

TESTBIOTECH BACKGROUND

Field trials of plants derived from new genetic engineering

Current development in Europe

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TEST BIOTECH

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What are field trials?

Field trials or experimental releases are trials with genetically engineered organisms (GE plants, animals or microorganisms) that are carried out for a certain period of time at one or more locations. Releases must be applied for in the EU and may be carried out after official review if, according to the current state of scientific knowledge, no negative effects on humans or the environment are to be expected. Releases are subject to conditions to ensure that they remain limited in time and space.

What is the trend in experimental releases of transgenic plants in the EU?

The number of experimental releases of transgenic plants (old genetic engineering) has been declining sharply in the EU for many years. Whereas at the end of the 1990s, in some cases more than 250 new applications were submitted each year, for some time now only very few new applications have been submitted.

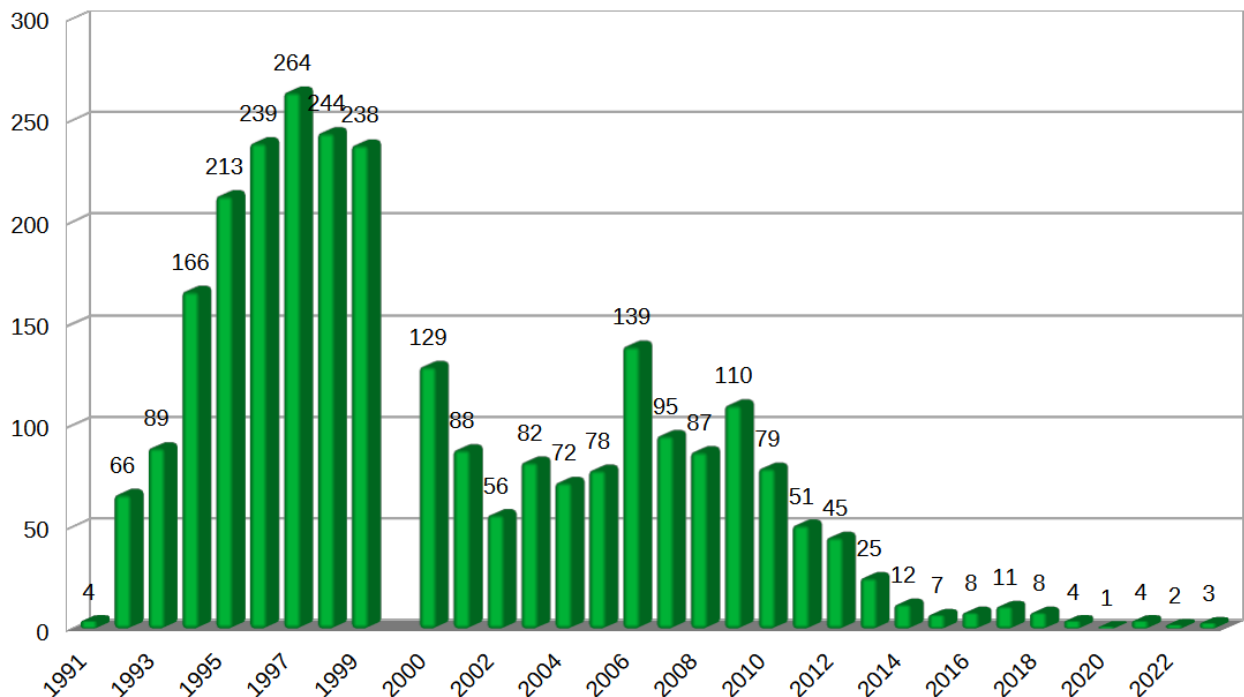


Figure 1: Experimental releases of transgenic crops (excluding New GE) in the EU between 1991 and 2023 (Sources: Joint Research Center; Imin, 2020; Gómez-Galera, et al., 2012; own data).

What is the trend in field trials of plants obtained from new genetic engineering (New GE)?

Experimental releases of New GE (new genetic engineering, also known as new genomic techniques, NGT, or genome editing) plants are conducted in the EU since 2016. All applications to date have been for plants developed with CRISPR/Cas gene scissors. The first application to be

approved was for New GE poplar in 2016, and since then the total number of field trials in Europe (including the UK) has risen to about 40.

