

# An overview on patents on seeds, plants and genetic sequences in the EU



## **Seed patents: A huge challenge for the European Union**

Analysis of the problem, case studies and potential solutions

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December 2024

# International patent applications and EP granted patents on plants

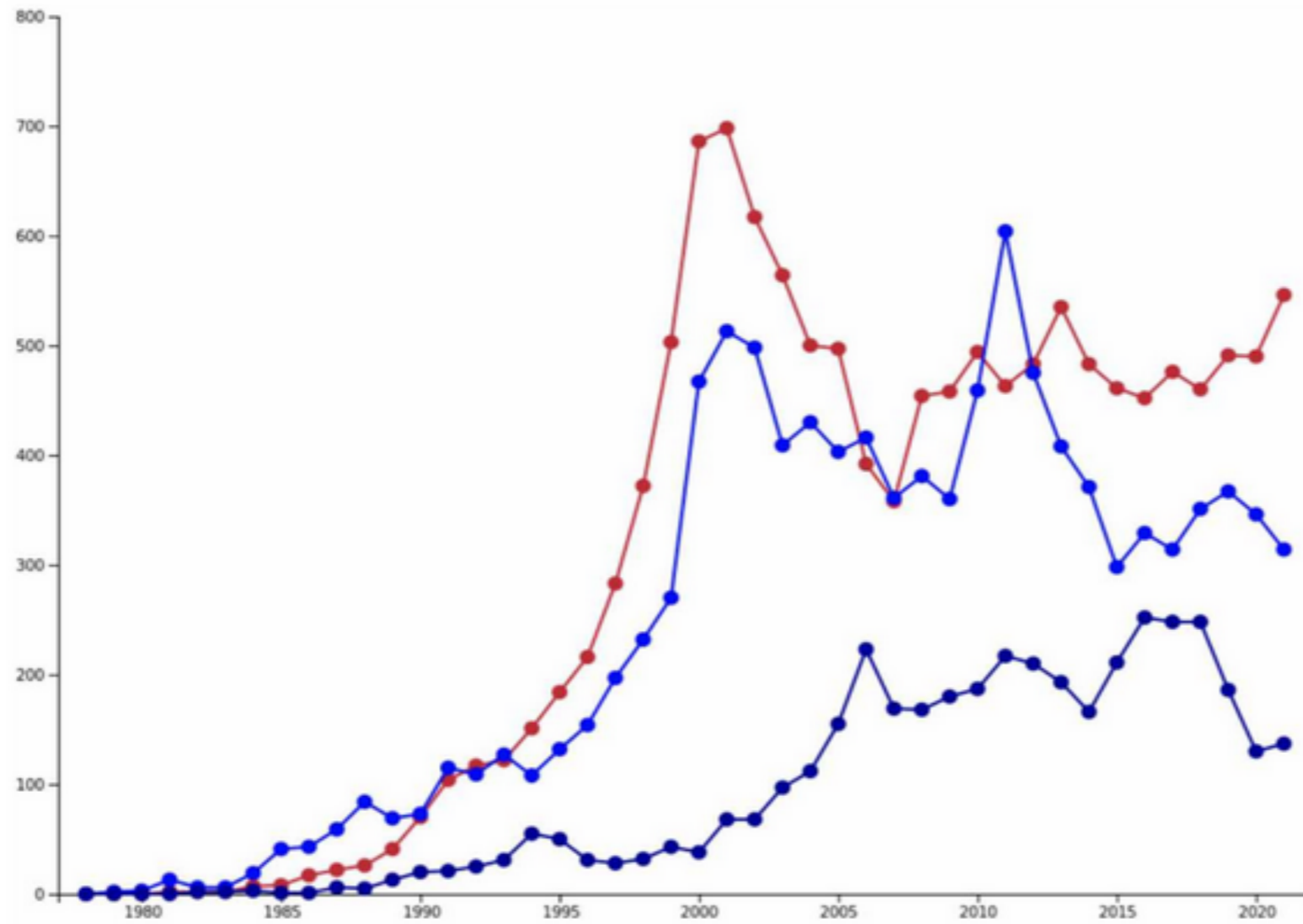


Figure 1: Number of all patent applications filed for plants under the PCT/WIPO (upper / red line) and at the EPO (middle / light blue line), including patents on plants granted by the EPO (lower / dark blue line) per year. Research according to official classifications (IPC A01H or C12N15/82). Source: [www.kein-patent-auf-leben.de/patentdatenbank/](http://www.kein-patent-auf-leben.de/patentdatenbank/)

