



## Summary

# Genetic Technologies in food and Farming

## General Election Manifesto 2023

*A context and framework for responsible regulation*

A downloadable .pdf of the full version of this document can be [found here](#).

## Introduction

Genetically engineered organisms in food and farming are regulated, first and foremost, under the Environmental Protection Act 1990. Whatever subsequent legislation has appeared over the years, this is their appropriate context.

In recent years the UK government has sought to recontextualise genetic technologies in the narrowest possible terms, as a science and innovation issue. The result was the 2023 [Genetic Technology \(Precision Breeding\) Act](#) – a highly contested piece of legislation which removes all regulatory control from genetically modified gene-edited organisms in England and imposes them on the whole of the UK market, unlabelled, unmonitored and untraceable.

The Act also facilitates the import of gene-edited seeds and animal feed as well as foods and ingredients intended for the human food chain – which may be produced to standards well below those of the UK – into the domestic market. The Government has, in addition, indicated that this Act is the first step in eventually deregulating all types of genetic technologies in the food system.

Environmental protection and precaution (which encompasses both the natural and agricultural environment) is the gold standard context that allows a full and robust assessment of genetic technologies in food, farming and the environment.

To remove these technologies from their proper context constitutes a major change in the way we envisage our current and future farming and food system and the way this interacts with wider nature. It also ignores broad agreement across a diverse spectrum of stakeholders on the need for foresight, transparency, greater public engagement, support for equitable co-existence of different farming and food systems (and businesses) and the farmers' and consumers' 'right to choose'.

Regulation and innovation need not be at odds. Genetic engineering technology might have a role in responding to challenges such as feeding a growing population, adapting to climate change and protecting natural resources. This, however, has yet to be proven and in the absence of this proof it is hard to divine how the current skeletal legislation currently will lead to either effective regulation or the kind of food-, farmer-, citizen- and environment-focused, socially-responsible innovation that we need in the 21<sup>st</sup> century.

There is a way forward. The Genetic Technology Act requires a significant amount of secondary legislation to come fully into force. It's not too late for all parties to ensure that the Act is amended

and augmented in a way that supports robust and rational regulation of genetic technologies. This can only be achieved by ensuring that future amendments to the Act:

- Place genetic technologies in their appropriate context as a food system and environmental issue;
- Acknowledge the reality of genetic technologies – what they are, how they work, what is known and unknown and who and what will be affected by their deployment;
- Require the labelling, traceability and ongoing monitoring that consumers and businesses want and need;
- Involve a wider group of stakeholders in the discussion on how genetic technologies are used and regulated.

This manifesto clarifies the context and elements necessary for clear thinking and a robust regulatory framework that delivers on these requirements.

## Applying context

Placing gene editing in its proper context – as a food system and environmental issue – promotes a more honest and constructive discussion and decision-making process.

### 1 | Gene editing is food system and environmental issue

**Our ask:** Genetic engineering, as used in farming and food production, is a food system and environmental issue; considerations for how and if it is used should be integral to all strategy and policy discussions in these spheres.

Failure to assess and regulate gene editing in the whole system context of agriculture and the environment can lead to insufficient assessment of its ecological consequences, such as unintended effects on non-target organisms or ecosystems. It may result in biosafety and biosecurity measures that are inadequate to prevent accidental releases of genetically engineered organisms and/or deficient co-existence measures that will impact non-GMO, organic, artisanal and natural farmers and food producers.

The exclusion of gene editing from its agricultural and environmental context also may hinder transparency, public awareness and engagement in decision-making processes, diminishing trust in the UK food system.

### 2 | Gene editing is genetic engineering

**Our ask:** Government must stop misleading its members, the media and the public about the nature of gene editing. Gene editing is genetic engineering and genetic engineering is a man-made, laboratory-created intervention in the farming and food system and the natural world.

There is no question that gene-edited ‘precision bred organisms’ (PBOs) are the product of genetic engineering. The first part of the Genetic Technology Act acknowledges this and yet the narrative used to ‘sell’ the Genetic Technology Act failed to acknowledge this and, therefore, misled parliamentarians, the media and the public.

All forms of genetic engineering are laboratory-based and man-made technological interventions in the DNA of living organisms. All forms of genetic engineering (including PBOs) can and do involve the insertion – either deliberate or inadvertent – of genetic material from ‘foreign’ (non-sexually compatible) organisms. This DNA can be – but isn’t necessarily – [removed at a later stage](#). It is common for what works in the laboratory to fail under real world conditions.

The current fervour for techno innovations in agriculture and the promise of a simple solution to complex problems ignores such consequences and risks, taking us down unproductive roads and wasting scarce research and development money which could be better spent on scaling up solutions that are already working.

### 3 | Gene editing is not the same as breeding

**Our ask:** Government, its advisors and regulators must stop equating gene editing with conventional (‘traditional’) breeding.

