

NEW GENOMIC TECHNICAL

NGT Patents, Seed Market and Investments

ECVC - TRAINING

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NGT PATENT FIGURES

23 696

**Patent families
Global CRISPR**

data Dec. 2024

5 152

**Families on
CRISPR plants**

specific subset

2 350

**NGT Patents
implicit**

non-transgenic

247

**NGT Patents
explain**

"DNA-free" / "non-transgenic"

In Europe: 314 NGT families with European coverage (303 active: 131 pending + 172 granted) | China: 75% of global non-transgenic filings | USA: 59% of filings on NGT plants

Continuous growth since 2012 | ~425 new NGT families filed in 2024 alone

MAIN NGT PATENT HOLDERS IN THE EU

NORTH AMERICAN PLAYERS (EP coverage)

Corteva Agriscience

#1 global filer in the EU; exclusive licences from CVC, Univ. Vienna, Vilnius

Broad Institute/MIT/Harvard

Foundational CRISPR-Cas9 patents (limited scope in EU vs. USA)

Pairwise Plants Services

Rapidly growing European portfolio; Base Editors & Prime Editors

Bayer - Monsanto

Including CRISPR-Transposases (34 families); Non-exclusive Broad licenses

UC Berkeley (Caribou/CVC)

Foundational Doudna patents; Exclusive license granted to Corteva

EU EUROPEAN PLAYERS

KWS Saat (Germany)

Leading independent European player; solid portfolio in Europe and globally

Limagrain/Vilmorin (France)

4th worldwide; Broad + Corteva licenses; Base Editors & Prime Editors

Tropic Biosciences (UK)

Exclusive Caribou licence for arboriculture; RNA silencing

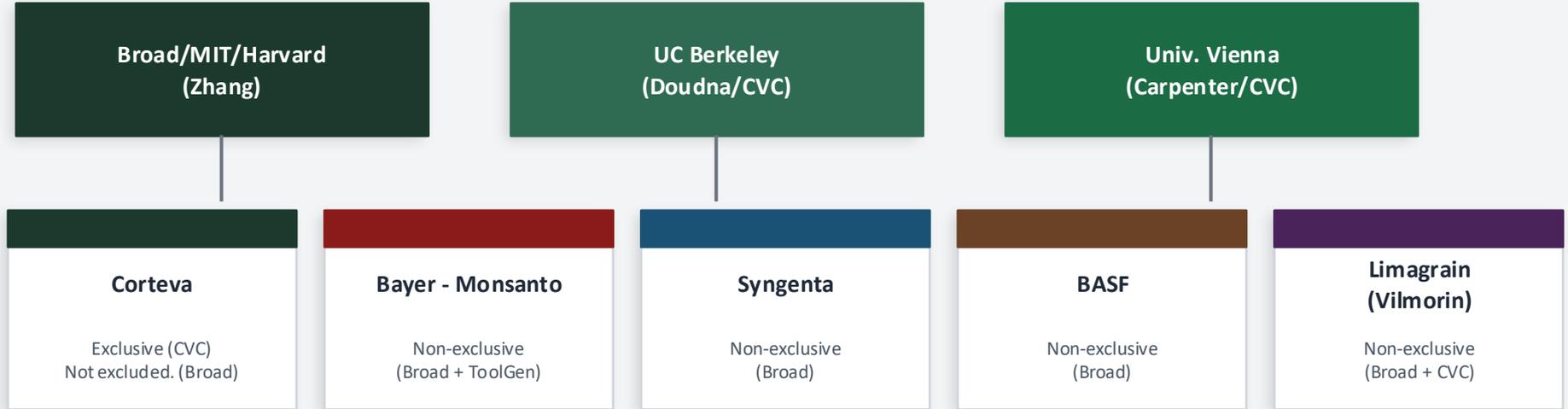
CNRS (France)

Academic institution; Notable filings on non-transgenic editing

Collectis (FR) / Fraunhofer (DE)

Explicitly DNA-free technologies; growing filings

CRISPR LICENCE LANDSCAPE IN AGRICULTURE



⚡ CORTEVA'S DOMINANT POSITION

Corteva is the only company with EXCLUSIVE licences from CVC (Berkeley), Univ. Vienna and Univ. Vilnius, making it the 2nd largest seed group worldwide and the dominant player in the US soybean market (2023). Corteva itself then sublicences to other companies.

MARKET CONCENTRATION AND INVESTORS

GLOBAL SEED MARKET SHARE (top 6)

Bayer (Monsanto)

23%

Corteva

17%

Syngenta (ChemChina)

10%

BASF

7%

Limagrain

5%

KWS Saat

3%

KEY INSTITUTIONAL INVESTORS

1. Vanguard Group (USA)

Largest shareholder Corteva + Bayer

2. BlackRock (USA)

Present in all big 4 seed companies

3. State Street Corp (USA)

Corteva, Bayer, BASF

4. Capital World Investors (USA)

Capital Group; significant stake in Corteva

5. Franklin Templeton (USA)

Consolidated presence in Corteva

6. Fidelity Investments (USA)

Bayer, Corteva

7. ChemChina/Sinochem

100% owner of Syngenta (Chinese State)

8. Limagrain Group (France)

Agricultural cooperative, 100% Vilmorin

TRADE: CURRENT SITUATION

EU EUROPEAN UNION — TODAY

NO NGT seeds commercialised under a dedicated NGT regulatory framework.