## Patents on plants granted by the EPO per company (accumulated)

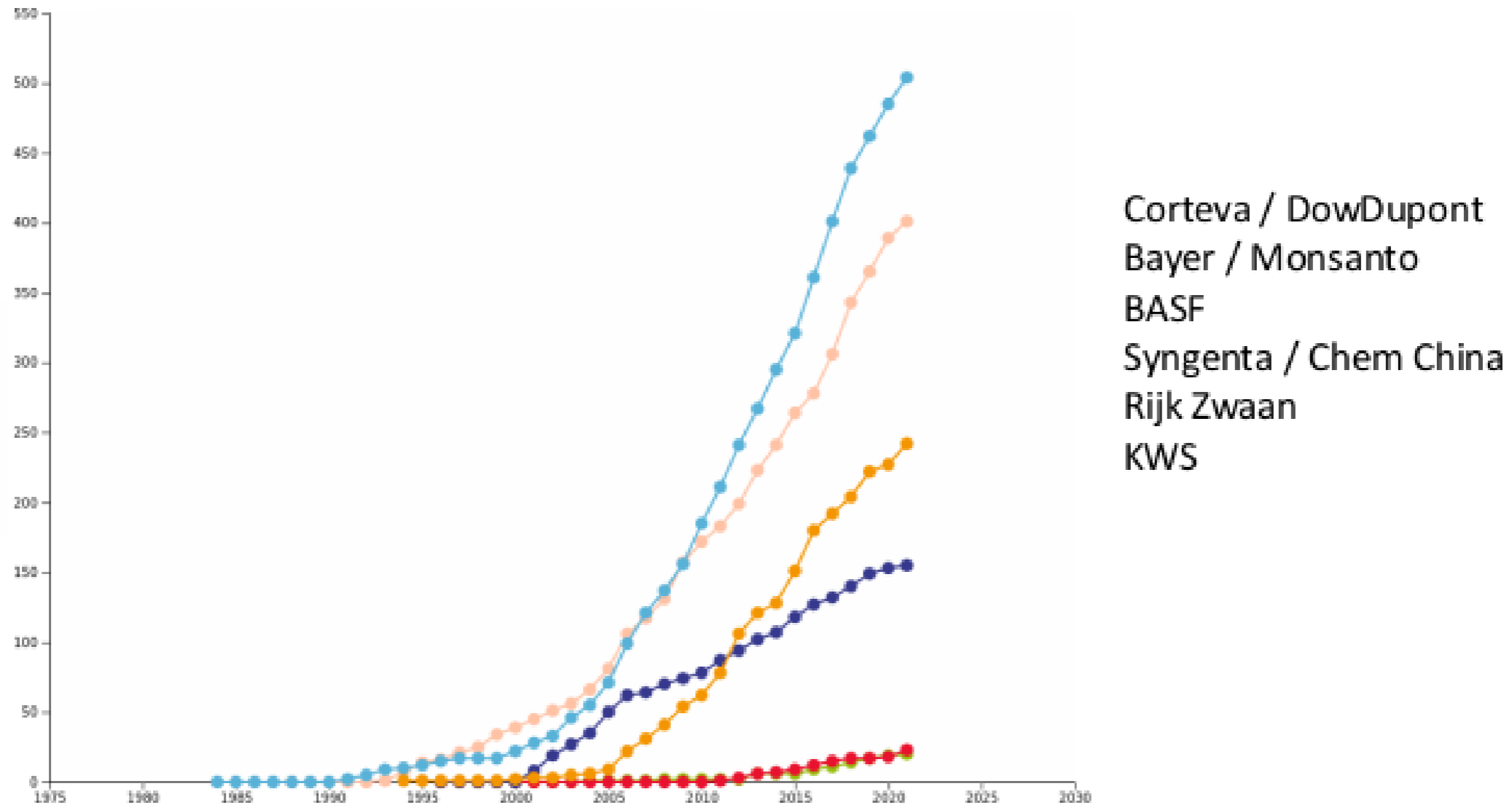
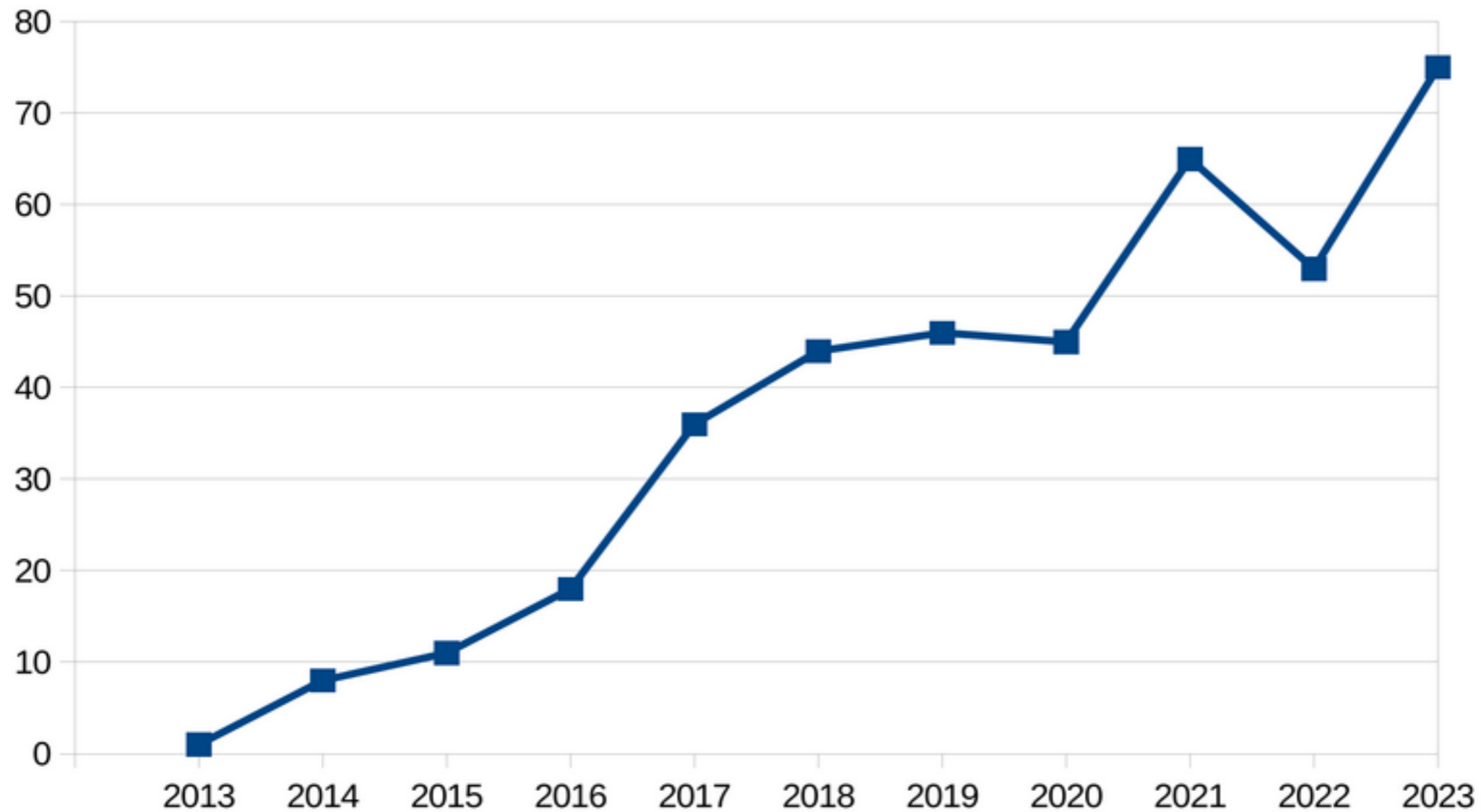


Figure 3: All EPO patents granted on plants, categorized by individual companies and accumulated since 1990. Research according to official classifications (IPC A01H or C12N15/82).

