

UPDATED - This briefing was updated on 6 October 2016 to reflect EFSA's latest opinion and the European Parliament' objections.

European Commission prepares to authorise three GM maize varieties

Brussels, 28 September 2016 - The European Commission and a handful of EU governments want Europe to grow more genetically modified (GM) crops. In the coming months, they want to authorise the cultivation of two GM maize varieties (DuPont Pioneer's 1507 and Syngenta's Bt11), and to renew the licence for another maize (Monsanto's maize MON810), the only GM crop currently grown in the EU.

The proposed authorisations would only be valid in 9 out of 28 European Union (EU) countries, as well as in three regions (England in the UK, Flanders and the Brussels region in Belgium). The rest of EU countries and the remaining four regions in the UK and Belgium were excluded under the EU's new [opt-out mechanism](#). The Commission is hoping that EU governments will accept GM crops so long as they are not grown in their territories.

Franziska Achterberg, EU Food Policy Director for Greenpeace, said: *"GM crops have no place in sustainable farming. Rightly, the majority of EU governments and parliamentarians have rejected them. But now it's time for all EU countries to think beyond their borders. Governments should oppose environmentally damaging GM crops anywhere, not just in their own backyard, to protect wildlife and allow farmers and consumers to go GM-free."*

Decision-making calendar

8 July	First discussion on authorisations by EU member states
29 September	EFSA opinion on risks arising from the emergence of teosinte
3 October	Non-binding European Parliament environment committee vote
6 October	Non-binding Parliament plenary vote
14 October	Second discussion by EU member states
16 November (tbc)	Member state committee vote on Commission proposals
??	Appeal committee vote on Commission proposals
??	Final decision by the Commission

What are these GM crops?

Monsanto's MON810, DuPont Pioneer's 1507 Syngenta's Bt11 have all been engineered to produce certain toxins, which are derived from those produced by a soil bacterium, *Bacillus thuringiensis* (Bt). The Bt toxins are meant to kill the larvae of specific insect pests, such as the European corn borer, but impacts are wider.

Two of the crops, 1507 and Bt11, are also genetically modified to withstand spraying with glufosinate ammonium, a potent herbicide. Glufosinate is classified as toxic for reproduction and its uses have been [restricted](#) in the EU since 2013 because of concerns regarding its toxicity, particularly to small mammals such as voles. The cultivation of herbicide-tolerant GM crops usually leads to [greater use](#) of those herbicides.

Monsanto's MON810 was [authorised](#) in 1998. It is grown in [five EU countries](#) (Spain, Portugal, the Czech Republic, Slovakia and Romania) on about 130,000 ha, representing [just over one per cent](#) of the total area used to grow maize in Europe.

Unmanageable risks

The Bt toxins produced by these GM crops are likely to harm not only the targeted pests but also other, non-target insects including [butterflies](#), [ladybird beetles](#) and, if residues enter watercourses, also [aquatic insects](#). Harm to butterflies and moths could be “[substantial](#)” in the case of 1507, according to modelling by the European Food Safety Authority (EFSA). In countries where Bt crops are grown, insect pests have become resistant to the toxins resulting in “[substantial economic losses for farmers](#)”, according to a recent [review of GM crops](#) by the US National Academies of Science.

The Commission believes these risks can be controlled if “refuge areas” and “isolation distances from protected habitats” are prescribed. However, the experience with mandated refuge areas is poor, as they are usually [not complied with](#) and therefore ineffective.

The Commission has also proposed to instruct farmers not to use glufosinate-based herbicides on GM crops 1507 and Bt11 to ensure that the restrictions placed on these herbicides are “known and respected by farmers”. However, it is unclear how such a ban can be enforced.

No clear benefits

The producers of Bt crops have claimed that their use will increase yields and reduce insecticide use. However, according to the US National Academies of Science, “[the nationwide data on maize, cotton, or soybean in the United States do not show a significant signature of genetic engineering technology on the rate of yield increase](#)”. The amount of insecticidal Bt protein released per hectare [is similar or even greater](#) than the amount of conventional insecticides it replaces.

The GM maize plants produce the Bt toxins throughout their lifetime, from germination to harvest, in all parts of the plant, including pollen. By planting the Bt crops, farmers decide to use an insecticide regardless of the actual pest pressure that may or may not occur during the growing season. This is not only contrary to ecological farming principles but also to the principles of “integrated pest management”, by which EU farmers are [mandated](#) since 2014 to “keep the use of pesticides and other forms of intervention to levels that are necessary, e.g. by reduced doses, reduced application frequency or partial applications”.

Launching the transgenic treadmill

The three GM maize varieties are old products that received regulatory approval in the US as early as 1995 (MON810), 1996 (Bt11) and 2001 (1507). Monsanto’s GM maize MON810 has already come [off patent](#).

