



POLICY NOTE

GENE REVOLUTION IN POST-BREXIT UK

WHY AND HOW BRITAIN CAN BECOME
A BIOTECH POWERHOUSE



By Fred Roeder, Maria Chaplia, Bill Wirtz



POLICY NOTE

Gene Revolution in Post-Brexit UK: Why and How Britain Can Become a Biotech Powerhouse

Consumer Choice Center – Policy Note
By Fred Roeder, Maria Chaplia, Bill Wirtz

EXECUTIVE SUMMARY

In the light of recent leadership changes and Brexit approaching its final stage, the possibility of the United Kingdom becoming a biotech powerhouse is as high as ever. Revolutionising the UK biotech sector by allowing it to utilise the latest developments of genetic engineering in food production and healthcare is only possible if the existing restrictions are relieved and replaced with a more pro-consumer, pro-innovation, and prosperity-fostering approach.

The European Union has traditionally objected to most innovations in food science and prevented European consumers from accessing biologically enhanced food. This can be seen in the very limited number of genetically modified crops authorised for cultivation in the EU, a very cumbersome and expensive process of importing genetically modified food and a recent European Court of Justice ruling against gene editing.

This policy note aims to outline potential UK legislation in regard to gene editing and gene modification, identify the potential benefits following from those, and set out the steps the UK should take in order to become a forward-looking global biotech hub post Brexit.

Recommendations

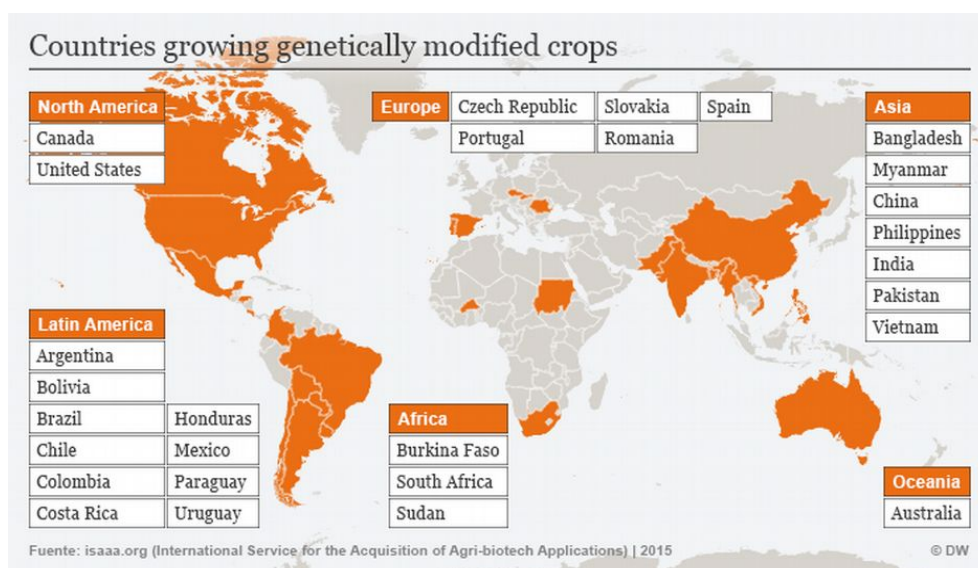
- Enable the commercial growth of genetically modified crops;
- Introduce equal labelling rules for both GMO- and GMO-free foods; and
- Allow and enhance gene-editing.

INTRODUCTION: CURRENT LEGISLATION

The laws that cover the environment, the approval, use and labelling of genetically modified organisms (GMOs) in the United Kingdom are primarily based on EU laws. This provides the UK with a significant chance to move away from the existing restrictive approach once it has left the European Union.

The main EU directive that regulates the release of GMOs across the Member States, Directive 2001/18, was implemented in the British legislation through the Genetically Modified (Deliberate Release) Regulations 2002.¹

Driven by a noble aim 'to protect human health and the environment and ensure consumer choice'², the strict legislation on GM products in the UK has, however, failed to recognise the advantages of gene modification and how it could benefit consumers. This foregone opportunity to encourage the progress of the UK biotech sector has left the UK far behind numerous countries. Considering the UK's ambition to strike numerous trade deals across the world after Brexit, the costs of relying on the EU-based rules will be considerably higher for Britain as anti-gene modification rules would become a non-tariff barrier to trade.