Source: [www.kein-patent-auf-leben.de/patentdatenbank/](http://www.kein-patent-auf-leben.de/patentdatenbank/)

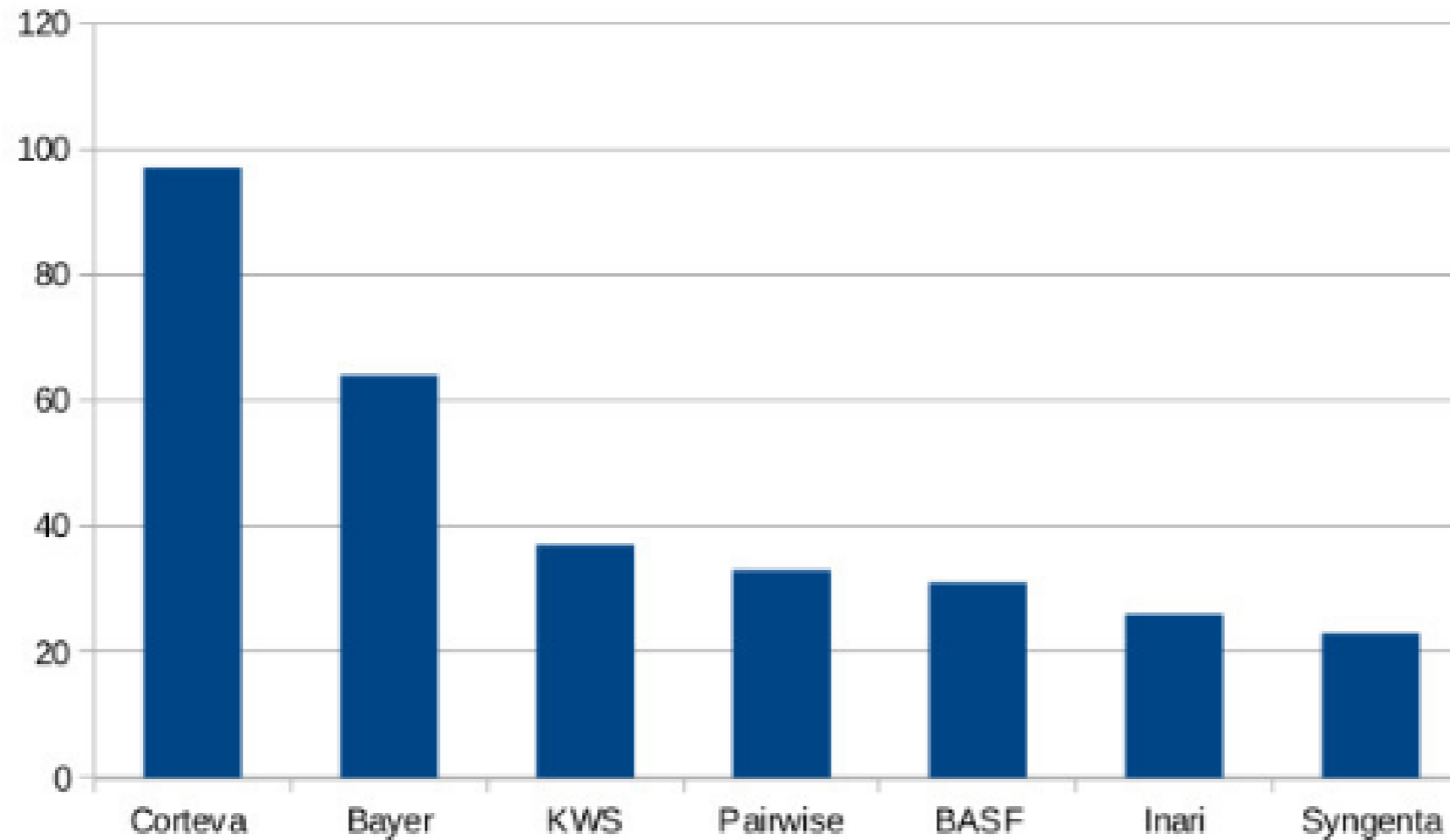
## International patent applications on CRISPR & plants



Number of international patent applications (WIPO/PCT) filed for genetically engineered plants per year which include the term 'CRISPR' in the claims. *Note: This research includes only patent applications filed in English language.*

