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Technical Consultations

Your views matter

Two consultations were launched in the New Year on issues that have a significant impact on crop production. *CPM* brings together views on gene-editing and farm assurance.

By Tom Allen-Stevens

The government has launched its long-awaited consultation on the regulation of genetic technologies. But the issue may have divided the nation and has raised questions over trade with the EU and co-existence.

"Techniques such as gene-editing (GE) are really a natural evolution of conventional approaches to plant breeding," stated Defra Secretary of State George Eustice in his address at the Oxford Farming Conference last month.

"What we are now able to do through these techniques is to more accurately move traits within the same species in a way that could happen naturally and which therefore respects the rules of nature. It gives us the power to evolve plant varieties with particular traits far faster than was ever possible with conventional breeding and this opens up huge opportunities to change our approach and embrace sustainable farming."

A ruling by the Court of Justice for the EU (CJEU) two years ago classed as genetically modified organisms (GMOs) new plant-breeding technologies (NPBTs) such as cisgenesis and new forms of mutagenesis including GE. "The CJEU judgement was based on legal interpretation, not on science. The UK opposed the judgement," said George.

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Different view

But devolved parliaments in Scotland and Wales take a different view on NPBTs. Scottish rural economy secretary Fergus Ewing said the consultation was a pre-emptive move when the EU is currently reviewing the CJEU decision. "Rather than pick a fight it's more prudent to work with them," he said.

Welsh Assembly environment minister Lesley Griffiths said there were concerns over the technology and she was "not reassured" these had been resolved. "But maybe the consultation will address these."

Northern Ireland Assembly agriculture minister Edwin Poots pointed out the UK and EU already import "vast quantities" of GM crops from places like South America for livestock feed. He said GE technology has the potential to "put farmers in the driving seat" on delivering solutions to critical issues such as climate change.

It's a benefit picked up by NFU vice president Tom Bradshaw, who welcomes the consultation. NFU members should have the choice to access the best tools available to farm sustainably, he said.

"New biotechnologies are also enabling the development of foods with much more direct benefit to the public, such as healthier oils, higher vitamin content and products with a longer shelf life."

But GE products cannot be used in organic farming, noted Helen Browning, CEO of the Soil Association during a Green Alliance webinar on the subject. "The issues around co-existence and liability still haven't been resolved," she said.

The technology risked diverting attention from problems such as soil health that suffer from lack of research, she added. "We shouldn't use gene-editing to find a fix to agricultural problems — it should be regulated in such a way that it doesn't encourage poor agricultural practice."

But Alex Smith, chair of Food and Drink Federation organic committee and a vocal anti-GM campaigner said the tide of opinion on GE had now changed and approval was "inevitable". Writing in *The Grocer*, he warned: "if the organic sector overtly

Rural ministers from England (top centre), Scotland, Northern Ireland and Wales (bottom L to R) take different views on gene-editing.

What is a GMO?

This lies at the heart of the debate on NPBTs. Under EU law, any process that involves the introduction of foreign DNA or RNA classes the resulting product as GMO. But there are a number of ways through which a plant can undergo a genetic change:

Transgenesis is where DNA from another species has successfully been combined into the genome of the host plant. This confers a new trait, such as herbicide tolerance or longer shelf life. These organisms are universally classified as GM.

Cisgenesis is a term used by some scientists who argue for light-touch regulation, where DNA is artificially transferred between organisms of the same species, such as from a wild relative to an elite potato variety to confer blight resistance. In Europe at least this is still classified as GM as nucleic acid sequences must be isolated and introduced using the same technologies that are used to produce transgenic organisms.

Mutagenesis is a change or edit in the plant genome that confers a new trait. Such mutations occur naturally every day, when a plant comes under stress, for example, or it can be induced through human intervention. A small change in the genome may switch off the activity of a particular gene which allows or inhibits a property, and it's these phenotypical changes breeders have sought out for generations to progress their lines.

Is it natural?

