

DEREGULATION OF NEW GMOS IN THE EU: WHAT WOULD IT MEAN FOR US?

Slow Food Policy Brief
on the European Commission's proposal
on "New Genomic Techniques"

October 2023



Slow Food®

October 2023

**POLICY BRIEF:
DEREGULATION OF NEW GMOS IN THE EU:
WHAT WOULD IT MEAN FOR US?**

Research

Claire Robinson (GM Watch)

Authors

Claire Robinson (GM Watch), Madeleine Coste (Slow Food) and Giulia Gouet (Slow Food)

Graphic layout

Mattia Dedominici

Cover image

© Davide Sabatini

TABLE OF CONTENTS

| | |
|---|-----------|
| Introduction | 4 |
| Which GMOs does the Commission want to deregulate? | 5 |
| Why is the European Commission now proposing a deregulation of new GMOs? | 7 |
| How the Commission's GMO deregulation proposal would affect us | 8 |
| - Citizens would lose the ability to buy and eat GMO-free foods and to be assured of the safety of their food | 8 |
| - Cooks and restaurateurs would not be able to guarantee customers organic or GMO-free ingredients | 9 |
| - Farmers would suffer from increased corporate control of food systems | 9 |
| - Organic and non-GMO farmers and growers would be unable to maintain GMO-free status | 10 |
| - The public, Parliament and Member States would lose the opportunity to participate in decisions on GMOs | 11 |
| How does the Commission justify its proposal? | 11 |
| New GMOs will not contribute to sustainable food systems | 12 |
| Conclusion and recommendations | 15 |
| References | 16 |

INTRODUCTION

On 5 July 2023 the European Commission made a proposal to revise the European Union's (EU)'s genetically modified organism (GMO) regulations.¹ The proposal envisages deregulating new GMOs² by easing the rules on safety checks, traceability, and labelling requirements, going as far as removing them entirely for the vast majority of new GMOs.

New GMOs are genetically modified organisms obtained with new genetic engineering techniques, which the Commission refers to as “new genomic techniques” or NGTs. These techniques, including the much-hyped CRISPR/Cas gene-editing technique, are being used to produce plants with new traits, such as potatoes that don't turn brown when cut,³ canola that survives being sprayed with herbicides,⁴ and soybeans that have an altered fat composition to make them suitable for cooking at high temperatures in fast food contexts.⁵

The Commission justifies its proposal in the name of promoting innovation and increasing sustainability. It claims that current GMO laws are “not fit for the purpose” of regulating certain NGT plants and that NGTs can offer precise, sustainable solutions for the European Green Deal's Farm to Fork Strategy. These statements strongly align with industry interests.

According to Slow Food, the Commission's proposal would scrap nearly 30 years of transparency over GMOs in the EU, violate the precautionary principle that underpins current GMO regulations, and end consumer choice over whether to buy and eat GM foods – despite poll results showing that most consumers want to keep labelling for all GMOs.⁶ Citizens' concerns were also highlighted in the #IChooseGMOfree petition, signed by 420,000 European citizens, calling for GMOs to remain strictly regulated, which Slow Food handed to the Commission in 2023.⁷

The proposal fails to protect organic and non-GMO farmers and small-scale food producers from contamination of their products. It also fails to establish any liability for harm caused by these new GMOs, despite uncertainty about their impacts on the environment and health. Finally, the proposal would inevitably increase the concentration of power in the food industry, thus harming rural communities. In short, this is a real deregulation of new GMOs in the EU, which poses a danger to the sustainability of food systems.

Slow Food believes new GMOs must remain strictly regulated due to the risks they present to agrobiodiversity underpinning local food heritage, the threats they pose to small-scale farmers' livelihoods and to the consumers' freedom of choice. Citizens, cooks, farmers, and policy makers must mobilize to avoid this new generation of GMOs making their way into nature and onto our plates untested and unlabeled – with irreversible consequences for agrobiodiversity and our common food future. Slow Food calls for policies that support a transition to agroecological food systems in which new GMOs do not have a role.

WHICH GMOS DOES THE COMMISSION WANT TO DEREGULATE?

If the Council of the EU and the European Parliament agree to the Commission's proposal, new GM plants would be placed into either of two categories:

“Category 1” NGT plants are genetically modified plants that the Commission claims “could also occur naturally or be produced by conventional breeding”. The Commission says these GMO plants do not require any special regulatory oversight and that they should therefore be treated as equivalent to conventional plants and be fully deregulated. To qualify as a Category 1 plant, the GMO should not contain more than 20 genetic modifications of certain types, listed in Annex I to the proposal.⁸ However, the problem with this definition is that the number 20 is arbitrary and has no scientific basis. Safety or risk does not depend on the number of intended modifications, but on what they do. Even altering a single base pair (the smallest unit of genetic material) within a gene can result in a safe plant becoming toxic or allergenic.⁹ To be noted, it is likely that most new GM plants – as many as 94%¹⁰ – would fit into Category 1 and therefore escape risk assessment and labeling.

