Public consultation on plants produced by certain new genomic techniques

Introduction

In the last decades, advances in biotechnology have led to the development of new genomic techniques (NGTs), i.e. techniques capable of altering the genetic material of an organism that have emerged or have been developed since 2001, when Directive 2001/18/EC on the deliberate release of genetically modified organisms (GMOs) into the environment was adopted. The Court of Justice of the EU in 2018 clarified that organisms produced by targeted mutagenesis are GMOs subject to the requirements of the EU GMO legislation. Targeted mutagenesis techniques are new genomic techniques, as opposed to random mutagenesis techniques. Based on the reasoning followed by the Court, the GMO legislation also applies to organisms produced by other NGTs, including cisgenesis techniques.

In November 2019, the Council requested the Commission to prepare a study on the status of NGTs under EU law, and submit, if appropriate in view of the outcomes of the study, a proposal accompanied by an impact assessment, or otherwise inform of other measures required.

The study, published in April 2021, confirmed that NGTs have developed rapidly in many parts of the world and are expected to continue to do so. There is significant interest both in the EU and globally for plant applications of NGTs, and some of their applications are already on the market outside the EU; this trend is likely to continue.

The study also concluded that plants obtained by NGTs have the potential to contribute to the objectives of the European Green Deal and in particular to the Farm to Fork and Biodiversity Strategies and the United Nations’ Sustainable Development Goals (SDGs) for a more resilient and sustainable agri-food system. The study also reported concerns, e.g. on potential safety and environmental impacts, including on biodiversity, coexistence with organic and GM-free agriculture and on consumers’ right to information and freedom of choice.

Concerning safety, the European Food Safety Authority (EFSA) has concluded that plants obtained by targeted mutagenesis and cisgenesis can have the same risk profile as plants produced with conventional breeding. EFSA has not yet assessed the safety of targeted mutagenesis and cisgenesis in microorganisms or animals, nor the safety of other techniques.

The study concluded that the GMO legislation has clear implementation challenges and requires
contentious legal interpretation to address new techniques and applications, and that there are strong indications that it is not fit for purpose for some NGTs and their products, needing adaptation to scientific and technological progress.

About you

*Language of my contribution

- Bulgarian
- Croatian
- Czech
- Danish
- Dutch
- **English**
- Estonian
- Finnish
- French
- German
- Greek
- Hungarian
- Irish
- Italian
- Latvian
- Lithuanian
- Maltese
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- Swedish

*I am giving my contribution as

- Academic/research institution
- Business association
- Company/business organisation
Consumer organisation
EU citizen
Environmental organisation
Non-EU citizen
Non-governmental organisation (NGO)
Public authority
Trade union
Other

* First name
Lili

* Surname
Balogh

* Email (this won't be published)
info@agroecology-europe.org

* Organisation name
255 character(s) maximum
Agroecology Europe

* Organisation size
- Micro (1 to 9 employees)
- Small (10 to 49 employees)
- Medium (50 to 249 employees)
- Large (250 or more)

Transparency register number
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* Country of origin
Please add your country of origin, or that of your organisation.
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Only organisation details are published: The type of respondent that you responded to this consultation as, the name of the organisation on whose behalf you reply as well as its transparency number, its size, its country of origin and your contribution will be published as received. Your name will not be published. Please do not include any personal data in the contribution itself if you want to remain anonymous.

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Instructions and glossary

The questionnaire features three sections: section A focuses on the current situation and the definition of the problem, while section B and C are forward-looking and focus on possible solutions and other relevant aspects.

For the purposes of this questionnaire, references to plants obtained by targeted mutagenesis or cisgenesis include their food and feed products.

This questionnaire is available in all EU languages and you can reply in any EU language. You can pause at any time and continue later. You can download your contribution once you have submitted your answers. Whenever possible, please substantiate your replies with explanations, data and sources of information, practical examples etc.