<https://www.testbiotech.org/node/3181>

## International patent applications on nucleases & plants per company



**Figure 2: Overall number of filed international patent applications (WIPO/WO) covering the usage of nucleases (CRISPR/Cas, TALENs, zinc finger or meganucleases) in the food plant sector, up until the end of 2022.**

## International patent applications on plants combining NGTs with conventional breeding published in 2023

	Patent application	Company	Plant species, traits
1.	WO2023095144	Volcano Institute / Israel	Tomato with resistance to Tomato Brown Rugose Fruit Virus
6.	WO2023117154	Enza Zaden	Lactuca plants that are resistant to a fungal pathogen (downy mildew or oomycetes)
7.	WO2023275048	BASF/Nunhems	Watermelon with dwarf phenotype (higher branching)
8.	WO2023004429	BASF	Brassicaceae with resistance to blackleg
9.	WO2023012342	KWS	Spinach with resistance to downy mildew
10.	WO2023006933	KWS	Maize with higher digestibility
11.	WO2023012325	Vilmorin	Capsicum with resistance to powdery mildew
12.	WO2023019172	Pioneer	Pearl millet with lower rancidity (longer shelf life)
13.	WO2023019314	CSIRO	Wheat with changes in starch composition
14.	WO2023046288	Bejo Zaden	Carrots with resistance to tropical root knot
15.	WO2023052561	BASF	Wheat with higher yield
16.	WO2023131639	KWS	Several species with higher level in fructose, higher yield, improved stress resistance
17.	WO2023151004	Syngenta	Soybean with changed oil and protein content