“Category 2” would cover plants that do not fall into Category 1. These GMO plants would still be regulated beyond what is applied to conventional plants, but the risk assessment could be simplified or “accelerated” compared to the current EU GMO rules if the plants are claimed to be “unlikely to pose risks that need monitoring, such as indirect, delayed or unforeseen effects on human health or on the environment”.

PROPOSAL'S REQUIREMENTS FOR NGT PLANTS COMPARED TO ESTABLISHED GMOS¹¹

| | NGT CATEGORY 1 | NGT CATEGORY 2 | GMOS |
|-------------------------|---|---|--|
| Authorization procedure | No authorization procedure Only a review of NGT1 status by a Member State and/or European Commission | Accelerated authorization procedure Responsible parties similar to those with established GMOs | Assessment by EFSA and Member States Decision taken by Member States and/or European Commission |
| Risk Assessment | None | Limited risk assessment Assessment scope not yet defined | Comprehensive assessment of risks to health and the environment |
| Labelling | Only for seeds. ¹³ No labelling of food. | Same as for existing GMOs. Sustainability label possible | Labelling required for all GMO products above 0.9% threshold ¹² |

| | NGT CATEGORY 1 | NGT CATEGORY 2 | GMOS |
|---|---|--|---|
| Detection method | None | Mandatory in principle, but exemptions are possible if applicants state that detection is not technically feasible | Mandatory; must be provided by applicant |
| Traceability at all stages of supply chain | None | Mandatory | Mandatory |
| Coexistence between GM and non-GM production | None | Mandatory regulations at national level | Possible at national level; not mandatory |
| Cultivation bans | Although not set out in explicit terms, the assumed equivalence with conventional plants implies this is not possible | Not possible | Possible |

For Category 1 NGT plants, the current requirements for all GM plants to be subjected to a risk assessment for health and environment, traceability, and labelling would be replaced by a notification procedure, in which the applicant that wants to commercialize the new GM plant would enter it in a public register. The regulatory agencies would then carry out a “status check” to verify that the new GM plant belongs in Category 1. It would then be treated as equivalent to a conventionally bred plant, even though it may be very different in terms of its composition, performance in the field, and biological effects on consumers and the environment.

For Category 2 NGT plants, “regulatory incentives” could be offered, in the form of a quicker authorization process, if the plant were claimed to be able to contribute to sustainability. This in effect means that safety could be traded away in exchange for unproven claims of “sustainability”.

New GM techniques such as gene editing are new in agriculture and must be viewed as experimental. Therefore they should remain strictly regulated.

WHY IS THE EUROPEAN COMMISSION NOW PROPOSING A DEREGULATION OF NEW GMOS?

The Commission's proposal comes in response to the 2018 ruling of the European Court of Justice that new GM techniques such as gene editing (called "targeted mutagenesis" in the ruling) fall under the scope of the EU's GMO regulations¹⁴. Under this current regulation, all GM plants are required to:

- **undergo mandatory safety checks** (risk assessment) for health and the environment, meaning that the developer must supply data to the regulator.
- **be traceable** throughout the food chain, from the seed to food products in the supermarkets and on our dinner plates.
- **be clearly labelled** on the package as "genetically modified". This applies to food products as well as seeds and other plant material used by farmers and growers.

Full traceability is made possible by the fact that the applicant for authorization of a GMO must provide a detection method to the EU authorities as a condition of obtaining approval to market the GMO. An existing loophole in the current legislation is that products from GM-fed animals escape labelling.

The court's ruling was met with fury by the GMO seed industry and its allied scientists¹⁵, who view the GMO regulations as an expensive and onerous barrier to bringing GM products to market and persuading consumers and farmers to buy and use them. Few EU citizens want to eat GM foods, and as they must be labelled as GMOs, retailers have mostly excluded them from food products.

The Commission's proposal could be viewed as an attempt to allow GM food developers to access markets that have so far been barred to them. The Commission says its proposal aims to simplify and reduce the "administrative burden for applicants and authorities", as well as saving breeders money due to the new minimal "verification" procedure. The Commission hopes that these changes will have "the strongest positive impact on the development and placing on the market of NGT plants and products (including food and feed)".



HOW THE COMMISSION'S GMO DEREGULATION PROPOSAL WOULD AFFECT US

→ CITIZENS WOULD LOSE THE ABILITY TO BUY AND EAT GMO-FREE FOODS AND TO BE ASSURED OF THE SAFETY OF THEIR FOOD.

Under the terms of the proposal, and as a consequence of the deregulation, citizens would no longer have the assurance that food safety risks have been checked. Nor will they be able to choose GM-free foods, because not all GMOs will be labelled

Under the current GMO regulations, risk assessment is mandatory to spot food safety risks and prevent potentially dangerous GMOs entering the food supply. These safety checks would be widely removed for new GMOs with the Commission's proposal.

