Greenwashing in the new GMOs debate:

A look at the marketing promises and what's behind them

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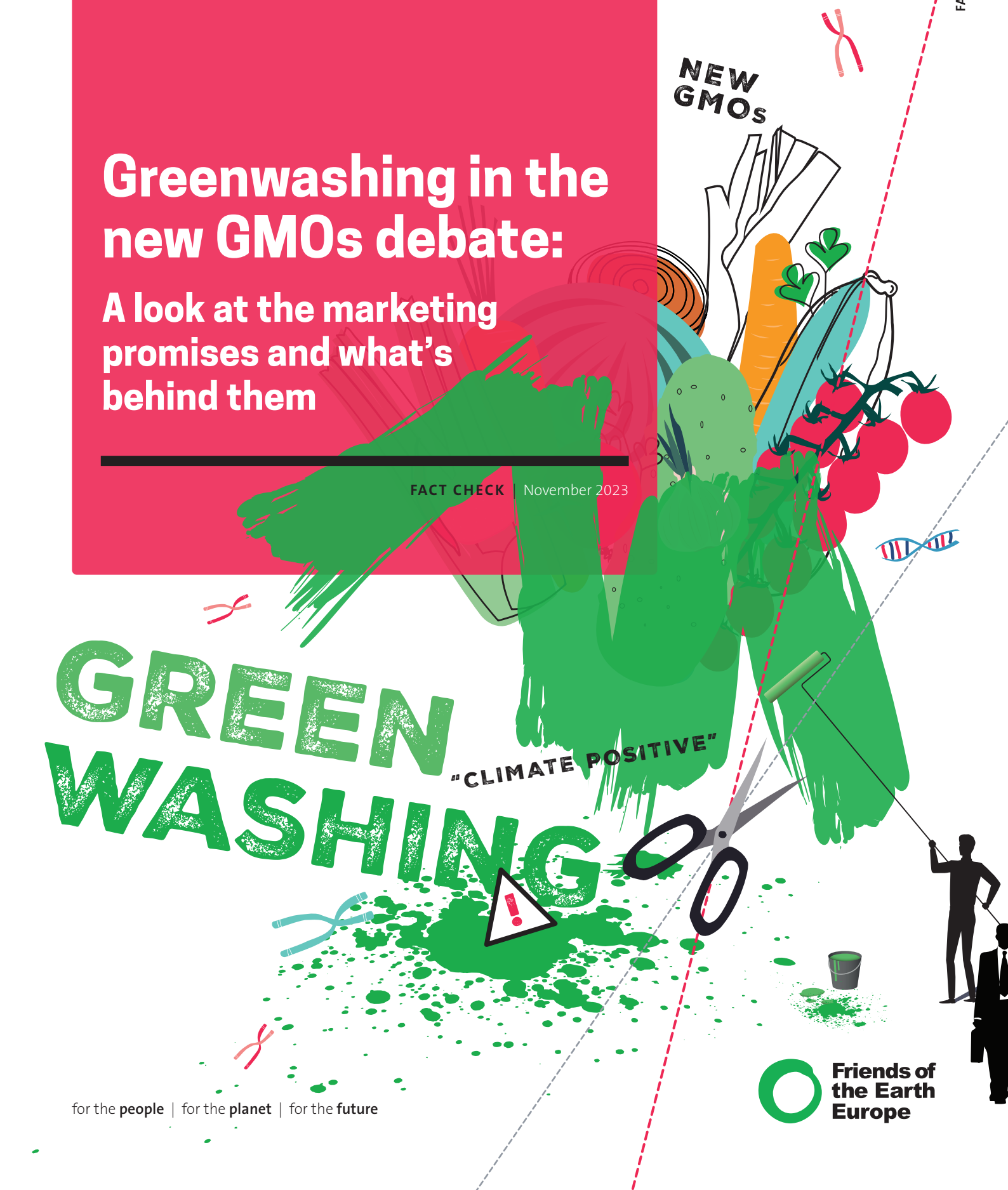

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Friends of the Earth Europe

Greenwashing describes the dissemination of misleading information about how environmentally and climate-friendly companies, technologies or products actually are. It is a practice used to make consumers believe that the positive impacts of said companies, technologies or products on the environment and climate are greater than they actually are, through positive environmental images and misleading labels for instance, or by not fully disclosing the disadvantages of the technology or product. Unproven claims such as "CO_2-neutral" or "climate-positive" are often cited, especially in the food and consumer sector. This also applies to new genetic engineering methods such as CRISRP-Cas: corporations that develop new GM plants or products advertise them as sustainable or climate-friendly.