## EP patents granted on conventional plant breeding per company

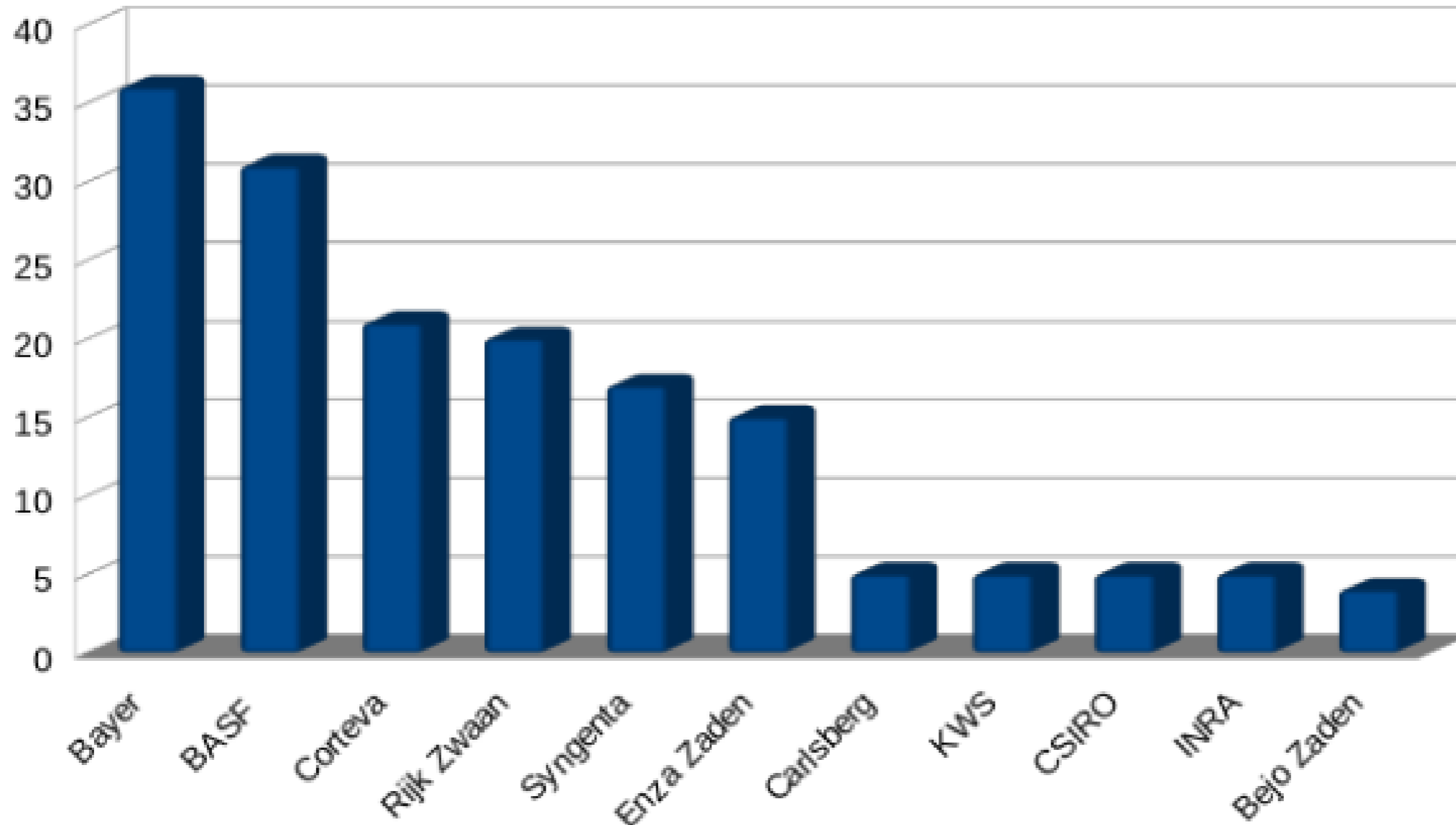
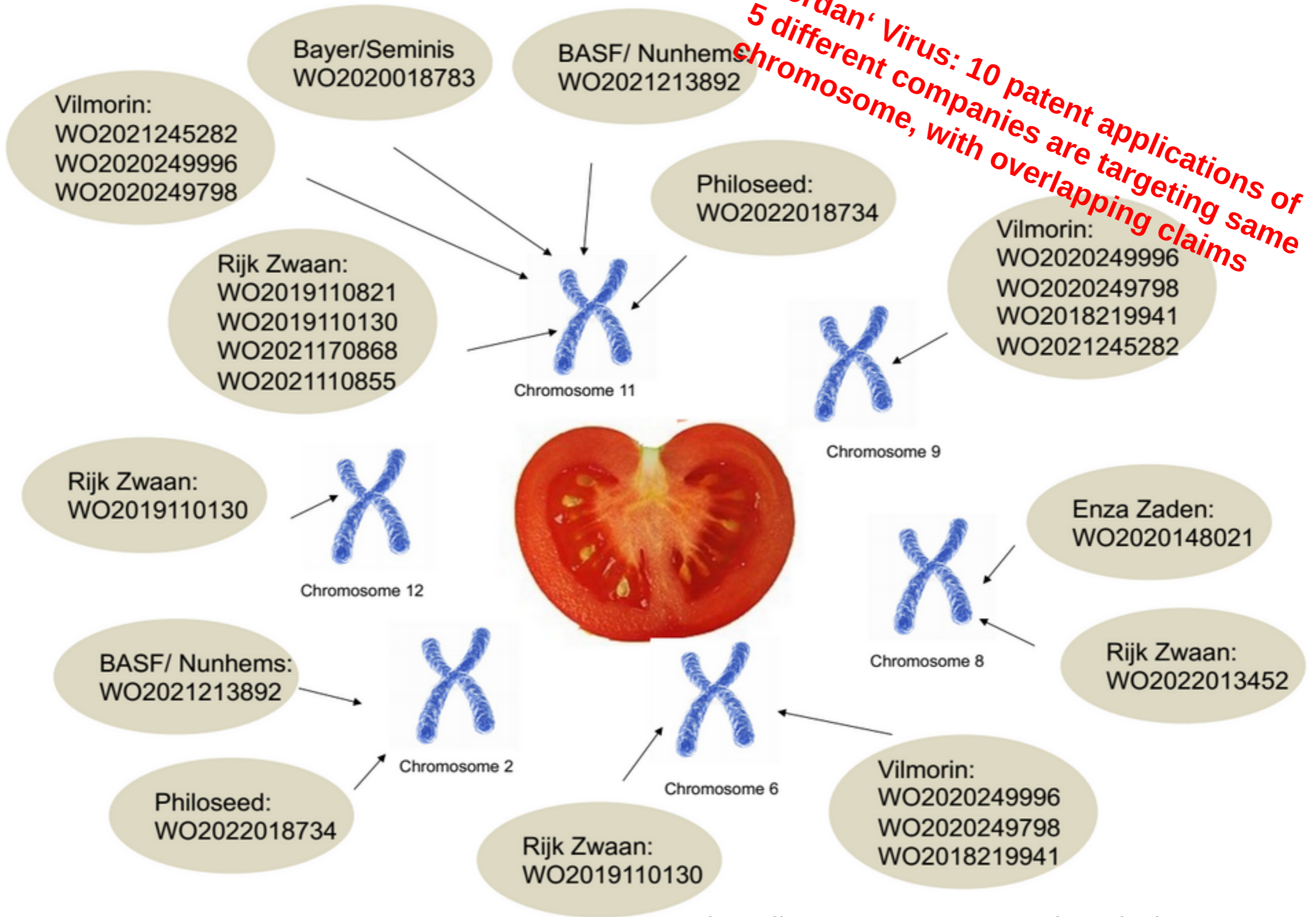


