

Academies' report reviews debate on genome editing for crop improvement

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Since the ruling of the Court of Justice of the EU of 2018, which placed genome-edited crops under the Genetically Modified Organisms (GMO) legislation, the scientific community has passionately debated the future of these new breeding techniques.

The new ALLEA report "Genome Editing for Crop Improvement"

presents the state of the art of scientific evidence in the field and explores paths to harmonize EU legislation with recent scientific developments, while particularly considering relevant ethical and societal considerations.

The report summarizes the discussions between scientific experts, [policy-makers](#) and civil-society organizations at a public symposium Genome Editing for Crop Improvement held in Brussels in November 2019, where ALLEA and the Royal Flemish Academy of Belgium for Science and the Arts KVAB invited relevant stakeholders and the interested public to assess and discuss the impact of the ruling on present research and developments in genome editing for [plant breeding](#).

"Widening public discourse on innovation in genome-editing for crop improvement is a key responsibility of the [scientific community](#), including academies across Europe. While these new techniques offer exciting opportunities, it remains vital to see the bigger picture and to also consider public perceptions and cultural differences. This report summarizes these diverse strands of research and aims to provide a comprehensive overview to European policymakers and the public." states Prof. Antonio Loprieno, President of ALLEA.

At the European level, the ruling of the Court of Justice of the EU on case C-528/16 of 2018 has been met largely with bewilderment and disappointment among the scientific community involved in research in this field. Scientists are concerned that this legislation will impede European research and leave the continent lagging behind other world regions where regulation is less restrictive.

The present report provides an overview of the latest scientific evidence with respect to safety of genome-edited crops and their possible potential to provide solutions to current and future agricultural challenges. Issues related to the traceability of genome-edited crops and

how this will likely affect international trade of food and feed are also addressed.

In addition to the bioscience aspects of the technology, the report discusses economic and social implications of genome editing for [crop improvement](#), and the legal hurdles in readdressing the court decision by legislative means. The authors underline that "public participation should be incorporated into the policy-making process for genome editing and should include ongoing monitoring of public attitudes, informational deficits, and addressing concerns about certain applications of genome editing".

Key takeaways from the report:

- European legislation should follow the features of the plant, rather than the technique used to generate it, to determine its regulatory status.
- Targeted genome edits, which do not add foreign DNA, do not present any other health or environmental danger than plants obtained through classical breeding techniques, and are as safe or dangerous as the latter.
- Continued legislative and policy restrictions may hamper the selection of more productive, diverse, and climate-resilient [crops](#) with a reduced environmental footprint.
- The length and cost of the authorisation process makes it, except for major industrial players, hardly possible to bring into culture and commercialize plants developed with new biotechnological breeding techniques.
- To enhance sustainability and to reduce the usage of chemicals, access is needed to the most advanced technologies enabling the improvement of existing varietal heritage and increasing the ability to respond to new challenges of changing environments. These new technologies may contribute to a reduction of the

environmental footprint of agriculture.

- An open, honest dialogue with all stakeholders, including the public, is needed in the decision-making processes for introducing [genome](#)-edited products into the market, ensuring that the implications of market introduction are accurately communicated.

More information: Genome Editing for Crop Improvement. ALLEA Symposium Report. October 2020. [allea.org/wp-content/uploads/2 ... diting_Crop_2020.pdf](https://www.allea.org/wp-content/uploads/2020/10/Genome-Editing-Crop-2020.pdf) DOI: [10.26356/gen-editing-crop](https://doi.org/10.26356/gen-editing-crop)

Provided by ALLEA

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