EU Member States to reject the proposal.

8 https://www.no-patents-on-seeds.org/sites/default/files/2025-11/How%20to%20rectify%20the%20interpretation%20of%20European%20Patent%20law.pdf

9 https://www.no-patents-on-seeds.org/en/report-2025

10 https://www.europarl.europa.eu/news/en/press-room/20251201IPR31710/new-genomic-techniques-deal-to-support-the-green-transition-in-farming