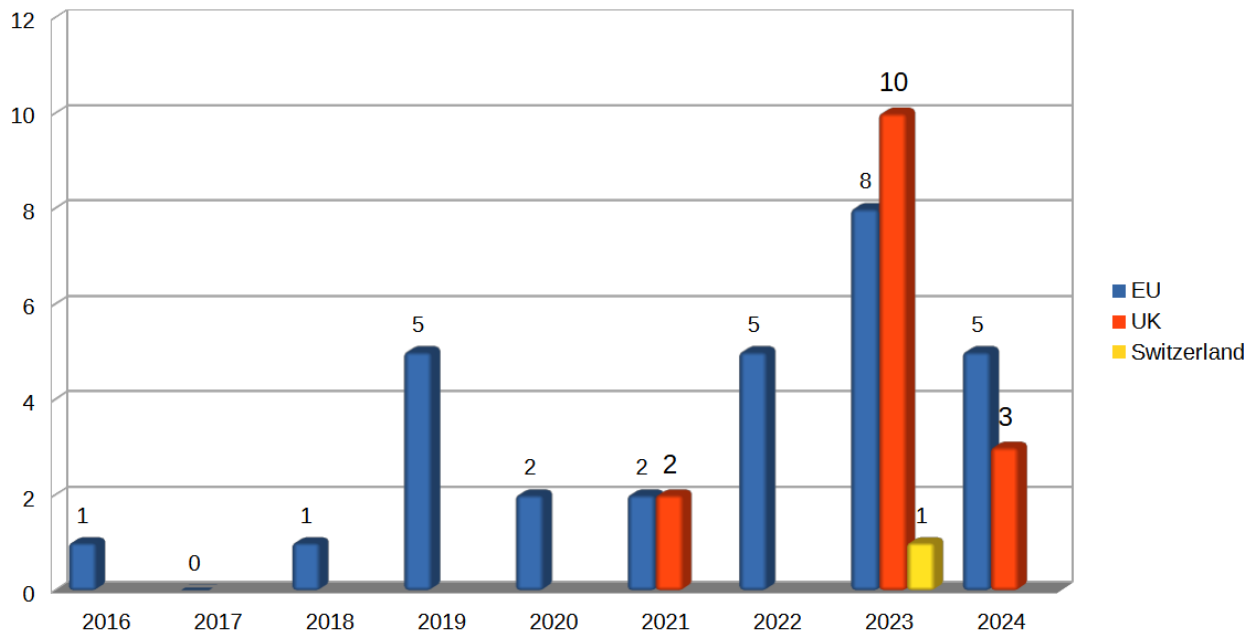


Figure 2: Releases of New GE plants in the EU and the UK since leaving the EU (Sources: Joint Research Center; www.gov.uk; own data)

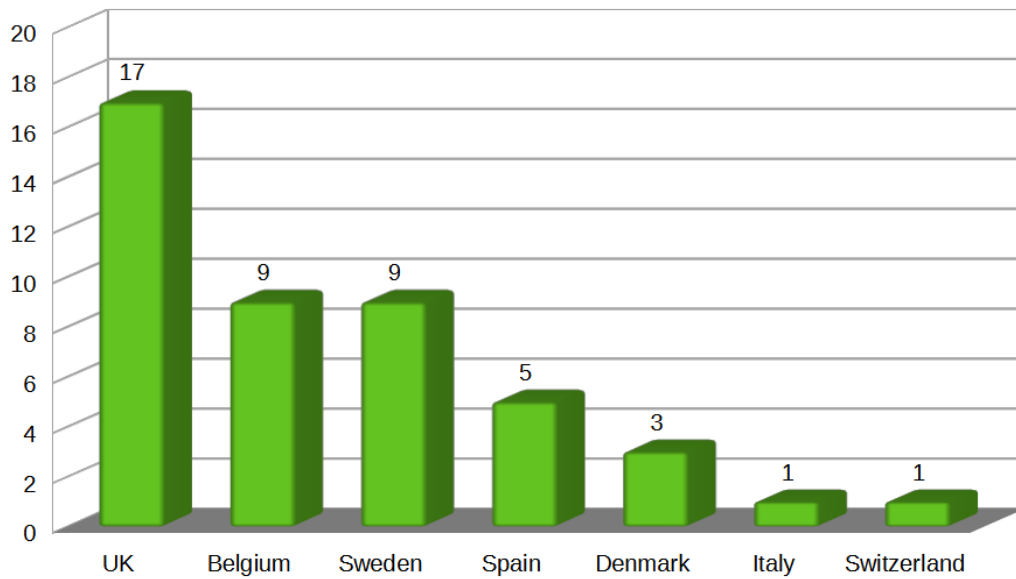


Figure 3: Releases of New GE plants in Europe; countries (Sources: Joint Research Center; www.gov.uk; own data)

Which New GE plants are used in the releases?

