

Dismantling of GM safeguards begins, despite strong public opposition

A few weeks after the [last issue of Thin Ice](#) hit GM Freeze members' and supporters' letterboxes, Environment Secretary George Eustice [announced plans](#) to make it easier for GM developers to grow their experimental plants in [open field trials](#) in England. Adding that further dismantling of GM safeguards will follow, Eustice stated that this first change will be made before Christmas and that it will apply to "plants produced by genetic technologies, where genetic changes could have occurred naturally or could have been a result of traditional breeding methods".

Quite how the Government will decide which GMOs qualify for the new exemption from public protection measures is, as yet, unknown. [GM Freeze has been highlighting problems](#) with this approach to regulation ever since it was placed at the heart of the Department for Environment, Food and Rural Affairs (Defra)'s [Consultation](#)



Environment Secretary George Eustice MP

[on the Regulation of Genetic Technologies](#). When a [summary of responses](#) to the consultation was published several hours after Eustice's announcement, it became clear that we are far from alone in that view.

Among other questions, the consultation asked: "What criteria should be used to determine whether an organism produced by gene editing

or another genetic technology, could have been produced by traditional breeding or not?" The most common response amongst the 6,440 submissions to the consultation was "there are no suitable criteria". [The Royal Society](#) said that "this question is problematic" and even [the Roslin Institute](#), which welcomed the Government announcement and has a lot to gain from the dismantling of GM safeguards, said that "it is exceptionally challenging to define which changes to the genome could have been produced by 'traditional' breeding".

Concern about the Government's plans is not limited to issues of definition. A staggering 88% of individual consultation responses analysed, along with 64% of the businesses that took part, said they wanted the use of newer "gene editing" GMO techniques to remain under

... continued on page 2

DNA damage from new GM techniques



As political moves to dismantle the GM regulatory safety net gather pace, evidence continues to mount about just how risky this strategy is for people, animals and the natural environment.

Arguments about the safety of new GM techniques often hinge on how precisely (or not) they can be targeted to a particular part of the organism's genome. A [new briefing published by GeneWatch UK](#) in September points out that is only part of the story.

On-target effects of genome editing techniques: (Un)repaired DNA damage, a hinderance to safety and development? pulls together a large

... continued on page 3

Dismantling of GM safeguards ... *continued from page 1*

the protection of current regulations. Similar numbers stated that organisms produced by genetic technologies pose a greater risk of harm to human health or the environment as a result of how they were produced and well over 90% of respondents said that non-safety issues should also be considered.

Those statistics don't tell the whole story as one of the most shocking aspects of the summary report is that less than a third of responses were included in the numerical analysis. Graphs and percentages quoted in the report cover only those responses submitted via Defra's own "Citizen Space" online platform, despite email and postal responses being invited throughout the consultation period. What's more, 28% of the responses on the platform were also excluded because they were deemed to be part of a "campaign".

The conduct of the consultation has been questioned from the start. [Beyond GM](#) and the [Food Ethics Council](#) published complaints and we raised concerns in [our own submission](#). The [Government's response](#) supports the argument that this was little more than a tick-

box exercise which is being ignored because the vast majority of those taking part ticked the "no" box.

The planned changes to GM field trial rules will be made via a [Statutory Instrument](#) (SI) that amends the existing Environmental Protection Act without a proper Parliamentary debate. That will make it much more difficult for public opinion – and the voice of farmers, retailers and other businesses directly impacted by the removal of key GM safeguards – to be heard. However, this first step is very much a test case, so it is more important than ever that we make some noise.

GM Freeze is working hard behind the scenes to identify the best ways of disrupting the SI process. We are also building relationships with politicians of all persuasions. We will be asking supporters to write to their elected representatives over the coming months. The precise details of just what we want members of the UK, Scottish and Welsh Parliaments to do will change as the Government's plans progress so, if you want to help, please visit www.gmfreeze.org/emails to make sure you are signed up to receive our email action alerts.