¹ The EU Regulations concerned with the use of GMOs in food products across the Member States are Regulations 1829/2003 and 1830/2003. These are implemented in England by the Genetically Modified Food (England) Regulations 2004, the Genetically Modified Animal Feed (England) Regulations, and the Genetically Modified Organisms (Traceability and Labelling) (England) Regulation. In Scotland, Wales, and Northern Ireland these are Genetically Modified Food (Scotland) Regulations 2004, Genetically Modified Food (Wales) Regulations 2004, and Genetically Modified Food (Northern Ireland) Regulations 2004 accordingly.

² "Genetically Modified Organisms: applications and decisions - GOV.UK."

<https://www.gov.uk/government/collections/genetically-modified-organisms-applications-and-consents>.

I. GENETICALLY MODIFIED CROPS

It is currently illegal to grow gene-modified crops for commercial purposes in the UK. Instead, they must be imported. Creating and sustaining the conditions under which UK farmers could innovate, lower their production costs, and use fewer chemicals would be an enterprising move on the part of the UK government. It would help lift up low-income households by offering cheaper food prices and turn the UK into a future-oriented biotech hub. One of the key steps in this direction would be to do away with the anti-gene modification restrictions.

Despite popular rhetoric, there is no substantial scientific evidence of the health and environmental risks ascribed to GM products. On the contrary, many of the numerous benefits of genetic modification include the following:

- Improved agricultural performance (yields) with less labour and energy input and less cost input;
- Reduced usage of pesticides and herbicides;
- GMOs can contain more vitamins and other important nutrients
- Improved processing characteristics leading to reduced waste and lower food costs to the consumer; and
- Benefits to the environment in reducing the cost, energy usage and carbon emissions associated with tractor diesel fuel usage and pesticide spraying, etc.³

GM pest-resistant crops could save about £60 million a year in pesticide use in the UK. This would be much welcomed by UK farmers and consumers. Moreover, £60 million in savings means more leeway for competitive food pricing within the country. With food prices in the EU rising by 2 per cent, the UK could prove that food can become cheaper by more than just dropping tariffs, but through more efficient and technologically advanced farming.

Most importantly, the up-and-coming generation in the UK holds a favourable view on genetic engineering. A 2018 poll of 1,600 18 to 30-year-olds, carried out for the Agricultural Biotechnology Council (ABC), found that two-thirds support agro-tech innovations. Only 22 per cent are concerned about the use of gene-editing or genetically-modified crops.

³ "Genetic modification and food - IFST."

<https://www.ifst.org/resources/information-statements/genetic-modification-and-food>

Therefore, in order for the UK to be able to reap the benefits from growing gene-modified crops, it is key that the existing regulations are reassessed on the grounds of potential gains and benefits for the consumer rather than simply based on popularised threats not based in fact.

II. MARKET ACCESS, APPROVAL, AND LABELLING

Aside from allowing gene modification, there is one more condition necessary to enable its success in the UK: easy market access for GM foods. Fair and equitable market conditions for both conventional and GM foods would enhance competition and innovation, drive down prices, and provide more choice for consumers.

The existing legislation, listed above, requires products containing GMOs to be labelled as such, and the requirements also apply to non-prepacked foods containing GMOs. It is legally established that such products (soya, for example) not only require written documentation but also should have an easily readable notice about their origin. No such rule exists with regards to foods that are 100% GMO-free, proving that there is explicit discrimination in place giving GMO-free food an unfair advantage on the market.

New labelling rules being discussed by the AGRI Committee in the European Parliament would even go further and ban the use of terms such as milk or meat in products that do not contain dairy or meat (e.g. the Veggie Burger or Almond Milk). Brexit is an opportunity for the UK to allow consumers more choice and uphold the principles of commercial free speech.