A short glossary of terminology relevant to this questionnaire follows below:

- **New Genomic Techniques (NGTs)**: An umbrella term used to describe a variety of techniques that can alter the genetic material of an organism and that have emerged or developed since 2001, when the existing GMO legislation was adopted.
- **Mutagenesis**: Creation of mutation(s) in an organism without insertion of foreign genetic material.
- **Classical (or random) Mutagenesis**: An umbrella term used to describe older techniques of mutagenesis that have been used since the 1950s; they involve irradiation or treatment with chemicals in order to produce random mutations, without insertion of foreign genetic material. Organisms obtained with such techniques are GMOs that are exempted from the scope of the EU GMO legislation.
• **Targeted Mutagenesis**: An umbrella term used to describe newer techniques of mutagenesis that induce mutation(s) in selected target locations of the genome without insertion of foreign genetic material.

• **Cisgenesis**: Insertion of foreign genetic material into a recipient organism from a donor that is sexually compatible (crossable).

• **Transgenesis**: Insertion of foreign genetic material into a recipient organism from a donor organism that is sexually incompatible.

• **Trait**: For the purposes of this document, a trait is a specific characteristic resulting from the modification of a plant by targeted mutagenesis and cisgenesis.

**A. Regulating plant produced by targeted mutagenesis and cisgenesis - current situation**

The EU [GMO legislation](#) applicable to plants includes Directive 2001/18/EC on the deliberate release into the environment of GMOs, Regulation (EC) No 1829/2003 on GM food and feed and Regulation (EC) No 1830/2003 concerning the traceability and labelling of GMOs and their food and feed products. The 2010-2011 [evaluations](#) of the GMO legislation and the 2021 Commission [study](#) on NGTs have indicated that, as regards plants obtained by some NGTs and their products, the current legislation is no longer fit for purpose and needs adaptation to scientific and technological progress. On the basis of these evaluations and the study, the [inception impact assessment](#) has identified the following problems associated with the application of the current legislation to plants produced by targeted mutagenesis and cisgenesis:

- Legal uncertainties in Directive 2001/18/EC (and other legislation based on it) have been intensified by developments in biotechnology, with unclear or undefined terms and notions;

- Current regulatory oversight and requirements are not adapted to the resulting diverse risk profiles, and in some cases can be disproportionate or inadequate;

- The GMO legislation includes authorisation, traceability and labelling requirements that raise implementation and enforcement challenges;

- The current legislative framework does not take into account whether products have the potential to contribute to sustainability.

These problems could impact operators across the agri-food system, including in agricultural biotechnology innovation and research, non-food/feed bio-based and biotechnology industries, operators in EU trade partners, organic and GM-free operators, EU and national authorities, and EU citizens and consumer organisations. The issues are of interest to a broad spectrum of stakeholders, including NGOs active in the environmental protection, agri-food system, biotechnology and consumer protection areas.

**1. With regard to the problems above, what is your view of the existing provisions of the GMO legislation for plants produced by targeted mutagenesis and cisgenesis?**

- [ ] They are adequate
They are not adequate
☐ No opinion/I do not know

* 1.1 This is because

multiple answers possible

☑ the GMO legislation is sufficiently flexible and capable of keeping pace with technological progress
☐ the GMO legislation is sufficiently clear
☐ risk assessment rules of the GMO legislation are appropriate for these plant products
☐ authorisation, traceability and labelling requirements are appropriate for these plant products
☐ sustainability can be taken into account under the existing GMO legislation
☐ of other reasons

* 2. If plants obtained by targeted mutagenesis and cisgenesis continue to be regulated under the current GMO framework, do you expect short, medium or long term consequences for you/your activity/sector?

☐ Yes
☐ No
☐ Not applicable
☐ No opinion/I do not know

B. Regulating plants produced by targeted mutagenesis and cisgenesis - the future

The envisaged policy action on plants obtained from targeted mutagenesis and cisgenesis will aim at an appropriate regulatory oversight for the concerned plant products, ensuring a high level of protection of human and animal health and the environment, and enabling innovation and the contribution of plants developed by safe NGTs to the objectives of the European Green Deal and the Farm to Fork Strategy. This section aims at identifying potential impacts and possible ways to address the problems acknowledged in the inception impact assessment and mentioned in section A above. Your views will assist us in defining whether the current situation should be changed and the possible way forward.