Why writing to your MP is always worthwhile

Many of our supporters are busy letting their member of the UK Parliament know just how they feel about recent developments, but we know that writing to your MP (or another elected representative) can be very frustrating. They will often reply with stock answers that bear little relation to the question asked and include assertions that we know to be partly or entirely untrue. However, it really is worth the effort.

Few UK politicians have formed a detailed view on GM in food and farming as, before Brexit, key decisions on GM were taken in Brussels. We know that the Prime Minister is a fan of high-tech industrial agriculture, but he may not have the support of all his own MPs and opposition parties have kept pretty quiet so far. When we ask you to contact your MP, therefore, we might be trying to:

- Identify MPs who are already on side and may be willing to help us stop the headlong rush to slash public protections.
- Show those who aren't yet sure of their views that GM safeguards matter to their constituents.
- Gather clues about exactly what the Government plans to do and the arguments they plan to use to get their way.

Sometimes we want your MP to write to a Minister on your behalf. This is because convention dictates that Ministers must reply to such correspondence. This will remind the Government that voters are not on their side.

Whatever the specific purpose of our requests we are hugely grateful to those who take the time to write. Thank you for making a difference.

Thin Ice allows us to give you GM Freeze's analysis of key GM issues but for as-it-happens news updates, follow us on twitter [@gmfreeze](#) and facebook / [GMFreezeUK](#) or visit www.gmfreeze.org/emails to sign up for our email list.

Criticism for EU moves on GM deregulation

Earlier this year ([Thin Ice 58](#)) we shared news of a European Commission report backing biotechnology industry calls for reduced safety checks on crops produced with new GM techniques. Almost three quarters of the interested parties invited to feed into the report were from the agricultural GMO industry and that extraordinary bias was highlighted in September when 58 civil society organisations published a shared response to the proposals. Although the UK is now outside the European Union (EU) GM Freeze signed [the critical response](#) because

compatibility between UK and EU systems is still a key factor in UK discussions about GM regulation. A public consultation on the same proposals, which closed in late October, attracted an extraordinary 70,879 submissions. From what can be seen so far, the vast majority of these oppose the Commission's plan. Whether EU leaders listen any more carefully to their citizens than the UK Government has done with its own consultation on similar plans ([Dismantling of GM safeguards begins](#), page 1) remains to be seen.

GM Freeze in the spotlight

Government plans to swap the safety net of proper public protections for a high-tech free-for-all put new GM techniques in the media spotlight this autumn and GM Freeze was there to put the case against George Eustice's proposals. Our Director, Liz O'Neill, appeared on the *BBC News* TV channel, *Times Radio*

and the *Farmers Weekly* podcast. She was quoted in the *Guardian*, *Financial Times*, *Daily Mail*, *Farmers Weekly* and many more as well as writing opinion pieces for [Reaction](#), the [Sustainable Food Trust](#) website and [Green World](#). Details of GM Freeze ... *continued on page 4*

DNA damage ...

continued from page 1

amount of scientific detail on how new GM techniques work. Many of these techniques rip or tear the target organism's DNA, then rely on natural repair mechanisms to fix the wound in the desired way. Those repair mechanisms are incredibly complex and, as the briefing states, "knowledge of DNA repair pathways is still an evolving field, leaving knowledge gaps and uncertainties around the extent and type of genetic damage caused".

The briefing concludes that those advocating for deregulation of genome editing techniques in food and farming are out of step with their colleagues in the medical field, where the complexity of unintended effects is widely accepted. It recommends strict regulation of genome edited GMOs, including thorough checks for unintended effects, labelling and traceability – demands that GM Freeze supports wholeheartedly.