EU's strict regulations on the application and use of GM technology have been, first and foremost, harmful for consumers, depriving them of the opportunity to opt for innovative options such as Impossible Foods and others. Vastly popular in the US and now aiming to expand to Asia, vegan burgers using plant-based substitutes for meat and dairy products, are absent from the European market due to the backward-looking anti-GM rules. Other examples include GM salmon which despite being approved in the US and Canada, has been kept off European shelves.

The UK could become the first country in Europe to attract the Impossible Burger and allow GM salmon if it gives way to innovation by removing EU-based market barriers for GM foods and puts British consumers first.

The United Kingdom should strive to have the smartest regulation in the field of approval and market access of GMOs. Even more liberal biotech hubs such as the United States

require burdensome approval processes for GMOs that cost innovators hundreds of millions of dollars per product type. New methods such as gene editing but also a leaner approval system could attract massive investment and lead to wide-reaching biotech innovation in the UK.

In order to solve this issue, we suggest that the Genetically Modified Food (England) Regulations 2004, Genetically Modified Food (Scotland) Regulations 2004, Genetically Modified Food (Wales) Regulations 2004, and Genetically Modified Food (Northern Ireland) Regulations 2004 are reconsidered and equal labelling rules for both GMO- and GMO-free foods are introduced after Brexit.

III. CRISPR/Gene-editing

One year ago, the European Court of Justice (ECJ) decided in Case C-528/16 that gene-editing should be treated the same way that genetically-modified organisms are handled at the moment, keeping them practically illegal.

Contrary to traditional genetic modifications, gene editing does not use the DNA of other species but merely changes DNA within one organism. Unwanted mutations (Frankenfoods) are therefore less likely.

Enabling gene-editing is an essential part of unleashing scientific innovation in the United Kingdom after Brexit. Most scepticism against gene-editing is centred around the potential adverse effects while turning a blind eye to the astonishing benefits both in medicine and agrosience.

Gene-editing technologies could have a huge impact in reducing the death toll from diseases such as dengue fever, yellow fever, and the Zika virus. The risk of many common diseases, including Alzheimer's, diabetes, and several cancers, which are under the influence of hundreds or thousands of genes, could be lowered with the help of gene-editing.

The possibilities offered by gene-editing are extensive and constantly developing. The UK has a momentous chance to realise them if it moves away from the EU's restrictive attitude and allows gene-editing after Brexit.

CONCLUSION

Brexit puts the United Kingdom at a crossroads with regards to science: whether to unleash the potential of its biotechnological sector and become a global advocate for innovation and consumer choice, or whether to retain EU-based legislative obstacles to development. We are hopeful that the former will prevail and our suggestions will help bring about the gene revolution in the UK.

Note: The authors do not endorse or object to Brexit but merely outline public policy options for a scenario in which the United Kingdom leaves the European Union.

About the authors



Fred Roeder ([@FredCyrusRoeder](#)) is a German Health Economist and Managing Director of the Consumer Choice Center. He has been consulting governments, non-profits, and the private sector on economic reforms in two dozen countries with a strong focus on emerging markets and post-communist countries. Besides healthcare, his research areas are transportation, telecommunication, and digital technologies. He is a board member of several technology companies in Europe and North America and on advisory boards of several nonprofits and for-profit corporations.



Maria Chaplia ([@mchapliaa](#)) is European Affairs Associate at the Consumer Choice Center. Formerly, she worked in fundraising consultancy in London and completed the Charles Koch Internship Programme in Washington DC. Maria studied in the US, France, the UK and holds a degree in law and economics.



Bill Wirtz ([@wirtzbill](#)) is a journalist, working as a Senior Policy Analyst for the Consumer Choice Center.

The Consumer Choice Center is the consumer advocacy group supporting lifestyle freedom, innovation, privacy, science, and consumer choice. The main policy areas we focus on are digital, mobility, lifestyle & consumer goods, and health & science.

The CCC represents consumers in over 100 countries across the globe. We monitor closely regulatory trends in Washington, Brussels, Geneva and other hotspots of regulation and inform and activate consumers to fight for #ConsumerChoice.



2221 S Clark St. 12th Floor Arlington, VA 22202, USA
info@consumerchoicecenter.org • consumerchoicecenter.org