

GMO study finds 'indications of harmful and adverse effects'

Written by Joan Russow

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Nafeez Ahmed

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A store of probably GMO soya in Santos, Sao Paulo, Brazil. Photo: Márcio Garoni via Flickr (CC BY-NC).

A new biosafety report for the Norwegian Environment Agency says GM foods cannot be declared safe due to major gaps in the science, writes Nafeez Ahmed. Indeed research clearly indicates harmful and adverse impacts to both health and environment. But Monsanto insists that GMOs are just as safe as, or even safer than, conventional crops.

Statements of the safety of GM crops rely on the absence of evidence of harm in specific research tests, rather than actual evidence of safety. That is a too low standard for adequate protection of human and environmental health.

A new study commissioned by the Norwegian government, and conducted by a nationally recognised scientific authority on the safety of biotechnologies, concludes that available scientific data on GM crops is inadequate to prove their safety.

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The scientific [report](#) was commissioned by the Norwegian Environment Agency and completed last year, before being publicly released in June by the Genok Centre for Biosafety, located in the Arctic University of Norway. The Genok Centre is a nationally-designated centre of competence on biosafety issues.

The new study analyses a dossier by giant agribusiness conglomerate, Monsanto, submitted to the Brazilian government, and conducts a comprehensive review of the available scientific literature from other sources.

Its focus is on Monsanto's GM soybean Intacta Roundup Ready 2 Pro, which is grown in Brazil, and also authorised in Argentina, Paraguay and Uruguay, and probably also present in Bolivia due to illegal introductions from neighbouring countries.

Major gaps in the scientific literature

The report, titled '[Sustainability Assessment of Genetically Modified Herbicide Tolerant Crops](#)' concludes that due to major gaps in the scientific literature, it is not possible to give a scientific verdict on their safety.

Monsanto's dossier, the report concludes, demonstrates a range of methodological weaknesses, and highlights the problem of incomplete information and research on GM crops in the available literature.

According to Monsanto, genetically modified organisms do not harm human or animal health, and therefore do not have any adverse effects on crops and the environment. But according to the new Norwegian study:

"Contrary to this assertion, the literature provides indications of harmful and adverse effects to the environment and to health (both animal and human), as well as to socio-economic conditions, particularly over the medium- and long-term."

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The new study is authored by Georgina Catacora-Vargas, a researcher at the Agroecology Centre (AGRUCO) at the Faculty of Agricultural, Livestock and Forestry Sciences, University Mayor de San Simon, Cochabamba, Bolivia. Catacora-Vargas was until recently technical biosafety advisor at Bolivia's Vice-Ministry of Environment, Water and Forestry Management.

"Statements of the safety of GM crops rely principally on the absence of evidence of harm in specific research tests, rather than actual evidence of safety", said Catacora-Vargas. "Absence of evidence of harm is a too low standard for adequate protection of human and environmental health ...

"Moreover, today, a large portion of the research on GM crops is based on short-term studies that have inherent methodological weakness for detecting subtle yet significant effects that materialise in the long-term. Another common weakness?-?as indicated in my report?-?is the lack sufficient analytical rigour to derive any meaningful conclusions."

According to her report, the large number of studies indicating positive impacts of GM crops are questionable because of such *"methodological limitations"*, which largely ignore *"possible long-term effects"* and used a *"reduced and repetitive set of indicators."*

Most of this research does not compare GM crops with other production systems, such as IPM (integrated pest management), organic, and agroecological; focuses exclusively on 'single-trait' GM plants rather than, more realistically, *"the combinatorial and additive effects of multiple-trait GM crops"* ; and is based on experiments which do not adequately consider *"real field conditions."*

"These limitations", the Norwegian report concludes, "partially explain the kinds of findings reported by the applicant [Monsanto]: all of them showing no possible adverse effects in contrast to a significant body of literature."

Monsanto: GM crops 'in some cases safer'

Mark Buckingham, a spokesman for Monsanto, dismissed the report's findings: *"We are*

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confident that GM crops can be and are being properly assessed for safety and that GM crops being used by farmers are just as safe and in some cases safer than conventional crops and foods."

According to a [compendium](#) of EU-funded research published by the European Commission in 2010, *"there is, as of today, no scientific evidence associating GMOs with higher risks for the environment or for food and feed safety than conventional plants and organisms."*

Buckingham added that GM crops are *"designed to be safe"* by scientists and plant breeders, and that national and international regulators whose job is *"to check that a crop is safe and to protect consumers"* have certified GM:

"Since GM crops were first grown on a large scale 19 years ago in the mid 1990's, billions of meals including ingredients from these crops have been safely consumed by people around the world. No health effects what so ever have been observed?-?GM crops have a track record of safety."