Also in September, a study [published in Nature Genetics](#) revealed just how far things can go wrong with the CRISPR tool that rips into the DNA of a target organism. Known as chromothripsis, the newly observed phenomenon results in extensive rearrangements of chromosomes – the "packaged" structures that hold DNA in the nuclei of plant and animal cells. The study focused on the use of gene editing techniques in medicine so highlighted the potential for the errors

to cause cancer in patients receiving genome editing therapies. Animals subjected to the same techniques could suffer a similar fate, but the discovery is also yet another good reason to avoid its use in plants, where chromosome damage could massively alter the function of genes.

Meanwhile, a special issue of the journal *Plants* is in production with a focus on [Potential Unintended Effects of Genetic Technologies in Plants](#). The editors of the special issue invited submissions that focus on the molecular, environmental and food chain impacts of "next generation GMOs" and have so far published two papers.

[The Generic Risks and the Potential of SDN-1 Applications in Crop Plants](#) considers the type of GM technique that tears both strands of a stretch of DNA in the hope that the cell will repair itself in ways that achieve a desired result. The author, Katharina Kawall, notes that these techniques can induce a wide range of alterations. She found that nearly half of plants created with so-called "SDN-1 techniques" contain complex alterations rather than very simple ones that are most often described by those promoting new GM techniques. The paper concludes that this "further underscores the need for data on both the processes and the end-product for a case-by-case risk assessment of plants created with SDN-1 techniques."

A [second paper](#) in the special

issue focuses on the most widely adopted type of GMO – glyphosate-resistant soya. We already know that these weedkiller-friendly crops are responsible for devastating biodiversity loss as they support the repeated spraying of toxic chemicals. This new paper adds concerns about the impact of previously under-recognised changes to the plants' own metabolism in response to different kinds of stress, concluding that "GM crop environments must be monitored from a biosafety perspective to verify potential risks in relationships with other biological organisms". Put simply, what you see is not all that you get when you manhandle the genome.

In October, scientists at the University of Uppsala in Sweden found that the CRISPR-Cas GM technique can cause major unintended DNA changes. Their paper, which has been [released as a preprint](#) while the peer-review process takes place, noted large structural changes to the DNA of experimental zebrafish, at both on- and off-target sites, ie at the point where the researchers intended to tear the DNA and in completely different parts of the genome. Similar results have previously been found in plants and this new study adds to the growing recognition that we can only know just what changes have been made by new GM techniques if the altered organism's DNA is examined at a molecular level through whole genome sequencing.

Public sceptical about GM farmed animals

The Nuffield Council on Bioethics is a well-respected independent body focused on ethical issues in biology and medicine. It has a long-running programme of work exploring the ethical implications of genome editing of farmed animals and recently ran a [public dialogue](#) to better understand public concerns. The in-depth study allowed citizens to engage in discussion groups and respond to expert briefings from a range of perspectives. Results showed that people are concerned about the potential for new GM techniques to exacerbate the problems of factory farming; that they support careful regulation; and that "there was scepticism about the ability of



Stock photograph of non-GM pigs

governance and regulatory systems to control this technology in a way that delivers public goods rather than private profits to big producers". A key

finding highlighted by the Council was that the participants wanted to know: "Will applying this technology take us closer to, or further away from, the agricultural systems we should aim for in the future?". Danielle Hamm, Director of the Nuffield Council on Bioethics said that "*We expect the findings to stimulate further public debate and to inform research strategy and regulatory policy in a post-Brexit UK*". Given the Government's decision, less than three weeks after the publication of the Council's report, to completely ignore public concerns raised by its own consultation (*Dismantling of GM safeguards begins*, page 1) we at GM Freeze aren't quite so confident.

INTERNATIONAL NEWS



Mexico

The status of GM maize in Mexico is of huge political and practical importance. As well as being a core staple food, the rich diversity of maize varieties grown across Mexico lies at the cultural heart of the nation credited with being the crop's genetic "birthplace". Now, in what Vice Media Group described as "a real-life David versus Goliath moment" the supreme court has sided with a small group of activists by upholding the injunction they requested in 2013, and rejecting appeals lodged by agritech giants including Bayer-Monsanto, Syngenta and Corteva. The injunction restricts the cultivation of GM maize on the basis that cross-pollination poses a credible threat to Mexico's wonderfully diverse native corn varieties.