Without a label, citizens will no longer be able to exercise their democratic choice to avoid buying these products. For example, they may oppose the patents that apply to all GMOs. Or they may want to avoid supporting the big agribusiness firms that dominate the seeds market¹⁶ and increasingly tie farmers into certain production methods or marketing streams¹⁷. Or they may be concerned about environmental impacts of GMOs.



Slow Food encourages consumers to become “co-producers” – conscious consumers who go beyond the passive role of consuming and take an interest in those who produce our food, how they produce it, and the problems they face in doing so. In actively supporting food producers, we become part of the production process. The term “co-producer” was coined by Slow Food to highlight how collectively our consumer choices can change how food is cultivated, produced, and distributed. If consumers are not provided with information about whether a food contains new GMOs, they lose power as co-producers.

→ COOKS AND RESTAURATEURS WOULD NOT BE ABLE TO GUARANTEE CUSTOMERS ORGANIC OR GMO-FREE INGREDIENTS

Cooks and restaurateurs have a vital role to play in upholding sustainable food systems, educating customers, and safeguarding the biological and cultural diversity of our food. This role is exemplified by the Slow Food Cooks' Alliance, a network of cooks who commit to supporting local small-scale producers¹⁸. **By removing labelling and traceability requirements for some GMOs, the Commission's proposal threatens cooks' ability to offer and guarantee organic or GMO-free food to their customers**, undermining their role in advancing sustainable food systems.

→ FARMERS WOULD SUFFER FROM INCREASED CORPORATE CONTROL OF FOOD SYSTEMS

The Commission claims that its deregulation proposal will "support diversification of developers of NGT plants and encourage the development by small breeders of crop species and traits by means of NGTs".¹⁹ But far from democratizing plant breeding and putting it in the hands of small- and medium-sized breeders, **new GM techniques are owned and controlled by large agribusiness corporations through patent ownership**. The patent landscape in agricultural gene editing applications is dominated by Corteva (formerly Dow DuPont) and Bayer (which acquired Monsanto), followed by KWS, Calyxt, BASF, Keygene, and Syngenta.²⁰

The deregulation of new GMOs would increase the chances that small- and medium-sized plant breeders and farmers will be trapped in a "patent thicket" – a dense web of overlapping patents – which would make it challenging for them to operate without infringing on existing patents. **Plant breeders would find it increasingly difficult or impossible to access genetic resources that are crucial for creating new plant varieties. The deregulation would also enable major seed companies to increase their dominance, ultimately pushing out smaller and mid-sized breeding companies, despite their essential role in advancing crop diversity in the face of climate and biodiversity challenges.**²¹

An increased number of new GM organisms coming onto the market in the EU will increase breeder and farmer dependence on patented seed and technology. This will entail breeders and farmers paying license fees and/or royalties to the patent owners. Practically speaking, these fees can be charged through various pathways, including increased seed costs, license agreements that must be signed by farmers and breeders, and/or royalties that can be claimed by patent owners at various stages of the production process.

Additionally, farmers are generally not allowed to save and replant patented GM seeds – they must buy new seeds every year²². If they save seed without permission and payment, the patent owners can sue them for patent infringement. Multinationals do not only patent GMOs, but also their descendants: If a GM plant fertilizes a conventionally bred plant in a neighboring field, the neighbor faces the risk of a lawsuit for infringement. In 2012, Monsanto took more than 450 farmers to court, resulting in 142 lawsuits, 70 of which won the multinational \$23 million.²³

Under the terms of the Commission's proposal, detection methods for these GMOs may not be publicly available, but the patent owner will certainly have a detection method through which it can enforce its patents. The implications of this power imbalance are huge. Companies can allege that a farmer's crop illegally contains their patented GMO and farmers will have no recourse to their own testing to challenge the accusation. The patent owner can then claim royalties from the farmer.²⁴

→ ORGANIC AND NON-GMO FARMERS AND GROWERS WOULD BE UNABLE TO MAINTAIN GMO-FREE STATUS

Organic standards do not allow the use of GM plants and the Commission's proposal excludes NGTs from being used in organic farming. To enable farmers to avoid inadvertently planting Category 1 GM seeds and breeders to avoid using them, the Commission proposes that these GM seeds should be labelled "Category 1 NGT", together with the identification number of the NGT plant. In addition, the variety would be entered as produced with an NGT in the public register. However, this labelling would stop with the seeds – foods, food products and ingredients produced using Category 1 new GM techniques would not be labelled, as explained above.²⁵

Category 2 NGT seeds will still be labelled as GMOs, under the existing GMO regulations. But under the terms of the Commission's proposal, providing a detection method for these types of GMO would no longer be required in certain cases. In those cases, detection and traceability would not be possible.

In sum, without a detection method, there would be no way to independently verify the organic or non-GMO status of seeds or other plant propagation material. In cases where new GMOs are found to contaminate organic or non-GMO seeds organic farmers could lose their organic certification and their livelihoods. Without a publicly available detection method, the only body that would be able to prove contamination or its absence would be the applicant for GMO authorization.