RISK ASSESSMENT

In the current GMO legislation, risk assessment requirements are to a large extent the same for all GMOs. However, EFSA has concluded that plants produced by targeted mutagenesis and cisgenesis generally pose lower risks than plants obtained with transgenesis (1). EFSA has also concluded that, in some cases, plants produced by targeted mutagenesis and cisgenesis do not pose new hazards compared to plants
produced with conventional, non-GM breeding techniques, or compared to classical mutagenesis techniques, which are considered as GMOs outside the scope of the legislation, and not subject to risk assessment. Finally, EFSA has concluded that off-target mutations potentially induced by targeted mutagenesis are of the same type as, and fewer than, those mutations in conventional breeding.


3. Currently, plants produced by targeted mutagenesis and cisgenesis are risk assessed as any other GMOs. What is your view on their risk assessment?

- Plants produced by targeted mutagenesis and cisgenesis need to be risk assessed using the current GMO legislation requirements.
- Plants produced by targeted mutagenesis or cisgenesis need to be risk assessed using requirements adapted to their characteristics and risk profile.
- Plants produced by targeted mutagenesis or cisgenesis do not need to be risk assessed when they could have been produced through conventional plant breeding or classical mutagenesis.
- Plants produced by targeted mutagenesis or cisgenesis do not need to be risk assessed.
- No opinion/I do not know
- Other

4. Is there any other aspect you would like to mention, for example on the potential economic, social, environmental or other impacts of the above, or would you like to justify/elaborate on your replies?

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With the ruling of the European Court of Justice from July 2018, the legal status of all kind of new generations of GMO were clarified. The best option is keep them under the framework of directive 2001/18, Regulations 1829/2003 and 1830/2003.

The application of the current GMO regulatory framework has proven its worth and ensures risk assessment, authorisation, traceability and labelling. It thus guarantees the application of the precautionary principle and safeguards freedom of choice.

Any exemptions for new genomic techniques will result in immense negative economic and social impacts for the whole conventional, organic and GMOfree food sector.

The deliberate release of plants produced by targeted mutagenesis and cisgenesis needs to be assessed case by case and step by step, in order to avoid risks of adverse effects to human health and the environment. New and emerging gene-editing techniques lack a long-history of safe-use in any organism.

Therefore, Agroecology Europe calls for maintaining high standards of risk assessment for all GMOs.
The Commission NGT study has concluded that plants obtained by NGTs have the potential to contribute to the objectives of the European Green Deal and in particular to the Farm to Fork and Biodiversity Strategies and the United Nations’ SDGs for a more resilient and sustainable agri-food system. Examples of potential benefits include plants more resistant to pests, diseases and the effects of climate change (e.g. notably increasing severity and frequency of extreme heatwaves, droughts and rainstorms) or environmental conditions in general, or requiring less natural resources and fertilisers. NGTs could also improve the nutrient content of plants for healthier diets, or reduce the content of harmful substances such as toxins and allergens.

5. Should the potential contribution to sustainability of the modified trait of a product be taken into account in new legislation on plants produced by targeted mutagenesis or cisgenesis?

- There is no need for specific regulatory provisions on sustainability in this initiative
- Specific regulatory provisions for sustainability should be included in this initiative
- No opinion/I do not know

Please explain why

500 character(s) maximum

6. In your view, which of the following traits are most relevant for contributing to sustainability?

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<td>Tolerance/resistance to biotic stresses (e.g. plant diseases caused by nematodes, fungi, bacteria, viruses, pests)</td>
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<td>Better use of resources (such as water, nitrogen)</td>
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<td><strong>Tolerance/resistance to plant protection products such as herbicides or insecticides</strong></td>
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<td>Better yield or other agronomic characteristics (e.g. yield stability, more or larger seeds or fruits, greater height, better shape or flowering time, better breeding characteristics)</td>
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<td>Other quality-related characteristics (e.g. better colour, flavour)</td>
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<td>Production of substances of interest for the food and non-food industry</td>
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7. In your view, which of the following would be the best incentives to encourage the development of plant products of targeted mutagenesis or cisgenesis with traits contributing to sustainability?

