

PRESS RELEASE

European Network of Scientists for Social and Environmental Responsibility  
(ENSSER)

<https://ensser.org/news/ngmt-statement-press/>



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## **Products of new GM techniques should be strictly regulated as GMOs**

The products of new genetic modification techniques (NGMTs), misleadingly termed by proponents New Plant Breeding Techniques (NPBTs), are genetically modified organisms (GMOs) and should be strictly regulated as such, according to a statement<sup>1</sup> released today by the European Network of Scientists for Social and Environmental Responsibility (ENSSER). The scientific evidence shows that these techniques do not control unintended, unpredicted and potentially harmful consequences. Therefore the case for their thorough and scientifically independent risk appraisal is beyond argument.

According to the statement, signed currently by 60 international scientists, scientific evidence shows that these techniques (from CRISPR-Cas/Cpf to oligonucleotide directed mutagenesis, cisgenesis, RNA-dependent DNA methylation and others) can create unpredicted and unintended effects. Moreover, genome editing techniques have become so easy to carry out, that they open up the possibility of abuse and inadvertent misuse with an alarming likelihood. Gene drives (designed to rapidly spread a trait, such as female sterility, through populations or entire species) carry a particular risk of causing ecological imbalance and disruption. Altogether, there are multiple but clear indications of potential serious and irreversible harm from the NGMTs.

In spite of the scientific uncertainty involved, action must urgently be taken to prevent such harm. Regulation is necessary to guide such action. Attempts by proponents to argue that regulation of NGMTs is superfluous or excessive are therefore disingenuous and place an unacceptable risk onto public health, the environment and trade.

The application of these techniques allows for outcomes that may be unprecedented in human experience. The general claim that genomes changed using an NGMT (e.g. genome editing or cisgenesis) are always identical to those that would arise without human intervention at the molecular level is unproven. These techniques may, moreover, be applied in a series of incremental changes, any number of which could be indistinguishable from those arising individually in nature, but collectively be entirely unknown to Earth.

ENSSER's statement challenges the arguments put forward by proponents one by one. Even relatively precise or efficient genomic interventions can result in uncontrolled and unpredictable effects. The claim that, because of their greater precision, the new GM techniques create only intended and predicted effects on the new plant-products they generate, and no unpredicted effects, is spurious.

The scientists contend that the new techniques are indeed genetic modification techniques because they directly modify DNA based genetic material and gene functioning. They add that claims that changes brought about by the new techniques are the same as what may occur naturally are scientifically unproven.

The statement says that claims of precision and controllability are contradicted by the evidence. Ricarda Steinbrecher (molecular geneticist and developmental biologist, EcoNexus, and board member of ENSSER) said, "Off-target, unintended changes in the genome occur frequently when these techniques are applied to some organisms and have not been excluded as happening in any organism, to our knowledge. In the case of food plants produced by these techniques, such off-target effects could lead to unexpected toxins or allergens, or altered or compromised nutritional value."

Therefore products of these technologies must be regulated at least as strictly as products of the older-style GM technologies.

Angelika Hilbeck (Institute of Integrative Biology, Swiss Federal Institute of Technology and board member of ENSSER) said, "Exempting products of the new GM techniques from regulations would release them from regulatory oversight, labelling and traceability and consequently from accountability. It would furthermore concentrate the technical knowledge about them in the hands of an elite group of experts working with the producers and place the burden of risk on the public without the benefit of tools for detection and monitoring."

Michael Antoniou, King's College London, UK and ENSSER member, stated: "Regulators should acknowledge that the new GM techniques used in agriculture (often called New Plant Breeding Technologies or NPBTs), especially genome editing, are indeed genetic modification procedures. If they did acknowledge as much, then they would be true to the state of the science behind these procedures – and they would inevitably decide to put strong measures in place to protect the public and the environment. In my area of gene-based medical research, genome editing is viewed as genetic modification with inherent off-target effects and it is not questioned that it must be strictly regulated for both safety as well as efficacy."

Brian Wynne (Professor Emeritus of Science Studies, Lancaster University and board member of ENSSER) commented: "Regulation would be in accordance with the EU Precautionary Principle. Contrary to the repeated claims of commercial interests threatened by it, the Precautionary Principle does not require an impossible proof of safety prior to regulatory acceptance, but instead requires scientifically independent, searching and sustained examination of the questions of harm from such products, with the injunction to intervene even where scientific proof of harm is incomplete, if there are reasonable scientific grounds to suppose potential harm from the processes involved. This is clearly the case with the NGMTs."

With this statement, ENSSER also wants to remind scientists of their responsibility to the public and to policy makers. As Ignacio Chapela (Associate Professor of Microbial Ecology, University of California, Berkeley and ENSSER member) said: "Disinterested scientific voices are sorely needed in the debate about these powerful techniques. The public and policy

makers need honest information about the true state of this science and technology. As Glenn Stone has recently pointed out<sup>2</sup>, GMO scientists acting as honest brokers have become quite rare, with the result that the mainstream media, which 'floundered in separating the well-informed concerns from the implausible and deranged claims with past genetic engineering', now run the risk, with genome editing, of 'not only floundering but foundering'."

For more information about the content of the statement and for interviews are available:

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i "Products of new genetic modification techniques should be strictly regulated as GMOs", ENSSER Statement, 27 September 2017, <https://ensser.org/wp-content/uploads/2017/09/ENSSER-NGMT-Statement-v27-9-2017.pdf>

i Stone, G. (2017). Dreading CRISPR: GMOs, honest brokers, and mertonian transgressions. *Geographical Rev.* 1-8. doi: 10.1111/gere.12260