For decades, scientists have induced mutagenesis to bring about new traits, using chemicals or radiation, and the Clearfield trait is an example. More recently, more precise gene-editing techniques such as CRISPR-Cas9 have been introduced. CRISPRs are short RNA sequences introduced into the host plant that recognise a specific stretch of genetic code. Cas9 enzymes partner these sequences and cut the host DNA at specific locations.

CRISPR-Cas9 is a more precise gene-editing technique.

The cell tries to repair the damage, and that's when the mutation occurs. By using different enzymes and techniques, researchers can deactivate or alter — edit — specific parts of the genome, thereby conferring traits. Scientists argue the genetic edits are simply a precise and predictable way of inducing a change that could have occurred naturally. But under EU law, the introduction of foreign RNA, even though the RNA is not present in the final plant material, classes current forms of CRISPR as GMO.

opposes GE it is likely to be demonised by the press and marginalised by policymakers."

FDF's chief scientific officer Kate Halliwell said the federation was generally supportive of the technology and the benefits it could bring. "But we do have concerns for what this will do for trade with the EU, not just within the organic sector."

Concerns that no criteria had been set over what is meant by "natural" have been raised by director of GM Freeze Liz O'Neill. She pointed to evidence of "off-target effects" from techniques such as CRISPR which could have ▸

Gene-editing offers plant breeders the ability to evolve plant varieties with particular traits far faster than was ever possible with conventional breeding.

▸ "unintended consequences".

Unlike GM, GE material cannot be tested to determine if it was GE, and intellectual property issues have not been addressed, she added. "If GE mimics what happens naturally, then surely the technology can't be patented?"

Defra chief scientist Prof Gideon Henderson said that conventional selective breeding is just as likely as GE to result in unintended consequences and the criteria around what is natural is one of the issues the consultation addresses.

"There are opportunities to accelerate the process of breeding in resistance of crops to important pests and diseases. In sugar beet for example, it can take ten years to breed in resistance to virus yellows conventionally, while as little as two years with GE."

Ian Munnery of plant breeder SESVanderHave UK said NPBTs would add "flexibility and agility" to breeding programmes which would at least halve timescales to bring new traits to market. GE would enable breeders to build more durable resistance into varieties without compromising traits such as yield and suitability to early sowing, he said.

But he warned against introducing an extra tier of regulation. "We have systems that already check for varietal integrity that work very well in the UK's National List and the EU's Common Catalogue. The risk of over-regulating is that you add cost, which erodes all the benefits," he pointed out.

• The consultation closes on 17 March. To submit your views, go to *consult.defra.gov.uk* and search for gene-editing. ■

The tide of opinion of consumers on GE may now have changed, but concerns remain over trade with the EU if standards diverge. Photo: Shutterstock nd3000

The risk of over-regulating is that it adds cost and erodes the benefits, while it also makes it difficult to carry out field trials.

Red Tractor responds to combinable crop concerns

With a consultation underway for Red Tractor Food Assurance, concerns over its direction have risen to the surface. Many farmers understandably question why protocols appear to be tightening for home-grown produce with little requirement of the same on imports. *CPM* put this question and others to AFS CEO Jim Moseley.

***CPM*: What is your vision for Red Tractor?**

Jim Moseley: In 2000, when consumer confidence in British Food was at an all-time low, the NFU and others in the food chain, created Red Tractor with the core purpose of reassuring consumers that British food and drink was safe and responsibly produced.

Twenty years on, Red Tractor has become the most trusted assurance scheme in the country, and British is now the number one choice for most consumers. Today our purpose remains the same as it was then — to ensure British food and drink is produced safety and responsibly.

Our standards need to achieve two key objectives: First, meet the needs of consumers who expect high standards but shop keenly on price and second, provide farmers and the supply chain with manageable standards, that ensure good practice and positive returns.

