Breeders applaud positive stance from Defra on gene editing

BSPB has warmly welcomed the recent commitment from Food and Farming Minister George Eustice MP that the UK will not be bound by restrictive EU rules on gene editing in any future Brexit deal.

A shock ruling by the Court of Justice of the European Union (CJEU) in July that newer forms of gene editing such as CRISPR must be regulated as GMOs had prompted widespread concern that the ‘common rulebook’ approach proposed by Theresa May’s Government in return for frictionless trade in agri-food would limit the UK’s ability to develop a more enabling and science-based regulatory environment for genetic innovation in agriculture post-Brexit.

But at the Conservative Party Conference in October, Mr Eustice said: “We disagree with the judgement the ECJ has come up with. We think gene editing and cisgenesis is largely an extension of conventional breeding techniques, the likes of which we have had for decades. I think this would be an early candidate for us to depart from the approach the EU is taking. If we are serious about trying to reduce our reliance on chemical pesticides and tackling some of these agronomic challenges, we do need to embrace an accelerated form of genetic breeding. In terms of the common rulebook, it will not apply to that.”

The European Court ruling came as an unexpected setback, not least because it was directly at odds with the preliminary opinion issued by the Court’s Advocate General in January 2018, which indicated that gene editing techniques which do not involve the introduction of foreign DNA should be exempt from the EU’s GMO Directive. This mirrored the position already adopted by the UK in line with advice received from ACRE, the Government’s expert advisory committee.

Following the CJEU ruling, BSPB joined a coalition of 33 organisations across the UK farming, agribusiness and plant science sectors in writing to Defra seeking clarity on the regulatory status of gene editing post-Brexit, and urging the UK to retain the greatest possible freedom to exploit new breeding advances.

“Britain’s plant scientists, breeders and farmers will be encouraged at the news that the UK will not be tied in to EU decisions in these hugely exciting areas of genetic innovation,” said BSPB chief executive Dr Penny Mapleson. “This paves the way for Britain to re-align itself with the regulatory approach being taken in other parts of the world – such as the USA, Canada, Brazil, Australia and Japan – where these techniques are not being regulated as GMOs.

“UK research in this area is world-leading, and the technologies coming forward offer tremendous potential to improve the speed and accuracy of the breeding process, and increase agricultural productivity, with more durable pest and disease resistance, better nutrition and resilience to climate change.

“The importance of ensuring that UK agriculture can access the most advanced technologies and production systems cannot be over-stated. Britain’s farmers are not only facing a reduction in direct support post-Brexit, but also the prospect of competing on increasingly open global markets. The UK Government’s rejection of the CJEU ruling, and Ministers’ determination to pursue a more proportionate and progressive approach to the regulation of plant breeding innovation post-Brexit, is therefore extremely positive and encouraging,” she said.
BSPB showcases plant breeding at Westminster

As decision-making powers over the future for British agriculture switch from Brussels to Westminster and the devolved administrations, BSPB is stepping up efforts to ensure UK politicians and Government officials fully understand the importance of supporting a vibrant, locally-based plant breeding industry to keep our food and farming sectors competitive, to improve our health and quality of life, and to protect the environment.

In June, BSPB secured a coveted place as the host of a week-long exhibition on plant breeding innovation in the Upper Waiting Hall of the Houses of Parliament, providing a timely and valuable opportunity to showcase UK plant breeding and raise the key issues facing the sector with MPs, Lords and political opinion formers.

Sponsored by Yorkshire farmer and Conservative MP Julian Sturdy and supported by Defra, the exhibit – provocatively titled ‘What has plant breeding ever done for us?’ – featured

The Breeders’ View

Three breeders representing different crop sectors attended the opening of BSPB’s Westminster exhibit to provide a personal perspective on the value and importance of plant breeding. Here are their stories:

Frances Gawthrop, Tozer Seeds

“I have always had a passion for plants, long before I knew that life on Earth would not be possible without them, or understood anything about genetics.

I still find it awesome that the genetic code inside each tiny seed determines everything in the life of the plant; when it will germinate, how vigorous it will be, how tall it will grow, when it will flower, how much seed will be set.