In addition, **conventional, organic and non-GMO farmers alike would be at risk of having their crops and harvest contaminated by new GMOs through cross-pollination and through mixing and spillover during transport, storage, and processing.** The absence of any "polluter pays" principle in the Commission's proposal means that the onus would be on the farmers to put measures in place to avoid contamination, so those who wish to provide GMO-free food would have to pay the cost.

→ THE PUBLIC, PARLIAMENT AND MEMBER STATES WOULD LOSE THE OPPORTUNITY TO PARTICIPATE IN DECISIONS ON GMOS

The proposal gives the Commission extraordinary power to make decisions on GMOs and removes power from the public, the European Parliament, and Member States. Decisions on market approvals of GM plants currently involve Member States and include public consultation.

Since 2015, 18 governments have decided to ban or restrict GMO cultivation.²⁶ The recent proposal would deprive EU Member States of their right to ban the cultivation of new GMOs on their territory. Member States will be responsible for adopting coexistence measures, to avoid the unintended presence of new GM plants in organic and conventional crops. **However, the proposal would mean that companies will no longer be required to provide detection methods for most new GMOs, making traceability difficult or impossible.** GMO-free regions within EU Member States will also lose the ability to ban GMO cultivation.

The proposal gives a single Member State (the one that received the application from the company that wants to commercialize the GMO) the power to declare any new GMO as Category 1, exempting it from risk assessment, traceability, and GMO labelling. The Category 1 declaration is then binding on all other Member States. **Due to these factors, the Commission's proposal is profoundly anti-democratic.**

HOW DOES THE COMMISSION JUSTIFY ITS PROPOSAL?

The Commission claims that the current GMO regulations have not kept pace with scientific progress in this area. It calls them “disproportionate” and says they are unsuited to some new GM plants because they have a low risk profile, comparable to conventionally bred plants. It says NGTs are more “precise” than conventional breeding or older-style GM techniques and unlike the latter, do not introduce genetic material from non-crossable species.

However, these claims are false. New GM technologies are not precise nor predictable in their outcomes. Compared with older-style GM plants, new GM plants could pose similar risks, as scientists have warned. Risks to health include unexpected toxicity or allergenicity.²⁷ And new GM techniques can and do result in the final GMO containing genetic material from non-crossable species.²⁸

The Commission further claims that NGTs can deliver plants with “improved tolerance or resistance to climate change effects and environmental stresses, improved nutrient and water-use efficiency”, or “higher yields and resilience and improved quality characteristics”. It adds that based on these expected characteristics, NGT plants can help the EU achieve the sustainability and food security goals of the European Green Deal's Farm to Fork Strategy.²⁹ **However, there is no evidence that new GMOs can contribute to sustainability (see below) – and the Commission's proposal simply mirrors what the GMO industry has been lobbying for over a period of years.**³⁰

NEW GMOS WILL NOT CONTRIBUTE TO SUSTAINABLE FOOD SYSTEMS

Food systems can only be sustainable if they are healthy, socially and culturally adequate, environmentally friendly, resilient, ethically sound, and economically viable.³¹ Slow Food promotes agroecology as a keystone to ensure that everyone can access a healthy, nutrient-rich diet that is respectful of cultures, as well as to preserve biodiversity and natural resources, build resilience in the face of climate change, and restore agriculture and farmers to their central role in the agrifood system.

Slow Food's goal is for all people to be able to access and enjoy food that is good for them, good for those who grow it, and good for the planet. This approach is based on a concept of food sustainability that is defined by three interconnected principles:

GOOD

sustainable food systems provide access to quality, flavorsome, and healthy food that is socially and culturally adequate.

CLEAN

sustainable food systems are resilient and respect the environment, climate, and biological and cultural diversity, in line with an agroecological approach.

FAIR

sustainable food systems are ethically sound and accessible, ensure food justice, and empower consumers through transparent labelling, while ensuring fair prices for farmers and consumers.

Based on these criteria, there is no evidence to back up the Commission's claims that new GMOs can contribute to the sustainability of our food and farming systems: There are many problems with the Commission's reasoning, which is based on evidence-free assumptions and promises from the GMO industry and its lobbyists.³² Crucially, the proposal does not address any of the systemic issues underpinning the unsustainability of our food systems, where policies have focused on increasing productivity, driving the EU food system towards overproduction and overconsumption.

GOOD

There is no evidence that new GM plants are safe to eat or for the environment, or that they are any safer than older-style GM plants (safety questions linger over already-commercialized GM foods³³). This is why case-by-case safety assessments should be conducted for all new GMOs, just as they are for existing GMOs under the current regulations.