Greenwashing in the new GMOs debate

The climate crisis is intensifying rapidly and already creating existential threats for people across the globe, including threats related to agriculture and food production. Agriculture is suffering from the consequences of the climate crisis and has to adapt to new extreme weather situations. The mass extinction of plant and animal species and other ecological impacts of human activities are putting further pressure to question and change current economic and social practices.

A controversial approach is the so called new generation of genetically modified organisms (new GMOs). Agrochemical corporations promise that new GMOs could be an "easy" fix to complex problems, such as the climate crisis or world hunger, and are therefore pushing for rapid mitigation of EU GMO rules. In the summer of 2023, the EU Commission presented a legislative proposal that considers a significant relaxing of the current regulation for new GMOs. The Commission takes the promises of the agroindustry for granted and proposes to extensively exclude new GM plants from labelling requirements and risk assessment.

However, a closer look at these promises is essential, as, to a large extent, they greatly diverges from reality.

Examples of misleading claims include:

- **Climate crisis:** new GMOs would make it possible to quickly develop plants that are climate-friendly and at the same time deliver high yields.
- **Pesticide reduction:** new GMOs could be used to produce plants that are resistant to pests and diseases. This could reduce the use of pesticides and contribute to more sustainable agriculture.
- **Biodiversity:** new GMOs would increase biodiversity because it would allows plants to develop in a manner that was previously not possible.
- **Global food security:** new GMOs would allow the development of crops that significantly increase yields and land productivity, to help feed the growing global population.

Climate Crisis

Promise: New GMOs would make it possible to quickly develop plants that are climate-resilient ready and at the same time deliver high yields.

Fact: Traits such as tolerance to drought, heat or moisture are based on a complex interaction[1] of multiple genes[2], regulated at several levels and via different signalling pathways depending on environmental conditions. These traits usually affect more than one characteristic and can detrimentally affect growth and yield. This may explain why, to date, genetic modification did not produce plants with traits that enable them to cope better with extreme weather conditions[3]. It is also questionable whether the modification of individual genes could ever lead to the desired results without undesirable effects occurring.

Given the ongoing climate crisis, adaptation would have to occur very rapidly. However, due to the complex interplay between genes and the environment, it cannot be expected that new GMOs will lead to the prompt availability of climate-friendly varieties, if at all[4]. Conventional breeding, on the other hand, is quite successful with, for example, barley,[5] maize and beans[6].

Currently, stress-tolerant plants produced with new GMOs are not on the market or ready for the market. Even those in the pipelines of large corporations hardly have any corresponding applications[7]. Instead, products that are expected to market well are developed - such as a salad that does not turn brown or tomatoes with increased GABA content (gamma-aminobutyric acid) for high blood pressure.

The climate crisis causes extreme swings in both directions: one summer may bring too little water overall , as well as too much water at once with torrential rain and flooding. In addition, the weather at the beginning of the growing season is unpredictable: hot and dry or wet and rather cool?

Systemic responses are therefore required to facilitate better handling of the climate crisis and extreme weather events. With genetic engineering, a plant is modified to create a certain reaction in a certain context based on its specific genetic makeup. However, to brace oneself for the climate crisis, one must prepare for the opposite: rapidly changing and unpredictable climate conditions, varying soil conditions and maximising the diversity to ensure the survival of plants in the face of disease and disruption. It becomes necessary to shift towards locally adaptable sustainable cultivation systems to make agriculture climate-friendly[8]. The agricultural system must become more ecological and diverse, e.g. through the use of a wide range of varieties[9] and better soil protection.

Pesticide Reduction

Promise: New GMOs could be used to produce plants that are resistant to pests and diseases. This could reduce the use of pesticides and contribute to more sustainable agriculture. In this way, beneficial organisms could be spared and fewer pesticides would be released into water and soil. The EU target of reducing pesticide levels by 50 percent by 2030 could only be achieved with new GMOs.

Fact: Genetically engineered crops and pesticides remain a toxic combination. Even when genetic modification was still in its infancy, reduced pesticide use in agriculture was promised. However, the opposite has happened: the amounts of pesticides have increased significantly, and the applied quantities of glyphosate, the most important herbicide, have multiplied globally[10]. Herbicide resistance became the most important trait in genetically modified plants.

