



U N A S A

*Unione Nazionale delle Accademie per le Scienze Applicate allo Sviluppo dell'Agricoltura, alla Sicurezza Alimentare ed alla Tutela Ambientale*

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## **Assisted Evolution Technologies (TEA) as key tool for sustainable, resilient and competitive agriculture**

Genomic innovation in agriculture has now overcome the limitations of traditional breeding. Modern sequencing methodologies make it possible to map the genomes of agricultural crops, leading to the possibility of producing targeted mutations with CRISPR/Cas technology.

CRISPR/Cas is considered one of the most revolutionary discoveries in genetics (so much so that it earned Jennifer Doudna and Emmanuelle Charpentier the 2020 Nobel Prize), which opened up unprecedented possibilities, spanning from biological and biomedical applications to agriculture.

With the support of those who are called in Italy Assisted Evolution Technologies (TEA), defined in European legislation as New Genomic Techniques (NGT), it is indeed possible to obtain in a short time mutations (which could also potentially occur in nature) able to induce resistance to biotic (pests) and abiotic (as for example drought) stresses and to improve the qualitative and nutritional characteristics of crops.

Thus, TEAs may have a great potential to cope with climate change as, for example, producing plants that are less demanding of the water resource and more resistant to pest attacks. Such features will be capable of enabling reduced water and pesticide consumption, as well as positively affecting crop quality and productivity, thus making agriculture more sustainable, resilient and competitive.

Under current legislation, the European Court of Justice on July 24th, 2018 assimilated organisms obtained by TEAs to GMOs. In contrast, the European Parliament on Feb. 7th, 2024 approved a proposal for a European Commission regulation claiming TEAs not to be subject to existing GMO legislation, thus allowing testing and cultivation of plants obtained with such technology. Unfortunately, the end of the legislative period did not allow the Regulation's approval process to be completed.

The entire national scientific community, joined by the major professional agricultural organizations, express in favour of TEAs, calling for the approval process to be completed quickly enabling to move on to the field-testing phase of plants obtained in the laboratory using TEA genomic technique. Indeed, field testing is crucial to validate what research produces.

Climate change is occurring very rapidly, and its impacts are becoming more and more severe. Politicians should move just as quickly to avoid to slow down the progress of science. Italy is leading the way in this area: after the first trial of brusone (*Pyricularia Grisea*)-resistant rice performance, the trial of a blight-resistant vine variety has begun. Any delay in the TEA approval process is a brake on positive innovation to the detriment of sustainability, but also of resilience and competitiveness of national and European agriculture.

UNASA; the National Union of Academies for Applied Sciences for Agricultural Development, Food Safety and Environmental Protection, joins the chorus of urgencies called by the scientific community and other institutions to policymakers to work proactively, at the national and European levels, to finalize the process of authorizing the use of TEA-obtained crops in the open field.

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