

Nobel prize puts genome editing in the spotlight

As UK Government launches plan to deregulate new forms of GM in England

In October, the 2020 Nobel Prize in Chemistry was awarded to Emmanuelle Charpentier and Jennifer Doudna “for the development of a method of genome editing”. Described on the Nobel Prize website as having “taken the life sciences into a new epoch” the CRISPR Cas 9 gene editing technique designed by Charpentier and Doudna has already made the two scientists millions of dollars through patents and spin-off companies. It has also fuelled a massive PR effort to prevent the proper control and regulation of these experimental and error-prone

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Key consultation now open

The UK Government’s consultation on de-regulating gene editing (*Thin Ice 56*) opened just as we were putting the finishing touches to this issue of *Thin Ice*.

The consultation was launched at the Oxford Farming Conference by Environment Secretary George Eustice who has spoken many times about his enthusiasm for removing vital safeguards on the use of new GM techniques. The consultation only covers England but we are encouraging people in Scotland, Wales and Northern Ireland to take part as any changes to English law on GMOs would impact

all parts of the UK (see *Complications and caveats*, page 3). We are working with Beyond GM to support, encourage and coordinate responses to this key consultation and will publish guidance at www.gmfreeze.org/gene-editing-consultation very soon.

The consultation is taking place on Defra’s *Citizen Space* web platform and closes on 17 March. We are pushing the Government to provide an option for those who aren’t able to get online so, if this applies to you, please call us on 0845 217 8992 to find out how you can have your say.

Complications and caveats as Brexit Transition Period comes to an end

The UK’s departure from the European Union (EU) was finally completed on 31 December 2020 with the end of the Brexit Transition Period. This means that we are no longer bound by EU laws and regulations, including those relating to the use of genetic

modification in food and farming. However, as with almost every aspect of Brexit, there are lots of complications and caveats.

The Agriculture Act became law in November without the outrageous amendment that sought to give

ministers the right to decide what does and does not count as a GMO (*Thin Ice 56*). This is a very significant piece of new legislation, but it does not actually have anything to say about the use of GM. Instead, the new UK laws

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techniques. The awarding of such a prestigious honour, described by Alfred Nobel himself as being “for the greatest benefit to humankind” will further embolden those who favour high tech quick fixes over addressing the root problems of our food and farming system.

One thing that those seeking to demolish key GM safeguards are fond of arguing about is definitions. After losing in the European Court of Justice ([Thin Ice 49](#)), some in the UK in particular have claimed that treating genome editing as GM is a breach of the influential Cartagena Protocol.

The Convention on Biological Diversity’s Cartagena Protocol on Biosafety is the top-level international agreement seeking to limit the harm that can be done by genetically modified organisms. Both the European Union and the UK are among its 173 signatories. The protocol uses the term “*living modified organism*” to describe organisms that “*contain novel combinations of genetic material*” and have been produced using techniques of modern biotechnology that “*overcome natural physiological reproductive or recombination barriers and are not used in traditional breeding and selection.*”

Now, a [new Biosafety Briefing from Third World Network and GM Freeze members GeneWatch](#) UK explains in painstaking detail exactly why genome edited organisms meet these criteria and are, therefore, covered by the protocol. The short version is that “*currently deployed genome editing technologies and applications, including all techniques involving CRISPR-based systems, clearly fall within the Protocol’s definition of an LMO, whether they involve inserting, deleting or editing sequences of genomes.*”

Somebody who won’t be pleased with that assessment is Liam Condon, President of Crop Science at GM giant Bayer, which bought out Monsanto in 2018. In November, Condon [told the Bayer Future of Farming conference](#) that the company is lobbying “very strongly” to persuade the European Union to give free rein to gene editing.

The United Nations (UN) is also a

key target for corporate lobbyists and, in November, GM Freeze joined over 350 civil society and Indigenous Peoples organisations from 63 countries in [writing to the UN Food and Agriculture Organisation](#) (FAO) to express our concern about its plans for a formal partnership with CropLife International. Organised by Pesticides Action Network International, the letter highlights the

inappropriate nature of the alliance with a trade association that represents the interests of companies that produce and promote pesticides. The vast majority of GM crops grown around the world have been engineered to be heavily sprayed with particular pesticides, particularly weedkillers. CropLife member companies include key GM developers Bayer and Syngenta.



