

European scientists call for GMO legislation revamp to prevent stifling genome editing

Scientists are [calling](#) for a reform of the regulations governing genetically modified (GM) crops in Europe in order to accommodate the latest advances in a nascent technology, genome editing. A powerful technology that allows researchers to make minute changes to crops with pinpoint accuracy, genome editing could be stifled if the European Commission lumps it together with conventional GM technology that faces significant regulatory barriers, according to the scientists.

“It is likely to be less controversial than GM because you are making small changes to the genome rather than adding big chunks of DNA from totally different species,” Huw Jones, a senior research scientist at Rothamsted Research’s Centre for Crop Genetic Improvement, [said](#). “You are going in with some fine tools and altering the letters of the DNA that is already there. You are not leaving any footprint behind. All of those tools come away – all you leave is a little stitch in the genome.”

Genome editing does not involve moving genes from a different plant or organism into a crop. Instead, it typically involves identifying parts within the crop’s genome that could be edited using high-precision tools called CRISPR or TALENs to help the crop develop resistance to disease, increased yields or other desirable qualities. The tools used are like “molecular scissors” that scientists use to cut and repair the genome, triggering desired mutations.

“Using these methods to introduce new variations, our ability to create new genes is nearly limitless,” Sophien Kamoun, president of the International Society for Molecular Plant Microbe Interactions, [told](#) *The Guardian*. “We can be much more precise [than with conventional plant breeding].”

This process mimics a naturally-occurring process when plants are evolving resistance to attack from disease, and the edited crop would be the same as if conventional breeding or mutation breeding had been used. “These plants are indistinguishable from those that would occur through selective breeding,” Jones [said](#).

Currently, European legislation on GM crops focuses on the process used to develop the crop, not the actual crop itself, which is why scientists are calling for changes in the regulations. Steve Connor, a journalist reporting for English newspaper *The Independent*, [explains](#):

They believe that current legislation on GM crops is inconsistent, given that it is possible to produce mutations in plants that are identical to those made by conventional plant breeders, but with greater accuracy and speed.

“I’m not arguing for less legislation, I’m arguing for more legislation. I would like a sensible, proportionate, evidence-based system for everything,” Ottoline Leyser, director of the Sainsbury Laboratory at Cambridge University, [told](#) *The Independent*. “There is no way that legislation based on processes is ever going to keep up with the introduction of new ways of doing things. You need a more robust regulatory

system that is immune to the way that you do the changes.”

Environmental campaigners are not convinced and call for a precautionary approach, citing similar concerns over intellectual property rights and the impacts on traditional and organic farming systems.

“The Green party believes that with these new technologies, with their often unknown side effects and impacts, it is important to maintain the precautionary principle. These are genetic modifications using new techniques; they should be treated accordingly,” Natalie Bennett, the United Kingdom’s Green Party leader [told](#) *The Guardian*. “With new techniques and possibilities being developed every year, now is not the time to allow a wild west of release of organisms without full safety oversight and consumer information.”

According to *The Guardian*’s [report](#), the European Commission is “expected to offer guidance on the technology soon, perhaps next year, but it is not clear whether that could involve a ruling on whether and how the current regulations should apply, or a commitment to further study with the possibility of new regulations.”

This lack of clarity on genome editing’s legal status hampers research and potential investment, particularly in Europe, [according to](#) Jones. “Clearly lawyers need to look at it,” Jones said.

Additional Resources:

- [Latest on rewriting genomes, humans’ included](#), Genetic Literacy Project
- [New method of locating and targeting mutations promises “letter by letter” genome editing](#), Genetic Engineering and Biotechnology News