Most of the field trials reported so far have been conducted with CRISPR maize and potatoes, but there have also been releases of wheat, barley, tobacco, poplar, oilseed rape and others.

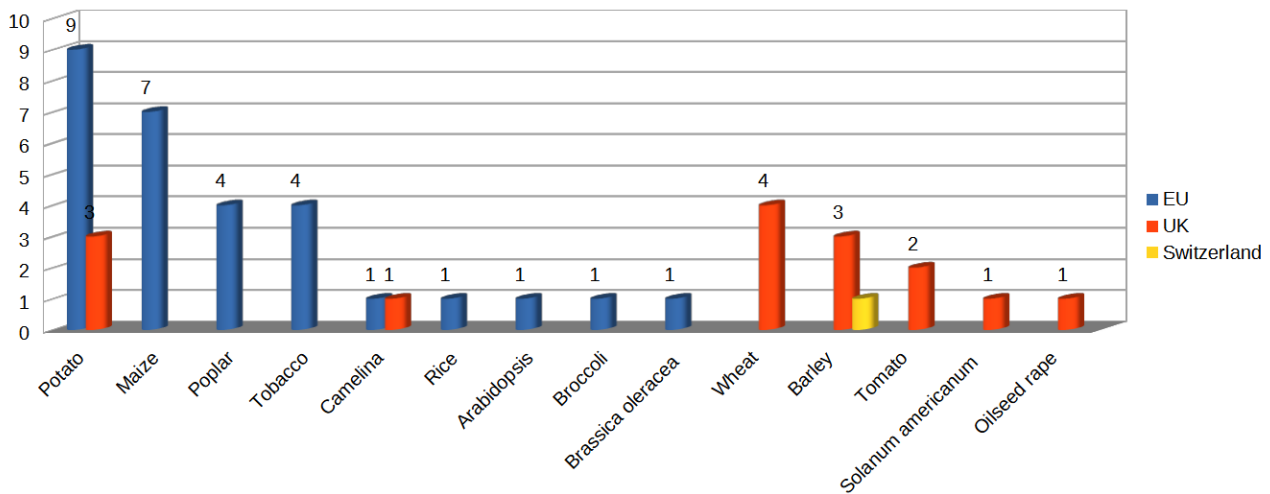


Figure 4: Releases of New GE plants in Europe; plants (Sources: Joint Research Center; www.gov.uk; own data)

What are the differences between releases in the UK and the EU?

In the EU, genetically engineered plants (including New GE) have to undergo risk assessment before being grown in field trials. If approval is granted, the applicant must comply with certain conditions to ensure that no risks arise for humans or the environment, and that the plants do not spread beyond the trial area.

Different rules apply in the UK after Brexit. New GE plants have been largely deregulated, with knock-on effects for field trials. Among other things, they are no longer subject to a formal approval process. At the same time, civil society has hardly any access to information about the releases.

Can plants from field trials be commercialised?

Genetically engineered organisms from experimental releases may not be used commercially either in the EU or the UK. Plant material may be scientifically tested, but after completion of the trial it must be rendered sterile or completely destroyed.

Do plants for GE field trials undergo the same risk assessment process as plants for commercial authorisation in the EU?

No. Field trials in the EU are subject to the genetic engineering laws of the individual member states. Risk assessment procedures and requirements therefore differ from member state to member state. In the EU, the European Food Safety Authority (EFSA) evaluates plants for commercial use, but it is only the EU Commission which grants approval after a multi-stage consultation with member states.

Where can I find information about field trials?

The EU Commission maintains a database on experimental releases of GE organisms, which can be found here: https://webgate.ec.europa.eu/fip/GMO_Registers/.

Field trials in the UK are published on this site: <https://www.gov.uk/search/research-and-statistics?parent=%2Fenvironment%2Ffood-and-farming-industry&topic=e2559668-cf36-47fc-8a77-2e760e12a812>

References

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