CLEAN

New GMOs do not have a role in clean food systems:

- New and old GM crops are generally grown in massive monocultures which heavily rely on pesticides and fertilizers. The GMO seed companies are also the largest pesticide sellers by value, which implies they have an interest in selling new GMO seeds compatible with synthetic pesticides and fertilizers.³⁴
- The industry claims new GM technology can contribute to sustainability by developing, for example, seeds that are resistant to drought or fungal pathogens. However, genetic engineering has failed to deliver on these traits. This is because they are genetically complex traits, underpinned by many genes. They are therefore difficult or impossible to obtain through GM methods, which can only manipulate one or a few genes. In contrast, indigenous and other conventionally bred varieties adapted to the local environment and climate perform well under difficult conditions.³⁵
- New and old GMOs pose a threat to biodiversity, as they may lead to the dominance of a few genetically engineered crops at the expense of diverse, locally adapted varieties, thus also damaging the cultural heritage embedded in indigenous varieties.

New GMOs will not reduce pesticide use

It is often claimed that new GMOs are needed to reduce pesticide use. But a 2021 report by the Commission's Joint Research Centre (JRC) found that out of the new GM plants that were classified as close to commercialization, the largest trait group – six out of 16 plants – was herbicide-tolerant.³⁶ These GM plants will continue the toxic trajectory of older-style GM herbicide-tolerant crops, which have increased herbicide use.³⁷

An in-depth report by Foodwatch investigated the pesticide reduction claim for new GMOs and found it baseless. The report found:

- Almost all pests, weeds and diseases can be prevented by a wider, more diverse crop rotation – allowing more time between similar crops and planting a higher diversity of crops.
- Even if new GM disease-resistant varieties are produced, the necessary development and testing process could take decades. So promises that new GM techniques will provide quick solutions to these problems are empty. In addition, converting crops such as grapes to these new varieties will be prohibitively expensive and almost certainly will be pointless, given the short expected lifespan of genetically engineered disease resistance in the face of quickly mutating pathogens.
- Analysis of the peer-reviewed scientific literature shows that among the gene-edited crops that have been developed for disease resistance, the targeted crop-pathogen combinations are not major “pesticide consumers” in Europe: either the cultivated area has a small share and/or the pathogen is not the major cause of pesticide use in this crop.

- Almost 80% of the EU's pesticide use comprises herbicides and fungicides, and there are no GM solutions available or in development that could substantially reduce these uses. The report says, "When it comes to pesticide reduction in the European Union, the potential of these genetic engineering technologies seems to be currently nearly zero."
- The report concludes, "NGTs so far only seem to be an empty promise. Genetically modified crops suitable to achieve the 'Farm to Fork' objectives are not available. It seems they won't be available within the next 10-15 years."³⁸







FAIR

The deregulation proposal:

- is unfair to producers, as the patents that apply to all GMO technologies and products are highly restrictive and pose a growing threat to the survival of rural communities, who are increasingly deprived of their means of production and livelihoods.
- is unfair to consumers, as they will not be able to choose whether to buy GMO-free food, as new GMOs would no longer be labelled. This goes against the EU's Farm to Fork Strategy's aim to "empower consumers to make informed, healthy and sustainable food choices".³⁹

In sum, a GMO approach is inherently unsustainable as it fails to consider the complexity of food systems and is unable to provide durable solutions to food and farming problems.

CONCLUSION AND RECOMMENDATIONS

-  The EU must implement the European Court of Justice's ruling of 2018 and ensure that new GMOs remain strictly regulated under the current EU GMO regulations, which require all GMOs to undergo a robust risk assessment, be traceable throughout the food and feed chains, and be clearly labelled as GMOs, in order to be placed on the market.
-  The EU should enforce:
 - the precautionary principle⁴⁰
 - the right of citizens to access environmental information and participate in decision-making⁴¹
 - the right to “a high level of protection of consumers’ health and interests” through the provision of food information, which establishes “a basis for final consumers to make informed choices and to make safe use of food, with particular regard to health, economic, environmental, social and ethical considerations”⁴²– all of which are enshrined in EU law.
-  The EU must guarantee farmers’ and citizens’ freedom to choose to grow and eat GMO-free food, which requires the traceability and labelling of all new GMOs from the seed to the final product.
-  The EU should aim to halve the use of pesticides by 2030 and pursue this target in evidence-based⁴³, holistic, and systemic ways, such as by adopting agroecological practices, organic farming, and integrated pest management.
-  The EU must promote a transition to agroecology through investing in research on agroecology and supporting farmers to adopt agroecological practices. Agroecology is a holistic and integrated approach that simultaneously applies ecological and social concepts and principles to the design and management of sustainable agriculture and food systems. Agroecology can help restore biodiversity; reduce reliance on external inputs; reduce the ecological footprint of food production and distribution, as well as consumer practices; and boost the adaptability and resilience of the production system by maintaining the diversity of agroecosystems. These are crucial tools for achieving climate neutrality by 2050.
-  The EU should promote technological advances that are proven to support sustainability in line with the principles of good, clean, and fair.

Given the above, the Council of the EU and Parliament should reject the Commission's proposal. Category 1 for new GMOs must be abolished. Any new GMO regulation must minimally maintain robust risk assessment, as well as traceability and GMO labelling for new GM seeds and plants all along the production chain. This will form a legal basis for measures to ensure co-existence, as well as information for citizens on foods' GMO status.