The distinction between genetic engineering and conventional breeding is not a minor detail. It is fundamental to how we talk about – and regulate – the products of genetic technologies.

Genetic engineering technologies like gene editing are relatively new and represent a departure from traditional or conventional breeding methods that have been practiced for centuries.

They can be used to introduce traits or changes that would be difficult or impossible to achieve through conventional breeding. Importantly, they allow developers to access and change the whole of an organism’s genome. In contrast, conventional breeding, some regions of the genome are protected against mutations.

Genetic technologies are evolving rapidly and each new iteration introduces novel processes that may require new regulatory approaches to account for the unique characteristics and risks associated with these technologies.

There is nothing inherently wrong with technology. Many parts of our lives have been enhanced by it. But let’s call it what it is so we can question, debate and regulate it honestly.

## Legitimising stakeholders

It is of primary importance that all stakeholders have a say and that all stakeholders and their considerations are legitimised and given equal weight to so called experts – and greater weight than vested interest lobbyists.

### 4 | Environmental assessment is essential

**Our ask:** Genetically engineered organisms in agriculture, whether for field trials or for marketing and sale through the food system, should undergo a full environmental assessment prior to release.

The [Environment Act 2021](#) provides that Ministers must, when making policy, have due regard to the environmental principles contained in that Act. The Genetic Technology Act, which includes no provision for environmental assessment, ignores this instruction.

Agricultural nature is part of wider nature. Assessing the environmental impact of genetic engineering used in open nature is critical for safeguarding the health and integrity of ecosystems. Genetic technologies can introduce novel genes into ecosystems or change the characteristics of organisms in ways that could disrupt local biodiversity, harm native species, or introduce invasive traits that may destabilise ecosystems.

Through environmental assessments, regulators can identify potential risks and develop risk mitigation measures. These measures can include assessments of appropriateness and need, containment strategies, monitoring protocols and, in some cases, restrictions on the use of specific genetic technologies in certain environments. Regulators will need to track the effects of these organisms over time to detect any emerging issues and adapt regulations accordingly.

## 5 | Non-GMO, organic, artisanal and natural farming and food sectors must be protected

**Our ask:** Mandatory co-existence measures must be brought in to protect the non-GMO, organic, artisanal and natural farming and food sectors

A fundamental basis of UK farming and food policies is that different approaches to production and processing should be encouraged and accommodated. This ensures that conventional, organic and biotechnological approaches can be developed to allow participants in the food chain – from producers through to consumers – the freedom to choose different production methods and products.

Effective policies and regulations are needed to establish clear guidelines and measures to protect these sectors from contamination by genetically engineered and gene-edited products. This may include mandatory buffer zones, labelling requirements and strict liability frameworks to hold responsible parties accountable for contamination incidents. Such protections help ensure that consumer choice is preserved, economic opportunities are not compromised and environmental and sustainability goals are met within these specialised sectors.

Within this context, there is also a need for more investment in non-GMO alternatives which can help increase the number of options available to tackle the challenges of our times without relying on an unproven, unpredictable technology.

## 6 | Commitment to meaningful public engagement

**Our ask:** New and more meaningful public engagement protocols must be designed and implemented as early as possible in the policymaking and legislative process.

A great deal of lip service is paid to the idea of public engagement, but citizens – the ‘end users’ – who may take a different view or have different ideas about what is ‘necessary’ and what constitutes a ‘benefit’ or a ‘risk’ are rarely given the opportunity to have any meaningful say.

Given that genetic technologies can have wide-ranging social, ethical and cultural implications, a commitment to listening to and acting upon public views, ensures that a broad spectrum of perspectives and concerns, including those of marginalised or vulnerable communities who may be disproportionately affected by such technologies, are considered

Public engagement helps ensure that policies are based on real-world considerations and not solely on the perspectives of lobbyists, issue-advocate scientists and/or industry stakeholders. We do not underestimate how challenging the task of designing citizen engagement so that it is representative, useful for policymakers and manageable for the members of the public is. Nevertheless, it is essential and the time has come to make it happen.

## 7 | Establish a multistakeholder advisory and review board

**Our ask:** An agricultural genetic technologies advisory and review board should be established to oversee, review and advise on the development and release of genetic technologies into food and farming and the wider environment.

Legitimising the views and concerns of all stakeholders means bringing them to the table. We propose the establishment of an “agricultural genetic technologies advisory and review board” consisting of research bodies, public interest bodies, civil society representatives and other relevant stakeholders to oversee, review and advise on the development and release of genetic technologies into food and farming.

The work of the advisory committees currently responsible for approving the deliberate release of genetically engineered organisms into nature and the food system should be overseen by this board which will have the power to veto or overturn recommendations in prescribed circumstances, e.g. on the grounds that it serves no public good function, that basic evidence or proof is lacking, that the economics don’t stack up, or simply that it isn’t needed because there are conventional alternatives.