Stock photograph of non-GM pigs

GM Pigs approved without warning or consultation

In December the US Food and Drug Administration (FDA) shocked many observers when it approved the development of GM pigs for future food and medical uses. The company behind the optimistically titled “GalSafe” pigs, which can now be bred in limited numbers, says it has no plans to sell the meat and, instead, aims to produce organs for transplant into human patients.

Only one GM animal (a fish engineered to grow at an unnaturally fast rate for increased profit) is currently allowed to be used for food and that may only be sold in the US and Canada. Jaydee Hanson, Policy Director at the US Center for Food Safety, certainly smells something

fishy about the sudden approval of the experimental GM pigs, [telling The Guardian](#) “*We are meeting next week with our legal staff to decide whether to sue the FDA over the GM pig approval. My greatest concern is that we don’t know if this is safe to eat, or as an organ transplant source, and no scientists, nor the public, have seen the data. Nor was there any FDA public consultation process, as there normally would be.*”

Vet and animal welfare expert Walter Sánchez-Suárez described the development as “*another example of how sentient non-humans are systematically exploited in the US.*”

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that deal with growing, importing, using or selling GMOs have been created through Statutory Instruments (SIs) that simply 'translate' EU rules into UK law. At least, that is the theory. SIs do not receive much in the way of scrutiny at the best of times and, at last count, there were 983 Brexit-related SIs in progress so it is very difficult to be sure that those relating to any particular issue will actually do the job for which they are intended.

Then there's Northern Ireland. To avoid a 'hard border' on the island of Ireland, the Northern Ireland Protocol effectively treats Northern Ireland as part of the European Union when it comes to buying or selling goods. This means that any food or agricultural products entering Northern Ireland will have to follow existing EU rules on GMOs, regardless of any changes the UK may make in this area.

The trade deal agreed on Christmas Eve, more properly titled the [EU-UK Trade and Cooperation Agreement](#), does not require the UK to follow EU rules on food production or labelling, other than when UK businesses sell products into the EU (or Northern Ireland). If the UK relaxes GM standards the EU could take action but only if the change has a 'material impact' on trade – a requirement that is notoriously difficult to prove.

The deal offers some positives on environmental protection and includes a recognition of each side's organic standards. It might be possible to use these points to argue against relaxing GM standards in the UK but that won't



be a simple process and success is far from guaranteed as the agreement is very light on enforcement.

Another key issue with the new trade deal is that it is based in international law and does not recognise the European Court of Justice (ECJ). This is normal for such deals but nonetheless worth noting as the ECJ ruling that genome editing produces GMOs ([Thin Ice 49](#)) was heavily criticised by the Westminster Government. Add in the UK's ambivalence towards the precautionary principle (noted in the deal as a Fundamental Principle for the EU but not for the UK) and it is clear that this deal offers no comfort to those of us who want to safeguard our food and our farms.

The trade deal was negotiated by the UK Government based in Westminster, but food and agriculture are devolved areas of competency. This means that Scotland, Wales and Northern Ireland have long had some control over the laws that most directly affect GM in

food and farming. Their influence has always been limited by EU rules but, when given the chance, all three of the UK's devolved nations chose to ban specific GM crops from cultivation in their territory ([Thin Ice 38](#)). The impact of their more GM-sceptical policies may yet be limited by one of the last pieces of Brexit-related UK legislation to fall into place – the Internal Market Act.

The Internal Market Act became law on 17 December 2020. It is designed to make it easier for people to do business across different parts of the UK and does that through the principles of 'non-discrimination' and 'mutual recognition'. In simple terms this means that those providing goods or services in one part of the UK must be able to do the same in other parts of the UK without having to jump through any extra hoops. So, if the Westminster Government ruled that new genome editing techniques should not count as GMOs (see [Key consultation](#), page 1) it would be very difficult for Scotland or Wales to stop them being included in food sold in their countries.

The devil is very much in the detail with this kind of law and some big changes to that detail were agreed in the last couple of days of debate in Parliament. As a result, we are still working to identify exactly what the finished Act means for the devolved nations' ability to have their say on GM in food and farming. What we do know, though, is that neither Scotland nor Wales granted 'legislative consent' which means that both countries have put on the record that they disagree with all or part of this new UK law.