REFERENCES

1. European Commission (2023). Proposal for a Regulation of the European Parliament and of the Council on plants obtained by certain new genomic techniques and their food and feed, and amending Regulation (EU) 2017/625. 5 Jul. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52023PC0411>
2. The current regulations are: Directive 2001/18/EC; Regulation (EC) No 1829/2003; Regulation (EC) No 1830/2003, Directive 2009/41/EC).
3. Europeanseed (2022). Less browning and lower acrylamide levels achieved in potatoes thanks to CRISPR. 31 Jan. <https://european-seed.com/2022/01/less-browning-and-lower-acrylamide-levels-achieved-in-potatoes-thanks-to-crispr/>
4. Robinson C (2022). Has another gene-edited pioneer crop disappeared from the market? GMWatch, 16 Dec. <https://www.gmwatch.org/en/106-news/latest-news/20142>
5. Matthews J, Robinson C (2022). Gene-edited crops pioneer Calyxt crashes, giving the lie to deregulation claims. GMWatch, 2 Oct. <https://www.gmwatch.org/en/106-news/latest-news/20106>
6. Greens/EFA in the European Parliament (2021). Opinion poll on the labelling of GM crops. 30 Mar. <https://www.greens-efa.eu/en/article/news/opinion-poll-on-the-labelling-of-gm-crops> ; UK-based polls showed similar results: Food Standards Agency (2021). Consumer perceptions of genome edited food. Jul. <https://www.food.gov.uk/sites/default/files/media/document/consumer-perceptions-of-genome-edited-food.pdf> ; Beyond GM (2022). YouGov Poll: UK citizens demand robust regulation of GMOs. 18 Nov. <https://beyond-gm.org/yougov-poll-uk-citizens-demand-robust-regulation-of-gmos/>
7. #IChooseGMOFree petition (2022). https://www.slowfood.com/slow-food-europe/what-we-do/genetically-modified-organisms-gmos/sign-to-keep-new-gmos-strictly-regulated/?utm_source=newsletter&utm_medium=email&utm_campaign=New+GMO+newsletter+email&utm_id=new+GMO+newsletter
8. European Commission (2023). Annexes to the Proposal for a Regulation of the European Parliament and of the Council on plants obtained by certain new genomic techniques and their food and feed, and amending Regulation (EU) 2017/625. 5 Jul. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52023PC0411>
9. European Network of Scientists for Social and Environmental Responsibility (ENSSER) (2023). Analysis statement by ENSSER on the EU Commission's new GM proposal. 10 Jul. https://ensser.org/press_release/analysis-statement-by-ensser-on-the-eu-commissions-new-gm-proposal-here-for-annex-1-on-ngt-equivalence-criteria/ ; Kwall K (2021). The generic risks and the potential of SDN-1 applications in crop plants. *Plants* 2021, 10(11), 2259; <https://doi.org/10.3390/plants10112259>
10. Robinson C (2023). EU Commission's GMO deregulation plans face strong opposition at GMO-Free Europe conference. GMWatch, 11 Sept. <https://gmwatch.org/en/106-news/latest-news/20289>
11. Table adapted from: Ohne Gentechnik (2023). Offene Fragen und Risiken bei der neuen Gentechnik. 6 Sept. https://gentechnikfrei.at/wp-content/uploads/2023/08/GENTechnik_WP6_fin.pdf
12. European Commission (undated). Genetically modified organisms: Traceability and labelling. https://food.ec.europa.eu/plants/genetically-modified-organisms/traceability-and-labelling_en
Note: GMO presence under the 0.9% threshold is only allowed to go unlabelled if presence is adventitious or technically unavoidable.
13. At the time of writing, the draft report of the rapporteur of the European Parliament's Committee on the Environment, Public Health and Food Safety, Jessica Polfjård, proposes removing even the labelling for seeds. See: https://www.europarl.europa.eu/doceo/document/ENVI-PR-754658_EN.pdf ; <https://gmwatch.org/en/106-news/latest-news/20306>
14. European Court of Justice (2018). C-528/16 – Confédération paysanne and Others vs Premier ministre, Ministre de l'Agriculture, de l'Agroalimentaire et de la Forêt. Judgement of the Court. 25 Jul. <http://curia.europa.eu/juris/documents.jsf?num=C-528/16> ; European Court of Justice (2018). *Organisms obtained by mutagenesis are GMOs and are, in principle, subject to the obligations laid down by the GMO Directive.* 25 Jul. <https://curia.europa.eu/jcms/upload/docs/application/pdf/2018-07/cp180111en.pdf>
15. Greens/EFFSA in the European Parliament (2022). Behind the smokescreen: Vested interests of EU scientists lobbying for GMO deregulation. 29 Sept. <https://www.greens-efa.eu/en/article/study/behind-the-smokescreen>
16. Howard PH (2018). Global seed industry changes since 2013. <https://philhoward.net/2018/12/31/global-seed-industry-changes-since-2013/>
17. Robinson C (2023). Plant breeders' associations and seed companies claim to oppose patents on new GMOs – but there's a catch. GMWatch, 5 Mar. <https://www.gmwatch.org/en/106-news/latest-news/20188>
18. Slow Food Cooks Alliance <https://www.fondazioneSlowFood.com/en/what-we-do/slow-food-chefs-alliance/>
19. See p24 of the proposal.
20. Contreras JL, Sherkow JS (2017). CRISPR, surrogate licensing, and scientific discovery. *Science* 355(6326): 698-700. <https://science.sciencemag.org/content/355/6326/698> ; Then C et al (2021). New GE and food plants: The disruptive impact of patents on breeders, food production and society. *Testbiotech*. Jun. https://www.testbiotech.org/sites/default/files/Patents_on%20new%20GE.pdf
21. IG Saatgut (2023). Genetic engineering-free plant breeding and seed production soon no longer possible? 5 Jul. <https://www.gmwatch.org/en/106-news/latest-news/20249>
22. Royal Society (2016). Who is paying for GM crop development and who owns the technology? <https://royalsociety.org/topics-policy/projects/gm-plants/who-is-paying-for-gm-crop-development-and-who-owns-technology/>
23. Bové J, Luneau G (2016). L'alimentazione in ostaggio: Le mani delle multinazionali su quel che mangiamo. EMI. <https://www.ibs.it/alimentazione-in-ostaggio-mani-delle-libro-jose-bove-gilles-luneau/e/9788830723382>
24. As an example of a precedent for this practice, see: GMWatch (2012). Brazilian farmers battle Monsanto. 25 Jul. <https://www.gmwatch.org/en/latest-listing/1-news-items/14091>
25. At the time of writing, the draft report of the rapporteur of the European Parliament's Committee on the Environment, Public Health and Food Safety, Jessica Polfjård, proposes removing even the labelling for seeds. See: https://www.europarl.europa.eu/doceo/document/ENVI-PR-754658_EN.pdf ; <https://gmwatch.org/en/106-news/latest-news/20306>

