



Statement

European Plant Science Organisation
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Nobel Prize in Chemistry 2020 awarded to E Charpentier and J Doudna for genome editing

Brussels, 07.10.2020

The European Plant Science Organisation (EPSO) welcomes the awarding of the 2020 Nobel Prize in Chemistry to E Charpentier and J Doudna “for the development of a method for genome editing.”

The award honours a discovery made in basic research on bacteria, which has led to transformative applications in the plant and medical sciences. It is the first Nobel prize to be shared by two women.

In plant science, genome editing enables scientists and breeders to improve the whole range of plants, from fruit, fibre, and vegetable crops to legumes, cereals, and trees, on which people depend for food, health, and livelihoods. The method enables diversity enhancement and precise, targeted improvements leading to better nutritional quality, disease resistance, stress tolerance, and environmental sustainability for rapid advancement through breeding to farmers’ use. Even underutilised crops, on which critical-mass breeding efforts have not so far focused, due to their poor market share compared to the time and effort needed to improve them with classical methods, will benefit from the new genomic techniques. The resulting crops will contribute to environmental sustainability, very important in light of climate change, as well as to diverse diets and human health.

Plant scientists call upon policy makers to improve European legislation, so that the potential of genome editing to improve underutilised crops is unfettered from the substantial time and financial burden of the GM legislation to which it is currently tied. If genome-edited plants were only subject to the standard legislation any new plant variety has to follow, the diversity of cultivated crops as a whole, a main target of the European Biodiversity strategy for 2030, would be substantially increased.

Finally, the application of genome editing to neglected and medicinal species will help to explore and secure biodiversity, demonstrating its value by revealing the metabolic pathways of a large variety of bioactive secondary metabolites, which may for example have high potential in fighting against new diseases or against antibiotic resistant bacteria.

Genome editing is part of the ongoing European Commission (EC) study on new genomic techniques (NGTs). These are defined as techniques, which have emerged or have been developed since 2001, capable of changing the genetic material of an organism. EPSO refers in its submission (27.5.2020) to the EC study specifically to

genome editing leading via mutagenesis to point mutations or other modifications that exist in nature in plants and products obtained from them.

NGTs are one of the building blocks needed to assure the success of the ambition announced by the European Commission in the European Green Deal and which will mobilize research and foster innovation. Examples include pest-resistant NGT-plants allowing achievement of the zero pollution ambition for a toxic-free environment, allergen-free or bio-fortified NGT-products, realising the "Farm-to-Fork" concept for a fair, healthy and environmentally-friendly food system, and cellular agriculture.

This statement is based on previous statements developed by EPSO approved by the EPSO Representatives and Board.

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Useful links

- <https://www.nobelprize.org/prizes/chemistry/2020/summary/>
- EPSO: [Statement on the Farm to Fork Strategy by the European Commission](#), 2.6.2020
- EPSO: [Statement on the EC study on New Genomic Techniques \(NGTs\)](#), 27.5.2020
- EPSO: [Contributions from plant science towards Nutritional Security and human health](#), Draft Statement, 11.5.2020
- EPSO: [Genome editing – improving legislation and starting flagships to better address climate, environmental, food and health challenges – 2nd meeting](#), news item and report, 24.4.2020
- EPSO: [EPSO welcomes Commissioner Andriukaitis statement and call for action 'New plant breeding techniques need new regulatory framework'](#), 29.3.2019
- EPSO: [Statement on the Court of Justice of the EU ruling regarding mutagenesis and the GMO Directive](#), 19.2.2019

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About EPSO

EPSO, the European Plant Science Organisation, is an independent academic organisation that represents more than 200 research institutes, departments and universities from 30 countries, mainly from Europe, and 2.600 individual Personal Members, representing over 26 000 people working in plant science. EPSO's mission is to improve the impact and visibility of plant science in Europe, to provide authoritative source of independent information on plant science including science advice to policy, and to promote training of plant scientists to meet the 21st century challenges in breeding, agriculture, horticulture, forestry, plant ecology and sectors related to plant science. <https://epsoweb.org> | EU Transparency Register Number 38511867304-09