



RED BOX | GEORGE EUSTICE

Gene editing is the future of British farming

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The UK is home to some of the world's leading agricultural research institutes. In November, I launched our agricultural transition plan for our future outside the EU, free from the bureaucratic common agricultural policy. We are moving towards a new system and we will invest the money that we free up to support agriculture in different ways. We will pay farmers to improve the environment, improve animal health and welfare and reduce carbon emissions.

I have been clear that we need to achieve a fusion of the traditional principles of good farm stewardship and the best technology available to us in the 21st century.

The intensification of agriculture during the 1960s and 1970s led to higher yields, brought more land into cultivation and delivered the postwar imperative to boost food production. However, it also led to a sharp increase in the use of synthetic fertilisers which, in turn increased carbon emissions. It led to the loss of thousands of miles of hedgerows which are the most important ecological building block in our farmed landscape; it led to the ploughing up of traditional meadows and the ecology within them; it led to an increase in the use of synthetic pesticides which had impacts on other species; and latterly it led to greater specialisation on farms which increased pressure on water quality in livestock areas and the unsustainable exploitation of soils in arable areas.

But what if we could plot a different course, with the benefit of hindsight and the developments in scientific research that we have now.

Genetic diversity is what gives life itself resilience. The billions of genes that exist in the hundreds of thousands of plant and animal species on our planet are a memory of all the challenges that have been encountered in the past and could confront us in the future.

Twenty years ago, there was much debate about genetically modified crops. It is fair to say that there was understandable public concern about moving genes across natural biological boundaries, which is known as transgenesis.

However, what we have learnt since that initial debate is that the process of cisgenesis — where traits are moved within a species or genus of plant — is also useful and raises far fewer ethical or biological concerns. These techniques, such as gene editing, are really a natural evolution of conventional approaches to plant breeding. They give 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 to sustainable farming.

It creates the potential to breed plant varieties that have natural resistance to fungal diseases and to evolve traits at a pace that keeps up with the pest. It creates the ability to breed crops and grasses that perform better with fewer inputs, reducing costs to farmers and impacts on the environment, and to breed plants that can adapt to the challenges of climate change.

Two years ago, the European Court of Justice ruled that cisgenic techniques such as gene editing should be treated the same as genetic modification under EU law. That means that new technology would be stifled from the beginning because the EU's procedures around gene editing are notoriously flawed and politicised such that no one trusts the integrity of the procedure. Fundamentally, the ECJ judgment was based on legal interpretation, not on science. Countries like Germany were sceptical about the decision and they saw that gene editing is a way to meet the challenges we face.

Now that we have left the EU, we are free to make coherent policy decisions based on science. That starts today, with a new consultation on proposed changes to legislation to enable gene editing to take place, so that we can achieve a simpler, scientifically credible regulatory framework to govern this important new technology. If we can do that, then unlocking the benefits of gene editing will support the special reputation we have built based on food safety, high animal health and welfare standards, and sustainability.

If we are to deliver the ambitions we have for the environment and make space for nature, we must rebalance the incentives in our future agriculture policy to encourage sustainability, and use the tools that science provides to ensure that profitable food production and sustainable land management go hand in hand.

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