In the US, where [92 per cent](#) of maize acreage consists of GM varieties, the three crops under consideration have largely been replaced with crops that combine (“stack”) multiple genetically engineered traits. For example, DuPont Pioneer’s [2017 Product Use Guide](#) for the US does not list GM maize 1507, but only GM maize that combines 1507’s Bt toxin and glufosinate tolerance with tolerance to glyphosate. Similarly, Syngenta’s [US offer](#) no longer includes Bt11 but only stacked GM maize varieties that also tolerate spraying with glyphosate.

The proposed authorisation of the three single-trait maize varieties is likely to open the door to these newer, stacked GM crops. Stacked GM crops are the seed industry’s response to the evolution of resistance in pests and weeds. They can produce up to five Bt toxins and tolerate spraying with two different herbicides. The potential safety implications of [combined Bt toxins](#), and [Bt toxins combined with herbicide tolerances](#), are poorly understood.

The European Food Safety Authority (EFSA) has even stopped testing all stacked GM crops individually. In 2015, it rubberstamped [eleven GM maize varieties](#) at once, and signed off on another [twenty](#) this year, all to be allowed for import to (but not growing) in the EU.

In countries where stacked GM crops are grown, this has pulled farmers into a [transgenic treadmill](#), whereby pests and weeds develop multiple resistances that necessitate ever greater use of Bt toxins and herbicides – to the benefit of agrochemical companies, and to the detriment of farmers and the environment.

Massive opposition

Pioneer, Syngenta and Monsanto started the ongoing procedures for EU (re-)authorisation in 2001 (1507), 2003 (Bt11) and 2007 (MON810). In 2009, only [six out of 25](#) EU member states backed the Commission's proposals to authorise 1507 and Bt11. When the Commission interrupted the authorisation procedure for 1507, the [General Court of the European Union](#) ruled that it "failed to fulfil its obligations", following a complaint by Pioneer.

In February 2014, again only [five out of 28 member states](#) supported the authorisation of 1507, with 19 countries opposing and four abstaining. The [European Parliament](#) called on the Commission to reject the authorisation by 385 votes to 201.

The Commission has not pursued the other two (re-)authorisation procedures (Bt11 and MON810) since 2009.

On 6 October, the European Parliament opposed the authorisation of the three GM maize lines in Europe.

Divide and rule

Instead, the Commission pushed for a law that would allow EU countries to "opt out" of EU-wide GM crop authorisations. The law was adopted in 2015, and 19 governments asked that all or part of their territory be excluded from the authorisation of GM maize 1507, Bt11 and MON810. The Commission is hoping that national governments will accept authorisations that may allow farmers in neighbouring countries to grow such crops even if they prohibited cultivation on their own territory.



Threat to GM-free and organic production

Contamination of non-GM maize fields with GM maize is common, with five to ten incidents per year [recorded](#) globally since 1999. A recent study indicates that, contrary to previously held views, [maize pollen](#) can travel airborne up to 4 kilometres.

In Europe, rules to prevent such contamination, and allow "co-existence", differ from country to country. For instance, Spain, where most GM maize is grown, has [no specific rules](#) on isolation distances, buffer zones or mandatory information for the authorities or neighbouring farmers. Experience shows that "co-existence" has [failed](#), and that it is [almost impossible](#) for organic and conventional farmers to grow maize in areas where GM maize MON810 is grown.

Incomplete EFSA assessment

In its risk assessments of the three crops, EFSA has acknowledged adverse effects on non-target butterflies and moths. However, it disregarded similar effects on a [myriad of other species](#), including

[aquatic insects](#), which can have repercussions on ecosystems by disrupting the food chain. It also failed to assess the impact of current agricultural practices such as [glyphosate use](#), which could enhance the toxicity of Bt proteins to aquatic life affected by runoffs. Likewise, EFSA also dismissed any possible [health impacts](#) on vertebrates, including mammals, and played down possible safety implications of the [genomic irregularities](#) resulting from the genetic engineering process.

Another possible risk is linked to teosinte, the ancestor of cultivated maize, which has been found in GM maize fields in Spain. Teosinte could cross-breed with GM maize and start also producing Bt toxin, which would result in higher fitness of a weed plant that has already colonised [hundreds of hectares of Spanish maize fields](#). EFSA has brushed off these fears saying that “teosinte already has higher levels of pest resistance/tolerance than maize”. According to [EFSA](#), environmental harm is “unlikely” if farmers manage to “control and/or eradicate teosinte and its progeny in infested agricultural areas”, and if GM contaminated teosinte does not spread beyond these areas. Neither of these can be claimed with certainty.

Greenpeace demands

Governments should reject the authorisation of the three GM crops based on the documented risks to the environment and the uncertainties arising from the substantial gaps in their safety assessments. This is the only way to protect the environment, and to allow farmers to grow conventional or organic maize.

GM crops have no place in sustainable farming. They come with unacceptable risks, resulting both from the genetic engineering process and the engineered characteristics. At the same time, they have [failed to deliver](#) on the promises made by their producers. Instead of following the example of the US and the handful of other countries where GM crops are grown, the European Union should turn to ecological farming methods to protect the environment and our health.

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