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<td>Allowing sustainability-related claims to appear on the final product</td>
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Please specify any other incentives you would like to propose

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Agroecology Europe does not wish to formulate incentives to encourage the development of plant products of targeted mutagenesis or cisgenesis. We rather support agroecological methods that provide a more sustainable way of producing healthy food, that are efficient because better adapted to local systems, more diverse, able to cope with the continuous evolution of pests and diseases without depending on chemical control and on technological ‘silver bullets’.
8. Do you think information about the sustainability contribution of a modified trait of a plant produced by targeted mutagenesis or cisgenesis should be made available to the consumer?

- Yes
- No
- No opinion/I do not know

9. Is there any other aspect you would like to mention, for example on the potential economic, social, environmental or other impacts of the above, or would you like to justify/elaborate on your replies?

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Patented GMO seeds represent a serious threat to the resilience and sustainability of farming and food systems. Mutagenesis and interactions with other organisms make the coexistence with other production systems, such as organic farming, impossible. In that sense the Organic Action Plan of the EU setting a target of ‘at least 25% of the EU’s agricultural land under organic farming by 2030 will be made impossible if a deliberate release of GMOs takes place on the market.

Beyond the technical issues, the structural dependence of farmers on the agro-biotech industry in the case of the development of patented GMOs in agriculture raises ethical concerns. The high concentration of power in the hands of the agro-biotech industry is a direct threat to the resilience of the food system. Agroecology Europe calls for European policies that support farmers’ technical autonomy and that support the development of technologies that improve economic and environmental resilience and value farmers’ knowledge, food sovereignty and cultural diversity.

Today’s agrobiodiversity offers a wide range of evolutionary adaptations to all kinds of environmental situations (resistance to extreme weather conditions (droughts, floods, ...), diseases, pathogens (parasites, fungi) and high nutritional quality.

INFORMATION FOR OPERATORS AND CONSUMERS

Under the GMO legislation, GMOs are traced (documentation with declaration of presence of GMO, GMO unique identifier for all transactions along the food chain, obligation to keep information for each transaction for a number of years) and labelled as such.

The GMO legislation includes an obligation for applicants for a GMO authorisation to provide a quantitative detection method that is specific to the product, i.e. it can both detect it and differentiate it from other products. In some cases of plants produced by targeted mutagenesis or cisgenesis, analytical methods might be able to detect the product but might not be able to differentiate it from similar plants produced by conventional, non-GM breeding techniques or by classical mutagenesis. This means that in these cases analytical methods might be able to detect the presence of a modified product, without being able to prove that the change was the result of a technique regulated under the GMO legislation.
10. When analytical methods are not available or reliable, effective traceability of plants obtained by targeted mutagenesis or cisgenesis, and of their food and feed products, can be ensured via:

multiple answers possible
- documentation transmitted through the chain of operators
- public databases/registries
- digital solutions, e.g. block chain
- other means
- No opinion/I do not know

* Please specify
500 character(s) maximum

Agroecology Europe supports research on traceability, including analytical capability to detect and identify GMOs. The Commission study showed that only a small fraction of GMO-research is related to regulatory issues, including detection methods. Developing new analytical detection methods are important, even if document-based traceability is, and will continue to be, a viable alternative.

11. When reliable analytical methods that can both detect and differentiate a product cannot be provided, operators wishing to introduce plants produced by targeted mutagenesis or cisgenesis in the market should:

- not be asked at all to provide an analytical method that can both detect and differentiate their product
- not be asked to provide an analytical method that can both detect and differentiate their product, if they can justify that this would be impossible
- be asked to provide a detection method, but without the need to differentiate, if they can justify that the latter would be impossible
- not be allowed to place the product in question on the market
- No opinion/I do not know

12. Transparency for operators and consumers, on plants produced by targeted mutagenesis or cisgenesis:

multiple answers possible
- can be achieved via a physical label on the final product
- can be achieved via a digital label accessible through the final product (e.g. link to a website, QR code)
- can be achieved via information available elsewhere (e.g. a website, a public database/register)
is not necessary for plants produced by targeted mutagenesis and cisgenesis, when they could have been produced through conventional plant breeding or classical mutagenesis

☐ is not necessary for any plant produced by targeted mutagenesis and cisgenesis

☐ No opinion/I do not know

Note that plants produced with conventional, non-GM breeding techniques, or with classical mutagenesis (GMOs exempted from the scope of the legislation), do not need to be traced or labelled as GMOs; other legislation provisions on traceability and labelling apply, e.g. under EU food legislation.