Today, 80% of GMOs in cultivation are herbicide-resistant, i.e. glyphosate or other pesticides are regularly applied to these. This has led to a massive increase in herbicide-resistant weeds, leading to the extreme increase in consumption of herbicides[11]. In the meantime, many harmful insects have also adapted to the genetically modified produced insect resistance in plants[12], so that a permanent reduction of the amount of insecticides is not to be expected. However, a look at the development pipeline of corporations shows that plants with herbicide resistance continue to be developed with new GMOs.[13] In addition, evidently, only two out of 10 supposedly market-ready new GM plants are aiming to achieve disease resistance. Resistance to mildew could also lead to premature aging of the plant[14] or greater susceptibility to other harmful fungi[15].

New genetic engineering will not lead to pesticide reduction.[16] If the EU Commission's legislative proposal were successful, herbicide-tolerant NGT plants would be able to enter the market without authorisation procedures in the future. The EU's pesticide dependence can only be reduced through a different agricultural policy.[17] Instead of genetically engineered plants, we need an agro-ecological transformation of agriculture.

GM crops led to an intensified pesticide use and increased resistance among plant pests, NOT to a reduction.

Biodiversity

Promise: New GMOs would increase biodiversity in farming because they would allow to breed plants in completely new manners. These new techniques would also help unlock the genetic potential of less commonly used crops[18] such as quinoa, and result in growing more diverse plants. New GMOs would thus introduce a new (genetic) diversity in Europe's fields.

Fact: When risky technology is promoted as a means of increasing biodiversity, it is actually primarily about continuing 'business as usual' and not allowing any real change in food producing systems.

If the agro industry had its say, many genetically modified organisms with a wide variety of traits could be released quickly and in large numbers into ecosystems - without even testing their ecological effects and dispersion behaviour in advance[19]. At the same time, new GMOs are associated with considerable risks for biodiversity. In particular, the simultaneous application of a wide variety of genetically modified plant species carries the risk of unexpected and undesirable interactions[20].

However, a clear system change in agriculture is required to protect biodiversity: we need a wide range of crops, varieties and regionally adapted agro-ecological cultivation systems that have been proven to promote diversity[21] . Furthermore, the food production system should not be controlled by handful of global corporations and patent holders who dominate the seed market and reduce the diversity of varieties. In recent years, global seed market concentration has increased at an alarming rate: the main players are Bayer/Monsanto, Corteva, BASF and Sinochem/Syngenta, as well as Limagrain and KWS[22].

World Food Supply

Promise: New GMOs would allow the development of crops that significantly increase yields and land productivity, to help feed the growing world population.

Fact: There are no simple technical solutions to complex problems such as world hunger. Hunger is first and foremost the result of the absence of fair distribution due to poverty, wars, lack of education, and deficient or non-existent land rights. Food waste and the use of food as agrofuels and fodder do the rest.

Focusing on genetic modification diverts attention and energy away from long-term solutions rooted in the social causes of hunger. In addition, yield is a highly complex property based on the interaction of multiple genes under changing environmental conditions. The modification of individual genes is not the cause here, as experience with previous genetic engineering in the USA has shown[23]. Food safety, on the other hand, is based on locally adapted, peasant farming, as studies and humanitarian organisations have been pointing out for decades[24].

Endnoten:

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15 McGrann et al. 2014 A trade-off between mlo resistance to powdery mildew and increased susceptibility of barley to a newly important disease, Ramularia leaf spot. J Exp Bot 65:1025–1037

16 https://www.global2000.at/publications/new-genetic-technology-and-pesticides,

17 https://www.foodwatch.org/fileadmin/-INT/pesticides/2022-06-30_Pesticides_Report_foodwatch.pdf

18 Sammelbegriff für Nutzpflanzen, die auf dem Weltmarkt, in der Wissenschaft und Pflanzenzüchtung eine eher untergeordnete Rolle spielen und daher ein Nischendasein fristen.

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Conclusion

The agricultural system needs to change fundamentally, when relying on new GMOs is continuing with 'business as usual'. Greenwashing distracts from the necessary climate-friendly transformation of food production to agroecology. A weakening of the EU GMO regulation is greenwashing and cannot be justified.

Friends of the Earth Europe is the largest grassroots environmental network in Europe, uniting more than 30 national organisations with thousands of local groups. We are the European arm of Friends of the Earth International which unites 74 national member organisations, some 5,000 local activist groups, and over two million supporters around the world. We campaign on today's most urgent environmental and social issues, challenging the current model of economic and corporate globalization, and promoting solutions that will help to create environmentally sustainable and socially just societies. We seek to increase public participation and democratic decision-making. We work towards environmental, social, economic and political justice and equal access to resources and opportunities on the local, national, regional and international levels.

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