Getting that balance right then satisfies the needs of other critical stakeholders, namely retail, foodservice and government. For retail and foodservice, the standards provide a buying specification and due diligence which means market access and reduced inspections. Government will extend 'earned recognition' to Red Tractor farmers and use the standards to underpin export, again giving market access and reduced inspections.

Red Tractor and its sector boards and technical committees constantly strive to achieve a balance that benefits all stakeholders. If the standard is too weak then retailers will add bolt-ons and additional inspections, and we will lose our recognition with government and most importantly our relevance to British consumers. Conversely if standards are too tough, it may not be valued in the market.

But we cannot afford to be stagnant. We have a duty to our members to evolve. Brexit offers the UK farming and food sector opportunities and challenges in equal measure. I would encourage farmers to have confidence that Red Tractor gets the balance right.

***CPM*: What are the main changes you hope arable farmers will see as a result of the current consultation?**

Jim: I don't want to pre-empt the consultation which is open until March and will be further scrutinised by our technical advisory boards, which include experts across the sector including farmers and our sector boards. We are reaching out to the whole industry to hear their views — positive and negative — on the proposals and this is a vital process.

While there has been a lot of rhetoric about standards being driven up unnecessarily, many of the proposals are about simplification and providing greater clarity of what is expected with changes to the format, language and requirements.

After reading the individual proposals for themselves, arable farmers will draw their own conclusions of what the changes would mean for them and their business.

***CPM*: There are many farmers who feel RT unnecessarily 'gold plates' regulation that has no place in a scheme designed to underpin food safety (eg environmental regulation). Moreover, there is a view these environmental regulations bring no competitive advantage to UK produce in world trade, indeed the US claims they are a political tool. So why include them?**

Jim: Red Tractor's core purpose is to reassure consumers that food and drink is produced safely and responsibly. In consumers eyes 'food produced responsibly' means that the supply chain has cared for the produce, the animals, the planet and the employees.

Consumers assume the brands they buy have done all of that, which is why Red Tractor has incorporated environmental standards including the Sustainable Use Directive for many years.

To drop environmental standards would not only weaken Red Tractor, it would also be detrimental to farmers. The need for greater environmental protection and sustainability is in the headlines all the time. Farming like all other industries, has to do its bit to minimise its impact on the planet.

If Red Tractor didn't include environmental standards, they would inevitably be picked up by another agency or stakeholder who would develop their own standards and inspection. Incorporating them into Red Tractor, and therefore one inspection, is a much more efficient and cost-effective option for farmers.

***CPM*: Very few combinable crop products carry the RT logo, so what value does it bring to the cereal and oilseed growers who pay for it?**

Jim: The Red Tractor logo is in fact used and valued by high-profile brands which are household names. Weetabix, Shredded Wheat, Silver Spoon, Carling lager, Marriage's flour to name a few. The UK's largest retailer, Tesco, proudly displays the logo on its flour, as do other large retailers with own-label products.

Incorporating standards into Red Tractor, and one inspection, is a much more efficient and cost-effective option for farmers, says Jim Moseley.

Because the Red Tractor scheme is recognised as equivalent to SAI platforms, our members can also supply customers like Coca-Cola and Heineken. One Red Tractor inspection means a farmer's crops can supply any of these huge customers and other end users. Without farm assurance, that market access is closed.

There is a desire from other major brands to use the logo, but inconsistencies in supply caused by variable harvests and a lack of self-sufficiency in some sectors means it simply isn't possible. The UK is only about 85% self-sufficient in wheat. If the brand isn't using 100% Red Tractor product, they can't use the logo.

We acknowledge the challenges the sector faces with imports, and continue to challenge brands to have a consistent approach to standards for their sourcing of inputs to their products. The important point remains that many UK customers demand Red Tractor standards and only buy from an assured chain.

The consultation ends on 5 March. To have your say on the Standards Review 2021, go to *https://assurance.redtractor.org.uk/*

Tractor trouble: many farmers question why protocols appear to be tightening for home-grown produce with little requirement of the same on imports.