## Improving processes

The process of bringing the Genetic Technology Act into law was fraught with procedural issues and political failures. It’s not too late to undo some of the damage.

## 8 | Labelling is required

**Our ask:** All genetically engineered organisms and the food and feed products that contain them should be labelled on the package and/or at point-of-sale.

Labelling of human food allows producers and processors to decide if they want to produce foods containing GMOs, while labelling of feed and seed products allows farmers to decide if they wish to purchase these products for use on their farms or as feed for their animals.

Lack of provision for point-of-sale labelling (in favour of a vague online ‘register’ of PBO foods and ingredients) ignores the requirements of the majority of stakeholders and allows the uses of biotechnology to be shaped solely by industry.

It is important to recognise that labelling also serves a function beyond the simple provision of information. Mandatory labelling of the products of genetic technologies, including gene editing, is a fundamental regulatory tool that supports consumer choice, transparency and trust in the food supply chain. It allows consumers to make informed choices, helps enforce regulatory compliance and contributes to market differentiation while addressing ethical, health and environmental concerns related to genetic technologies.

## 9 | Traceability is essential for enforcement

**Our ask:** Traceability throughout the supply chain is non-negotiable and the terms and concepts of traceability should be clearly defined in law and understood by all the stakeholders in the food supply chain.

Traceability is not just a box tick exercise. It is necessary to identify contamination and fraud, to inform manufacturers and allow consumer choice.

When a food product is recalled due to a safety concern, it can result in significant economic losses for everyone involved in the supply chain, including farmers, processors, distributors and retailers.

Developers and manufacturers must accept that the right to release these organisms into the environment and food system is not a gift. It has to be earned through scientific rigour, the acceptance of limits and boundaries, transparent processes and investment in the infrastructure of traceability (e.g. detection and tracking through the food chain) so that citizens are protected and different types of producers are not negatively impacted.

## 10 | Scientific evaluation is not enough on its own

**Our ask:** Government and regulators must broaden assessment of agricultural GMOs, taking it beyond the narrow confines of laboratory science to include ethical, environmental, social, economic, legal and cultural considerations.

Navigating the intricate landscape of genetic engineering demands that we address not simply what is technically feasible but also the diverse values, interests and concerns of diverse stakeholders. Creating regulation – or indeed deregulation – without giving equal weight to these concerns and the diverse risks they represent is a procedural, policy and political failure.

In situations where the stakes are high, the facts are uncertain, values are in dispute and decisions are urgent, scientific evaluation on its own is inadequate to provide clarity. We recommend a ‘post-normal science’ (PNS) approach to assessment that embraces the precautionary principle, the value of an extended peer community, the need for institutions to reflect think rather than simply react and transparency in all decision-making processes.

This approach ensures we address not only the technical intricacies but also the diverse values, interests and concerns of various stakeholders.

## 11 | Uncertainty must be acknowledged

**Our ask:** Regulation should be based on fact, not supposition or promises. Where there are unknowns or where the science is contested, precaution and foresight should underpin regulatory decisions.

Acknowledging uncertainty is an integral component of foresight, which is a rational method for anticipating, rather than predicting, plausible future developments and avoiding negative outcomes. Foresight is integral to rational legislation and regulation.

It helps regulators consider the potential long-term consequences and unforeseen impacts of genetically engineered and gene-edited products, fostering a more comprehensive regulatory approach.

Acknowledging what we don't know can also drive investment in research and innovation to better understand the technology and its impacts. This can, over time, lead to a more informed regulatory approach. Importantly, it also future-proofs regulation ensuring they evolve as scientific understanding grows and changes.

## 12 | A mandatory 5-year review

**Our ask:** A legally mandated review of progress and problems in the deregulation of genetic technologies in food, feed and the environment should be conducted at regular 5-year intervals.

By acknowledging and addressing uncertainty in a proactive, inclusive, transparent and evidence-based manner, regulatory agencies can strike a balance between fostering innovation and ensuring the safety and integrity of the food and feed system.

Regulatory frameworks should be designed to be reviewed and adapted as new information becomes available. This means reviewing regulations periodically – we suggest on a 5-yearly basis – and making necessary updates and amendments to reflect the latest relevant information and evidence.

This approach allows for the responsible advancement of genetically engineered and gene-edited products while safeguarding public health, the environment and consumer trust.

## About Beyond GM and A Bigger Conversation

Beyond GM is a leading UK advocacy group in the field of agricultural genetic technologies. A Bigger Conversation (a Beyond GM initiative) works to contextualise and broaden the discussion around these technologies. Through both initiatives we strive to work constructively with diverse groups, including environmentalists, ethicists, social scientists, farmers, plant breeders, academics, civil society and citizen-focused networks with the goal of ensuring that a) ethical, environmental and social utility issues are given equal weight to scientific considerations, and b) societal engagement and public interest balance commercial ambitions in the assessment/utilisation of genetic technologies in food, farming and nature.

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