Despite its rich natural heritage, Mexico actually imports a lot of maize from the United States (US). Late in 2020, President Andrés Manuel López Obrador pledged to phase out the import of GM maize by 2024 and it has recently come to light that the first big step on that road was taken in August. Though not publicised at the time, we now know that the country's regulator rejected Bayer's permit application for the import of a new variety of weedkiller-linked glyphosate tolerant maize.



Switzerland

In September the National Council (lower house) of the Swiss Parliament voted convincingly to extend the country's moratorium (temporary prohibition) on the agricultural cultivation of GM plants until the end of 2025. Importantly, attempts to exempt GMOs that do not include any "foreign" genetic material failed so these will be covered by the moratorium for at least another four years. The National Council also approved plans for the country's Federal Council to explore issues around the coexistence of GM and non-GM farming and to consider who should be responsible for any GM contamination that occurs.

Switzerland is not part of the European Union (EU) but, unlike the UK, is part of the single market so its position on GM could prove influential as EU debate on the status of new GM techniques intensifies.



Canada

Health Canada and the Canadian Food Inspection Agency have proposed plans to remove the regulatory safety net from those GMOs that do not contain DNA from another species. This would allow GM food and seeds into the food system without any government safety

assessments or, indeed, any way of knowing where or how they were being used. A public consultation on the proposals closed in September but the Canadian Biotechnology Action Network (CBAN) is asking citizens to keep up their opposition by writing to Ministers, their own Member of Parliament and local newspapers.



Japan

Fish genetically engineered to grow more muscle, gain weight quickly and move more slowly are reported to be going on sale in Japan. German group Test Biotech described the creation of the super-muscle red sea bream as "suspected 'torture' breeding". The CRISPR tool was used to rip into the fish's DNA and block the genes that regulate muscle growth, but no data has been published about how this has impacted on the animal's life span, health or welfare.

Like the "gene edited" tomatoes that are already available in Japan, the GM fish were not subjected to detailed risk assessments because Japanese authorities have decided that such checks are only necessary when additional genes are inserted.

GM Freeze in the spotlight ...

continued from page 2

media coverage are listed in the [News section of our website](#), with links to listen or watch again where available.

It's also been a busy time for conference appearances with Liz presenting at the [Organic Matters Conference](#), [Seed Sovereignty Gathering](#), [Wales Real Food and](#)

[Farming Conference](#) and [Northern Real Farming Conference](#) as well as speaking at a fringe event at the Green Party of England and Wales Autumn Conference in Birmingham.

This is a critical time in the campaign for a responsible, fair and sustainable food system. If you are organising an event or are part of a group that would like to know more about why we need to

defend our GM safeguards and the most effective ways of doing so, please get in touch by emailing liz@gmfreeze.org or calling us on 0845 217 8992. Our resources are limited but if we can, we will send a speaker, join an online discussion, help with ideas for local action and consider any other requests you throw our way. The time is now so please don't be shy.

GM Freeze is working to help create a world in which our food is produced responsibly, fairly and sustainably. We consider and raise the profile of concerns about the impact of genetic modification. We inform, inspire, represent and support those who share our concerns. We campaign for a moratorium on GM food and farming in the UK. We oppose the patenting of genetic resources.



for a responsible, fair and sustainable food system

A referenced version of this newsletter is available online – www.gmfreeze.org/thinice

GM Freeze, Unit 1, 41 Old Birley Street, Hulme, Manchester, M15 5RF.
info@gmfreeze.org 0845 217 8992

We use an 0845 phone number to protect the privacy of our staff, who work from home. Calls to this number will cost 3p per minute plus your telephone company's Access Charge.

/GMFreezeUK

@gmfreeze

www.gmfreeze.org