Figure 6: EPO patents granted for conventional plant breeding (international classifications IPC A01H or C12N15/82), between 2012 and 2022, categorized by companies. Source: database of *No Patents on Seeds!*

# 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*







(11) **EP 3 560 330 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:  
**15.06.2022 Bulletin 2022/24**

(51) International Patent Classification (IPC):  
**A01H 1/04** <sup>(2006.01)</sup> **C12Q 1/68** <sup>(2018.01)</sup>  
**C12N 9/14** <sup>(2006.01)</sup> **C12N 15/82** <sup>(2006.01)</sup>

(21) Application number: **18169122.1**

(52) Cooperative Patent Classification (CPC):  
**C12N 15/8255; A01H 1/04; C12N 9/0071;**  
**C12N 15/8216; C12Q 1/6895; C12Y 114/13088;**  
**C12Q 2600/156**

(22) Date of filing: **24.04.2018**

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(54) **PLANTS WITH IMPROVED DIGESTIBILITY AND MARKER HAPLOTYPES**

PFLANZEN MIT VERBESSERTER VERDAULICHKEIT UND MARKERHAPLOTYPEN

PLANTES À DIGESTIBILITÉ AMÉLIORÉE ET HAPLOTYPES MARQUEURS

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(84) Designated Contracting States:  
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB**  
**GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO**  
**PL PT RO RS SE SI SK SM TR**

(43) Date of publication of application:  
**30.10.2019 Bulletin 2019/44**

(73) Proprietor: **KWS SAAT SE & Co. KGaA**  
**37574 Einbeck (DE)**

- **MAURICE BOSCH ET AL:** "Identification of genes involved in cell wall biogenesis in grasses by differential gene expression profiling of elongating and non-elongating maize internodes", **JOURNAL OF EXPERIMENTAL BOTANY**, vol. 62, no. 10, 14 March 2011 (2011-03-14), pages 3545-3561, XP055498299, GB ISSN: 0022-0957, DOI: 10.1093/jxb/err045
- **RIBOULET C ET AL:** "QTL mapping and candidate gene research from lignin content and cell wall

Claim 1 and 2: Usage of naturally occurring gene variations for the selection of maize plants from existing plant populations.

Claims 3-5: All maize plants inheriting the gene variations as long as the plants are not derived exclusively from crossing and selection;

Claims 6-8 processes for the production of maize plants (including the resulting plants) with the desired characteristics, no matter if random mutagenesis or genetic engineering (NGTs) is applied.