13. Is there any other aspect you would like to mention, for example on the potential economic, social, environmental or other impacts of the above, or would you like to justify/elaborate on your replies?

1500 character(s) maximum

Information has to appear on a product via a GMO label. As now, it must read “contains genetically modified [ingredient]” and inform both, economic operators and consumers. The information about a GMO must be directly and unambiguously accessible.

The wording in this section suggests that in some cases it is not possible to make NGT plants recognisable and thus traceable. This is incorrect.

What is needed is a full assessment of the social and economic impacts for the food and farming sector to segregate NGT from conventional and organic farming. Who want to benefit from NGT should cover all segregations costs (testing, cleaning, segregation from breeding, cultivation, processing, storage and retail).

C. Other relevant aspects of a new framework

The following questions address other aspects, not covered in the previous sections, that are relevant to a new framework.

14. Which of the following measures do you think would be necessary for future-proof legislation on plants produced by targeted mutagenesis or cisgenesis?

<table>
<thead>
<tr>
<th>Measure</th>
<th>Strongly agree</th>
<th>Tend to agree</th>
<th>No opinion/I do not know</th>
<th>Tend to disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>* improving legal clarity in the legislation</td>
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<tr>
<td>* putting in place mechanisms that facilitate easy adaptation to scientific progress</td>
<td></td>
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<tr>
<td>* risk assessment that takes into account the characteristics and risk profile of a final product</td>
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</tr>
</tbody>
</table>
Please specify any other measures you would like to propose

500 character(s) maximum

With the ruling of the European Court of Justice legal clarity for cisgenesis and mutagenis was achieved. EU legislations set general standards and should be future proof. The GMO legislation gives flexibility to adapt to new scientific information. The GMO legislation is process and not product based and no change is needed.

15. Which of the various measures outlined in section B would be most relevant to co-existence with existing agricultural practices (e.g. conventional, organic)? Are any other measures necessary?

1500 character(s) maximum

The EU doesn’t have any European wide coexistence measures. What is needed is a full assessment of the social and economic impacts for the food and farming sector to segregate NGT from conventional and organic, GMOfree farming and food chains. Who want to benefit from NGT should cover all segregations costs (testing, sampling, cleaning, segregation from breeding, cultivation, processing, storage and retail). Co-existence must encompass the entire chain from seed production to the finished product.

Coexistence with existing agricultural practices, e.g., conventional, organic would require that robust assessment pursuant to the precautionary principle, traceability and labelling are required in order to protect the integrity of those existing agricultural practices.

16. Do you think any regulatory measures should be included in new legislation to facilitate access to targeted mutagenesis or cisgenesis technologies/plant genetic resources? Note that this initiative on plants produced using targeted mutagenesis or cisgenesis does not cover intellectual property rules (e.g. plant variety rights, biotechnology patents)

1500 character(s) maximum

It is not the responsibility of the EU Commission to facilitate access to new GMOs. EU policy makers should ensure freedom of choice, transparency, liability in the food chain for contaminations and ensure that no food with risks for environment, human and animal health can be marketed or grown.

17. Do you think any regulatory measures should be included in new legislation to facilitate the uptake of these technologies by small and medium-sized enterprises?

1500 character(s) maximum

No.

18. You can raise any additional points or provide further information and evidence to support your views using the field below.
Agroecology Europe encourages the European Commission to support agroecological practices that offer a more sustainable way of producing healthy food, that are efficient because they are better adapted to local systems, more diversified, able to cope with the continuous evolution of pests and diseases without relying on chemical control and technological "silver bullets", and more resilient to climate change and adverse economic circumstances.

Agroecology Europe is at the disposal for any request from the Commission and would be pleased to offer the expertise in this legislative process.

If you wish to provide additional information which complements your responses, you can upload a document here. The maximum file size is 1 MB. Provision of a document is optional.

Only files of the type pdf, txt, doc, docx, odt, rtf are allowed

9d5da95e-034d-42cd-86bd-880a158c8f51/Final_AEEU_Response_-_New_Genomic_Techniques_.pdf

Useful links

Contact
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