Challenges of precision plant gene editing in Europe

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Conventional breeding techniques have been used for centuries to improve performance of many crop varieties. In recent years, the CRISPR revolution has of course reached plant research because it offers the feasible possibility of producing single nucleotide changes in the genomes but with an unprecedented precision and safety. CRISPR has enormous potential to contribute to a better health for humans since it can help to face the challenges derived from the need to feed an increasing world population in the middle of global climate change.

Very surprisingly for the scientific community, the European Court of Justice (ECJ) has ruled that organisms treated with CRISPR precision breeding techniques are considered genetically modified organisms (GMO). However, the EU GMO legal regulations do not reflect the current state of scientific findings. It is largely demonstrated that the precision currently reached with the use of CRISPR in several crop species is far safer that other cases of genetic manipulations that are not considered as GMOs by the current EU legislation.

This situation is in clear contrast with the decision made in other countries where the development of CRISPR-modified plant varieties is fully approved. The result is that EU agriculture is becoming behind practices that are of common use elsewhere. The scientific community throughout Europe has reacted quickly and strongly, arguing that the EU must regulate according to pure scientific criteria. Consequently, a request is made that the necessary modifications of current regulations must be implemented to approve the use of precision, CRISPR-modified crops.

Dirk Inzé, who has been leading a European initiative, stated: “This is one of the rare examples in which the scientific community across the entire EU has united and unanimously calls for a revision of the European legislation affecting genome editing. The initiative is supported by more than 121 leading European institutions, and currently, this topic is a buzzword for politicians at the European, as well as national levels.”