REFERENCES

26. European Commission (2023). Restrictions of geographical scope of GMO applications/authorizations: EU countries demands and outcomes. https://food.ec.europa.eu/plants/genetically-modified-organisms/gmo-authorization/gmo-authorizations-cultivation/restrictions-geographical-scope-gmo-applicationsauthorizations-eu-countries-demands-and-outcomes_en
27. BfN (2021). New developments and regulatory issues in plant genetic engineering. Oct. <https://www.bfn.de/publikationen/positionspapier/new-developments-and-regulatory-issues-plant-genetic-engineering> ; Antoniou M et al (2022). Scientists' and policy experts' statement: Gene editing is not "precision breeding" and the term is misleading. Sept. <https://tinyurl.com/cvzv88m> ; Eckerstorfer MF et al (2019). An EU perspective on biosafety considerations for plants developed by genome editing and other new genetic modification techniques (nGMs). *Frontiers in Bioengineering and Biotechnology* 7. <https://www.frontiersin.org/articles/10.3389/fbioe.2019.00031/full> ; Eckerstorfer MF et al (2021). Biosafety of genome editing applications in plant breeding: Considerations for a focused case-specific risk assessment in the EU. *BioTech* 10(3). <https://www.mdpi.com/2673-6284/10/3/10> ; Chu P, Agapito-Tenfen SZ (2022). Unintended genomic outcomes in current and next generation GM techniques: A systematic review. *Plants* 11(21): 2997. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9655061/> ; Kawall K et al (2020). Broadening the GMO risk assessment in the EU for genome editing technologies in agriculture. *Environmental Sciences Europe* <https://doi.org/10.1186/s12302-020-00361-2> ; European Network of Scientists for Social and Environmental Responsibility (ENSSER) (2019). ENSSER Statement: New genetic modification techniques and their products pose risks that need to be assessed. Nov. <https://ensser.org/publications/2019-publications/ensser-statement-new-genetic-modification-techniques-and-their-products-pose-risks-that-need-to-be-assessed/>
28. Kim J, Kim J-S (2016). Bypassing GMO regulations with CRISPR gene editing. *Nature Biotechnology* 34:1014–1015. <https://www.nature.com/articles/nbt.3680> ; Norris AL et al (2020). Template plasmid integration in germline genome-edited cattle. *Nature Biotechnology* 38:163–164. <https://www.nature.com/articles/s41587-019-0394-6> . For laypersons' explanations, see Latham J (2019). Gene-editing unintentionally adds bovine DNA, goat DNA, and bacterial DNA, mouse researchers find. *Independent Science News*, 23 Sept. <https://www.independent-science.org/health/gene-editing-unintentionally-adds-bovine-dna-goat-dna-and-bacterial-dna-mouse-researchers-find/> ; Robinson C (2022). "Transgene-free" GMOs may be exempted from GMO regulations under false pretences. *GMWatch*, 9 Apr. <https://www.gmwatch.org/en/106-news/latest-news/20013> ; Robinson C (2022). Why claims that gene editing doesn't involve insertion of foreign genes or DNA are false. *GMWatch*, 12 Dec. <https://gmwatch.org/en/106-news/latest-news/20138>
29. European Commission (2023). https://food.ec.europa.eu/system/files/2023-07/gmo_biotech_ngt_proposal.pdf
30. Greens/EFSA in the European Parliament (2022). Behind the smokescreen: Vested interests of EU scientists lobbying for GMO deregulation. 29 Sept. <https://www.greens-efa.eu/en/article/study/behind-the-smokescreen> ; Greens/EFSA in the European Parliament (2021). Gene editing myths and reality. Feb. <https://extranet.greens-efa.eu/public/media/file/9065/6768>
31. Slow Food position paper on sustainable food systems https://www.slowfood.com/wp-content/uploads/2023/05/SlowFood_PositionPaper_SustainableFoodSystems.pdf
32. These assumptions and promises are analysed in: Greens/EFSA in the European Parliament (2021). Gene editing myths and reality. Feb. <https://extranet.greens-efa.eu/public/media/file/9065/6768>