Mayan Monsanto-buster wins prestigious prize

Leydy Pech, an indigenous Mayan beekeeper who led a Monsanto-busting coalition in southern Mexico, has been [awarded a 2020 Goldman Environmental Prize](#) for grassroots environmental heroes. Known as the Mayan Lady of Honey, Pech promotes sustainable development for rural Mayan communities and is a member of an organic farming and agroforestry cooperative composed entirely of Mayan women.

In 2012, following the planting of GM soya in her region, Pech pulled beekeepers, NGOs and environmentalists together in a coalition known as Sin Transgenicos (Without GMOs). The

group filed a lawsuit against the Mexican government and encouraged a key academic study that confirmed the presence of GM soya pollen in the local honey supply. They also organised workshops, information exchanges and protests until, in November 2015, Mexico's Supreme Court unanimously ruled that the government must consult indigenous communities before planting GM soya. Two years later Mexico's Food and Agricultural Service revoked Monsanto's permit to grow GM soya in seven states.

Pech's organising set a precedent in Mexico and has become a model for indigenous people's movements.

Her Goldman prize, which recognises individuals for sustained and significant efforts to protect and enhance the natural environment, is more than deserved.

Leydy Pech



INTERNATIONAL NEWS



Japan

A study examining glyphosate-resistant Palmer amaranth growing feral around the Japanese ports of Kashima, Hakata and Mizushima has linked the establishment of this particularly problematic weed with the import of GM grains from the US. GM plants are not grown in Japan, but large quantities of GM corn, soya and cotton are imported from the US and most of these are glyphosate-tolerant crops. The cultivation of such crops, which are repeatedly sprayed with glyphosate-based weedkillers, has led to the development of some 48 different glyphosate-resistant superweeds in the US. Weed seeds can be easily mixed with the harvested crops being shipped around the world and the type of Palmer amaranth examined in this study was found to be very genetically similar to that now plaguing farmers in the US.



Switzerland

The Swiss Federal Council is consulting on a proposal to extend its moratorium on the use of agricultural GMOs until the end of 2025. Switzerland, which is not part of the European Union, first restricted

the use of GMOs in 2005 and has extended the prohibition several times. The current moratorium expires in December 2021 and the consultation is due to close in February.



Philippines

117 individuals and organisations have asked the Philippines Department of Agriculture to stop both production and experiments with GM Golden Rice. Engineered to produce beta-carotene, which our bodies can convert into Vitamin A, Golden Rice was the 'poster child' for GM crops for many years with promoters claiming it would solve Vitamin A deficiency in developing nations. Instead, it has far lower beta carotene levels than anticipated and has also suffered from low yield and decline of beta carotene during storage. Golden Rice is at least partly owned by GM giant Syngenta and has received huge amounts of funding from international foundations including that owned and run by Bill and Melinda Gates. The Stop Golden Rice Network's letter to Agriculture Secretary William Dar said that *"the last thing our country needs in these critical times is the commercial release of a product that is ineffective and whose chronic effects have*

not been tested nor guaranteed safe". Zenaida Soriano, national chairperson of the Amihan National Federation of Peasant Women said *"we have lots of natural sources of food rich in Vitamin A. We do not need Golden Rice"*.



United States

The US Environmental Protection Agency (EPA) has published an assessment that 93% of the plants and animals protected under the Endangered Species Act are vulnerable to glyphosate, the weedkiller associated with the most widely used form of GM crops. The draft biological evaluation found that 1,676 endangered species are likely to be harmed by glyphosate and that the habitats of 759 endangered species are adversely affected by glyphosate. Lori Ann Burd, Environmental Health Director at the Center for Biological Diversity said that *"Glyphosate use is so widespread that even the EPA's notoriously industry-friendly pesticide office had to conclude that there are hardly any endangered species that can manage to evade its toxic impacts."*

AGM approves changes

At our Annual General Meeting in November, members agreed to amend GM Freeze's Articles of Association to allow future meetings of this sort to take place online. The 2020 AGM was itself held as a virtual meeting via Zoom but this was only possible

because of a temporary change in UK company law, made in response to the COVID 19 pandemic. The Management Committee has held some of its meetings online for several years and asked members to support this change to allow the team to plan

ahead without the worry of waiting for Government intervention. We nonetheless look forward to meeting members and supporters in person as soon as the public health situation allows.

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

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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.



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