The only GMO crop approved for cultivation in the EU is Bt maize MON810 (Bayer, authorised in 1998).

The first NGT-1 commercializations cannot take place before 2028.

WORLDWIDE — AVAILABLE ALREADY

US CRISPR waxy maize

Corteva (USA)

US Camelina oils

Yield10 Bioscience (USA)

US Less Pungent Mustard Greens

Pairwise Plants (USA)

JP GABA tomato (Sicilian Red)

Sanatech (JP, approved 2021)

AR Deregulated CRISPR

Argentina

CRISPR PRODUCTS IN DEVELOPMENT (non-exhaustive list)

High-starch maize (Corteva)

Mould-resistant wheat (Calyxt/TALEN)

Virus-resistant tomato (Nexgen)

Non-browning avocado (GreenVenus)

Powdery mildew-resistant grape (VitisGen3)

Drought-resistant rice (Agrisea/Alora)

KEY CONCLUSIONS

Summary — NGT, Patents and Market

Explosive growth of NGT patents

5,152 families on CRISPR plants; 2,350 implicitly and 247 implicitly non-transgenic NGT. +425 new NGT families in 2024 alone.

Consolidated global oligopoly

Bayer (23%), Corteva (17%), Syngenta (10%), BASF (7%) + Limagrain control the market. The same funds (**Vanguard, BlackRock, State Street**) are cross-shareholders.

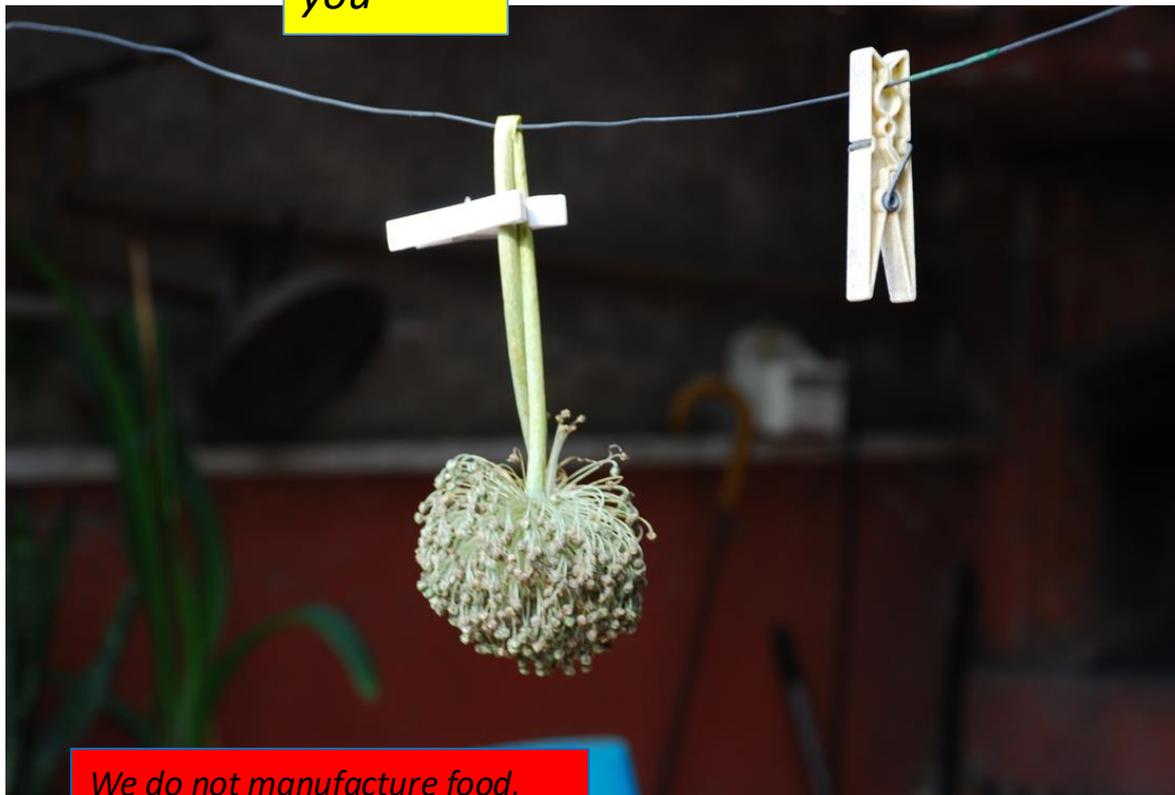
EU: regulatory milestone expected by 2028

Patents - EP: *"no to a ban, yes to transparency"*

The European Parliament has withdrawn the NGT patent ban. Patent disclosure at the time of NGT-1 registration. Expert group on patents established.

thanks
you

Homage to the land and those who work it



*We do not manufacture food,
we produce it!*