33. Krinsky S (2015). An illusory consensus behind GMO health assessment. *Science, Technology & Human Values* 40(6): 1-32. <http://sth.sagepub.com/content/early/2015/08/05/0162243915598381>
34. Neumeister L (2023). New genome techniques (NGT): A risky corporate distraction from real sustainable solutions. *Foodwatch*, 31 Jan. https://www.foodwatch.org/fileadmin/-INT/pesticides/2023-01-30_foodwatch_Pesticides_and_NGTs.pdf_Fig_1_p7
35. See examples in: *GMWatch* (1998–2023). Non-GM Successes. <https://gmwatch.org/en/articles/non-gm-successes>
36. Parisi C, Rodriguez Cerezo E (2021). Current and future market applications of new genomic techniques. Current and future market applications of new genomic techniques. Publications Office of the European Union, Luxembourg. ISBN 978-92-76-30206-3. doi:10.2760/02472. <https://publications.jrc.ec.europa.eu/repository/handle/JRC123830> . The graphic representation of the data is at https://datam.jrc.ec.europa.eu/datam/mashup/NEW_GENOMIC_TECHNIQUES/
37. Benbrook C (2012). Impacts of genetically engineered crops on pesticide use in the US – The first sixteen years. *Environmental Sciences Europe* 24. <http://www.enveurope.com/content/24/1/24> ; Perry ED et al (2016). Genetically engineered crops and pesticide use in US maize and soybeans. *Science Advances* 2(8). <https://www.science.org/doi/10.1126/sciadv.1600850>
38. Neumeister L (2023). New genome techniques (NGT): A risky corporate distraction from real sustainable solutions. *Foodwatch*, 31 Jan. https://www.foodwatch.org/fileadmin/-INT/pesticides/2023-01-30_foodwatch_Pesticides_and_NGTs.pdf
39. EU Farm to Fork Strategy (2020) https://food.ec.europa.eu/system/files/2020-05/f2f_action-plan_2020_strategy-info_en.pdf
40. European Union (2016). Consolidated version of the Treaty on the Functioning of the European Union: Part three – Union policies and internal actions. TITLE XX – Environment. Article 191 (ex Article 174 TEC). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:12016E191>
41. European Commission (2023). The Aarhus Convention and the EU. https://environment.ec.europa.eu/law-and-governance/aarhus_en
42. European Union (2011). Consolidated text: Regulation (EU) No 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers, amending Regulations (EC) No 1924/2006 and (EC) No 1925/2006 of the European Parliament and of the Council, and repealing Commission Directive 87/250/EEC, Council Directive 90/496/EEC, Commission Directive 1999/10/EC, Directive 2000/13/EC of the European Parliament and of the Council, Commission Directives 2002/67/EC and 2008/5/EC and Commission Regulation (EC) No 608/2004 (Text with EEA relevance)Text with EEA relevance. <https://eur-lex.europa.eu/eli/reg/2011/1169/2018-01-01>
43. IPCC, 2022: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajje, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926; Raffaele D'Annolfo, Barbara Gemmill-Herren, Benjamin Graeb & Lucas A. Garibaldi (2017) A review of social and economic performance of agroecology, *International Journal of Agricultural Sustainability*, 15:6, 632-644, DOI: 10.1080/14735903.2017.1398123;



Slow Food®

ABOUT SLOW FOOD

Slow Food is a global grassroots organisation founded in 1989 to prevent the disappearance of local food cultures and traditions, counteract the rise of fast life, and combat people's dwindling interest in the food they eat, where it comes from, and how our food choices affect the world around us. Since its inception, Slow Food has grown into a global movement involving millions of people in over 160 countries, working to ensure everyone has access to good, clean, and fair food. Slow Food believes food is tied to many other aspects of life, including culture, politics, agriculture and the environment. Through our food choices we can collectively influence how food is cultivated, produced, and distributed, and change the world as a result.

WWW.SLOWFOOD.COM



Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor CINEA can be held responsible for them.