British Parliament begins debate on agricultural technology innovation bill. Here's why that's important to science, health and food security

Legislation to cut red tape and support the development of innovative tech to grow more resistant, more nutritious, and more productive crops will be introduced in Parliament [May 25].

The Genetic Technology (Precision Breeding) Bill will remove unnecessary barriers to research into new gene editing technology, which for too long has been held back by the EU's rules around gene editing, which focus on legal interpretation rather than science – hindering the UK's world leading agricultural research institutions. Outside of the EU and free to set rules that work in the best interest of the UK, this Bill will enable the development and marketing of precision bred plants and animals which will drive economic growth and attract investment into agri-food research and innovation in the UK.

Precision breeding technologies, like gene editing, have a range of benefits. They will give UK scientists the power to help farmers and producers develop plant varieties and animals with beneficial traits that could also occur through traditional breeding and natural processes, but in a more efficient and precise way. For example, precision breeding techniques can produce crops with fewer inputs, including pesticides and fertilisers, improving the sustainability, resilience and productivity of the UK's food system. This will reduce costs to farmers and reduce impacts on the environment, as well as potentially increasing disease resistance in plants and animals, and boosting climate change resilience; with water scarcity likely to become a major impact of climate change, it is essential that plant breeding technology is able to keep pace with the challenge.

Precision breeding can also create safer food by removing allergens and preventing the formation of harmful compounds in food. Globally, between 20 per cent and 40 per cent of all crops grown are lost to pests and diseases. Precision breeding has the potential to create plant varieties and animals that have improved resistance to diseases; helping to reduce our reliance on pesticides and antibiotics, reduce impacts on the environment and improve the welfare of animals.

Environment Secretary, George Eustice, said:

> Outside the EU we are free to follow the science. These precision technologies allow us to speed up the breeding of plants that have natural resistance to diseases and better use of soil nutrients so we can have higher yields with fewer pesticides and fertilisers.
>
> The UK has some incredible academic centres of excellence and they are poised to lead the way.

Defra's Chief Scientific Adviser, Gideon Henderson, said:

> Substantial environmental, health and food security benefits can come from use of genetic technologies to precisely mimic breeding and improve our crops.
>
> The UK is home to some of the world's leading research institutions in this area and these reforms will enable their scientists to use their expertise to make farming more resilient and our food healthier and more sustainable.

This is different to genetic modification (GM) techniques, where genes from one species are introduced to another.

The Government is taking a step-by-step approach by creating legislation for plants first. No changes will be made to the regulation of animals under the GMO regime until a regulatory system is developed to safeguard animal welfare.

Professor Susan Jebb, Chair of the FSA, said:

> This legislation recognises the need to update our regulatory frameworks to keep pace with new scientific technologies. Our regulatory system needs to be fit for purpose to unlock the benefits of new genetic technologies for consumers whilst providing confidence that our food standards will be maintained. This includes animal feed as well as the foods we eat directly.
>
> As the independent government department responsible for food standards, the FSA is here to make sure people can trust the food they buy and eat is safe, is what it says it is, and that new technologies do not undermine progress towards a healthier and more sustainable food system. We will continue to gather evidence and represent the interests of consumers in relation to precision breeding techniques as the Bill progresses.
>
> Through our work with stakeholders and Government we will strive for a transparent, proportionate, and science-based process for the regulation and authorisation of foods and animal feed in this fast-moving area.

NFU Vice President David Exwood said:

> This science-based legislative change has the potential to offer a number of benefits to UK food production and to the environment and will provide farmers and growers with another tool in the toolbox as we look to overcome the challenges of feeding an ever-growing population while tackling the climate crisis.

Director of Science at the James Hutton Institute in Dundee, Lesley Torrance, said:

These crops are urgently needed to address future food security which is threatened by climate change and pests, and to help reduce the emissions of greenhouse gases from agriculture whilst maintaining crop yields.

The James Hutton Institute uses innovative precision breeding technologies which have the potential to speed the development of new crop varieties in a more reliable way.

We welcome both the focus of the Bill which is on the assessment of the properties of the new crop and not the process used to develop it; and the transparency of this information which will be held on a public register.

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