The author of the new study, however, disagreed. At the request of the Norwegian Environment Agency, the report focused on analysing the herbicide tolerant trait of Monsanto's 'Intacta' crop.

"The literature contains a number of recent scientific studies which do indicate potential adverse effects", said Catacora-Vargas, noting that Monsanto's comment solely concerned Intacta's insect resistance. By selectively focusing on studies of only certain impacts of the crop, Monsanto and other biotechnology companies are misleading the public.

She added that the EU's 2010 compendium, which is also cited in the new Norwegian study, *"is one of the very few with specific research on Intacta. These few papers are insufficient? -? evidence wise ?-? to assert that Intacta is safe to the environment and human health.*

"If integral analysis of GM crops' sustainability is incomplete, it is just because the knowledge

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available on GMO safety and sustainability is also incomplete. There are more unknowns than evidence on the safety of GM crops."

Monsanto's flagship product condemned by WHO

The release of the new Norwegian report coincided with a spate of bad news for the biotechnology food industry. An expensive two-year research trial to test GM wheat's ability to repel aphids (also known as plant lice), conducted by Rothamsted Research, failed spectacularly to produce the desired results.

Most GM crops contain the Roundup Ready trait patented by Monsanto. But in March, an [assessment](#) by the World Health Organization's (WHO) cancer arm published in *The Lancet*, found that Roundup is *"probably carcinogenic to humans."*

The study evaluated evidence of human exposures to Roundup since 2001, largely for agricultural workers in the US, Canada and Sweden. Alarmingly, it found *"limited evidence of carcinogenicity in humans for non-Hodgkin lymphoma"*, along with *"convincing evidence that glyphosate also can cause cancer in laboratory animals."*

According to Dr. Helen Wallace of the campaigning group, Genewatch UK, Monsanto's GM crops *"are now failing in the field due to the growth of superweeds resistant to the weedkiller RoundUp which is blanket sprayed on these GM plants."*

Despite the *"high failure rate of experimental GM crops"*, Genewatch UK notes ongoing efforts at *"collaboration between government-funded scientists, ministers and industry on a PR strategy to try to rehabilitate GM crops in Britain and weaken regulations."*

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Large quantities of industry and public money therefore incentivises academic scientists to produce research on GM crops that favours the industry, and underplays contrary evidence.

The harder we look, the worse it gets

The author of the new Norwegian study, Catacora-Vargas, said that given the current level of knowledge, *"it is premature to assert that GM crops are safe. Currently, the more research we do on GMOs the more questions and uncertainties arise."*

She added that non-GM based forms of agriculture such as low input agriculture, agroecological approaches and even peasant and family farming are receiving insufficient attention from governments.

These non-GM production systems *"have shown their capacity to produce adequate volumes of healthy and safe food and feed, besides being less energy and resource demanding. We still have a long way to go in designing scientific research that will provide the evidence needed to make justifiable claims of safety of GM crops, and their benefits in comparison to other production systems."*

These findings will add to growing public concerns over the addition of GM crops into the food-chain, and the role of the industry in suppressing scientific research that contradicts its claims.

The report: ' [Sustainability Assessment of Genetically Modified Herbicide Tolerant Crops](#) ' was

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commissioned by the Norwegian Environment Agency and released by the Genok Centre for Biosafety at the Arctic University of Norway.

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He is the winner of a 2015 Project Censored Award, known as the 'Alternative Pulitzer Prize', for Outstanding Investigative Journalism for his Guardian work, and was selected in the Evening Standard's 'Power 1,000' most globally influential Londoners.

A regular correspondent for The Ecologist, Nafeez has also written for The Independent, Sydney Morning Herald, The Age, The Scotsman, Foreign Policy, The Atlantic, Quartz, Prospect, New Statesman, Le Monde diplomatique, New Internationalist, Counterpunch, Truthout, among others. He is a Visiting Research Fellow at the Faculty of Science and Technology at Anglia Ruskin University.

Books: Nafeez is the author of [A User's Guide to the Crisis of Civilization: And How to Save It](#) (2010), and the scifi thriller novel [ZERO POINT](#)

, among other books. His work on the root causes and covert operations linked to international terrorism officially contributed to the 9/11 Commission and the 7/7 Coroner's Inquest.

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