## Nearly 1.400 conventionally bred plant varieties impacted by patents

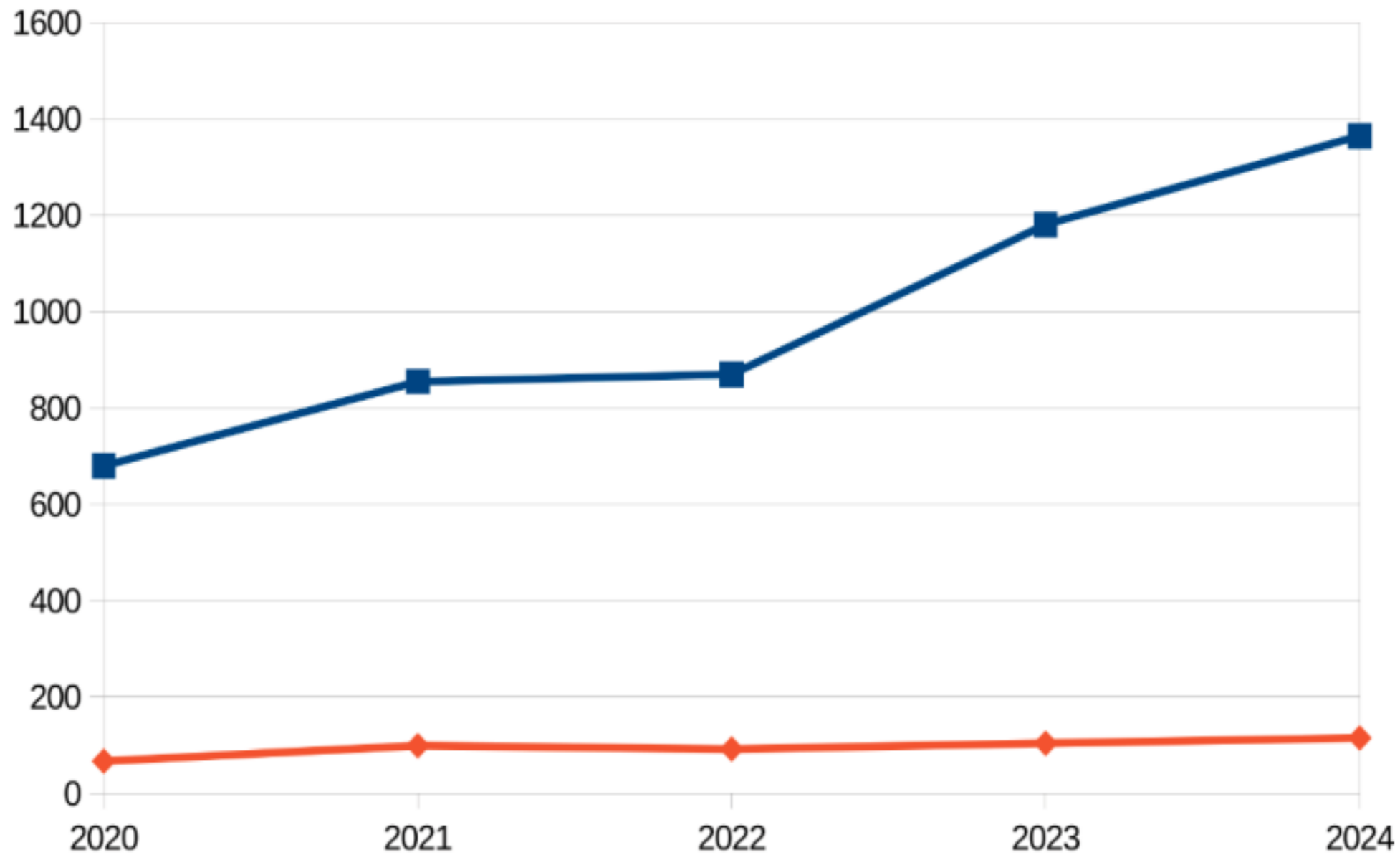


Figure 2: Number of European patents (red line) and of conventionally-bred varieties (blue line) affected by patents from mid-2020 until mid-2024 (data collected by *No Patents on Seeds!* from the PINTO database).

## Some findings from existing law

Plants obtained from random mutagenesis must therefore be distinguished historically, biologically, technically and legally from genetically engineered plants. They cannot be regarded as equivalent from the perspective of patent law.

Plants obtained from random mutagenesis are therefore subject to the general prohibition from patenting in Article 53 (b).

## Conclusions for future regulation

Political decisions should not aim to regulate intellectual property rights for conventionally-bred plants in patent law.

Access should be organised independently from patent law and firmly established within the framework of plant variety protection and full application of the breeders' privilege.

  
**NO PATENTS ON SEEDS!**



**Seed patents:  
A huge challenge for the European Union**

*Analysis of the problem, case studies and potential solutions*

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October 2024

**Thank you very much for your attention!**

<https://www.no-patents-on-seeds.org/en/report-2024>

Comment to the expert opinion commissioned by the Greens:  
<https://www.no-patents-on-seeds.org/en/opinion>

Contact: [info@no-patents-on-seeds.org](mailto:info@no-patents-on-seeds.org)