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New GMOs

GMOs by the back door

The biotech industry and the US government are lobbying hard to have a whole new generation of genetic engineering techniques excluded from European regulations. A pending decision of the European Commission could open the door to these 'new GMOs'. They could soon be on our fields and plates, without risk-assessment, labelling or monitoring. In the European Union, genetically modified organisms are subjected to a specific regulation[1]. Before being authorized for planting or used in food or feed, they have to undergo a health and environment impact assessment by the European Food and Safety Agency (EFSA)[2] , then to be authorised individually and finally, to be labelled clearly as a GMO. For all the faults with this regulation, it nonetheless allows farmers and consumers to make informed choices. The past few years have seen the development of new biotechnologies that allow the manipulation of the genome of plants, animals, bacteria and human beings[3]. They are usually called “new breeding techniques" (NBTs), a term coined by the industry to blur the distinction between conventional breeding and these new biotechnologies. However, these new biotech methods work in the same way as older GM techniques, by **direct interference in cells and genomes**. *Nina Holland from* Corporate Europe Observatory on the lobbying strategy of the industry*:* **What is gene-editing?** Gene-editing covers a range of new laboratory techniques to modify the DNA of a living organism. Most gene-editing techniques use enzymes to ‘cut’ parts of the genome. The genome then ‘repairs’ itself. The result is an insertion, replacement or removal of bits of DNA. Unintended DNA cuts or other gene alterations can also occur, with unknown consequences. These techniques include zinc finger nucleases (ZFN), transcription activator-like effector nucleases (TALENs) and the clustered regularly interspaced short palindromic repeat (CRISPR) systems. Another gene-editing technique involves the introduction of short strands of synthetic DNA that triggers cells to modify their DNA to match the introduced fragments. This technique is oligonucleotide directed mutagenesis (ODM). These techniques are not limited to the modification of plants: they may also be used to modify animals, with a whole new set of risks. *On the use of these new techniques on animals, Odd-Gunnar Wikmark (Genok):* When applied to agriculture, these NBTs cause changes that do not occur naturally. They carry a risk of collateral damage since they can induce unintended changes in genetic material (in other words, unintended mutations or changes in the genome expression that can cause unwanted changes in the plant or the animal). These new techniques modify the genetic material (gene editing) or the way it expresses itself in the plant (epigenetic). EFSA confirmed that these new technologies, in particular cisgenesis and intragenesis *“can produce variable frequencies and severities of unintended effects.* ***The frequency of unintended changes may differ between breeding techniques and their occurrence cannot be predicted and needs to be assessed case by case****".* And other independent experts draw the same conclusions for the other new techniques. *On the importance of a proper risk assessment of the new techniques and the resulting products, Dr. Helmut Gaugitsch (Environment*

Agency Austria): Given the far-reaching changes that are possible with new biotechnologies, new ethical issues arise. For example, in 2012 a well-known advocate of synthetic biology, George Church, published a book which suggested that these technologies could in time be used to turn a human stem cell into that of a Neanderthal man or another closely related species. But even if it were possible to recreate mammoths or Neanderthals, should we do it merely because we have the technical ability to do it? Furthermore, these techniques pose similar risks to the environment (for example, reducing both cultivated and wild biodiversity, increasing pollution linked to the use of pesticides and herbicides or promoting herbicide resistance in wild plants) and to public health as "old fashioned" biotechnologies. Doing biotech research in a lab is one thing, releasing the results in the environment is a different matter altogether. The genetic contamination of other plants is as probable with these techniques as it is with "old" GMOs, inevitably leading to biodiversity loss. *On the risks posed by the introduction of these modified organisms in the environment, Dr. Frédéric Jacquemart (GIET)* For organic farmers, this contamination would be especially problematic, as these new biotechnologies are incompatible with organic principles, not to mention the growing consumer demand for GMO-free food. Yet without traceability or labelling, these techniques could still be imposed on farmers and consumers alike. *On the potential impacts of these techniques on organic farming, Thomas Fertl (IFOAM EU Group):* This explains why the most prominent EU environmental NGOs are extremely concerned by the releasing of these new technologies in nature. These techniques, and the resulting organisms, can be patented. This speeds up the privatisation of life and the monopolization of nature itself by a handful of global agrochemical companies. Patents mean higher prices and further concentration of an already highly concentrated market. They also constrain further breeding and seed reproduction and would particularly disadvantage small-scale seed breeding businesses and farmers.

Patrick de Kochko (Réseau Semences Paysannes) on the privatisation of seeds: Even if the seed industry, a pressure group and some member states are advocating these new biotechnologies are not in fact GMOs, they are covered by the current EU legal definition of genetically modified organisms, as was confirmed by two independent lawyers. New breeding techniques are, clearly and without a doubt, biotechnologies and as such should be banned in agriculture in the EU as long as the European Commission fails to implement a new assessment of their impacts (health, biodiversity, utility for society, environment, social issues, tax evasion)[4]. **This means they have to be officially defined as "genetically modified organisms" (GMOs) under the existing EU regulation on biotechnologies.** For more information: A full conference on New GMOs, hosted by Greens/EFA MEPs Maria Heubuch, José Bové and Bart Staes

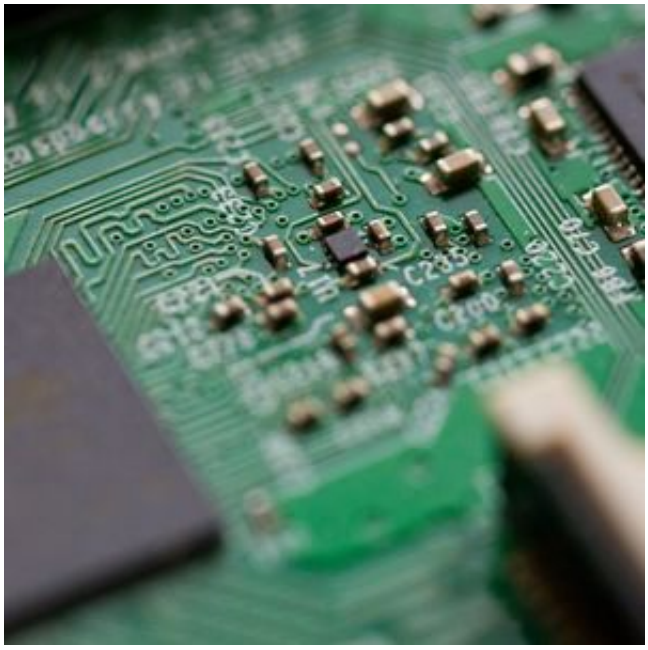
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[1] Several texts, notably the 2001/18 Directive [2] which has been heavily criticized for its shortcomings, lately, and its lack of transparency [3] Examples of such methods are cisgenesis and oligonucleotide-based techniques. A full list currently currently under discussion by the EU-Commission can be found at: http://ec.europa.eu/food/plant/gmo/new/legislation/plant_breeding/index_en.htm [4] as required by the European Council in December 2008

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