I joined Tozer Seeds, a family-owned British breeding vegetable company, when I completed my PhD. As a vegetable breeder, I develop new and improved varieties for commercial growers. Varieties need to look good, taste good, be uniform, have good pest and disease resistance, process well and have a good shelf life.

I have no doubt that my colleagues and I will have bred the vegetables you have eaten. I still get a thrill at seeing varieties I have bred on the supermarket shelves.

Advances in genetics and the development of novel breeding technologies continue to make my job challenging and fascinating.

But to retain a vegetable breeding industry in the UK, we need an enabling regulatory environment for genetic innovation and strong Government support for R&D, including tax incentives and funding mechanisms which not only support partnerships with universities and research institutes, but which also recognise that plant breeding requires long-term investment.”
colourful display boards, intriguing objects linked to crop improvement, and an interactive poll to encourage visitors to appreciate how the benefits of plant breeding are all around us.

Opening the exhibition, Julian Sturdy commended the visual impact of the BSPB display, describing it as one of the most eye-catching exhibits seen in that space.

He highlighted the achievements of breeders in addressing pest and disease problems such as yellow rust and Orange Wheat Blossom Midge in wheat, and BYDV in barley, adding that the loss of neonicotinoids and other crop protection tools would mean even greater demand for genetic solutions.

Emphasising the importance of science and technology in helping Britain’s farmers respond to the major challenges facing the agriculture sector, he said continued access to plant breeding innovation and the benefits of improved varieties would be absolutely crucial.

The exhibit also included the launch of BSPB’s ‘Plant Breeding Manifesto’ setting out the Society’s policy wish-list to support continued investment in UK-based plant breeding in areas such as R&D funding, regulation, agricultural support, IP and Brexit. Visitors were also invited to cast their vote for the most important innovation which plant breeding could bring, the result is shown right:

Joanna Matthews, Germinal

“Having previously working with NIAB as a forage crop specialist co-ordinating variety trials for a wide range of forage crops, I now head up Germinal’s research station taking the latest plant breeding developments and assimilating information on potential on-farm performance and management.

On a personal level, the important part is translating these developments to my family farm and understanding how plant breeding can make a meaningful difference to the economic, environmental and even animal welfare outcomes of livestock production.

Grassland accounts for around 70% of the UK agricultural area, and makes an enormous contribution to the ruminant livestock sector as the cheapest and most readily available source of nutrition – comprising 50% of the diet in dairy cows, 80-85% in beef cattle and 90-95% in sheep.

The opportunity and influence of plant breeding developments should not be underestimated.

NIAB data show that from 1980-2016 the contribution of improved grass varieties delivered a 10% overall increase in Dry Matter (DM) yield per hectare. Quality improvements are also significant in terms of available energy and digestibility. One hectare of grassland today can produce an extra 3,115 litres of milk compared with 18 years ago, thanks to modern grass varieties.

Other key targets for forage crop breeders include nutrient use efficiency, response to climatic and environmental stresses, and ever-changing pest and disease pressures – I am excited about responding to the challenges facing modern agriculture and improving the tools available to colleagues in the farming industry.”
What plant breeding innovations would you most like to see in the future?

- Pest and disease resistance: 59%
- Higher yielding crops: 18%
- New crops adapted for UK: 14%
- More nutritious crops: 9%

PLANT BREEDING MANIFESTO

Plant breeding is an essential industry to keep our food and farming sectors competitive, to improve our health and quality of life, and to protect our environment.

As a research-intensive sector, continued investment in UK-based plant breeding will require long-term certainty and stability in the following areas of Government policy:

- Support for a competitive and profitable UK farming industry, balancing and rewarding improvements in productivity, resource use efficiency and environmental enhancement
- Consistent, long-term R&D policies promoting public/private partnerships and funding translational research to bridge the gap between discovery science and commercial application
- An enabling, science-based regulatory framework which provides long-term clarity and certainty for all forms of plant breeding innovation
- A robust and cost-effective approach to the application of Plant Variety Rights – a unique form of Intellectual Property protection on which the plant breeding industry depends
- A seamless transition from current to post-Brexit arrangements, with a focus on securing regulatory alignment and/or mutual recognition on key issues such as plant variety rights, variety registration, seed certification, trade and phytosanitary arrangements

Chris Burt, RAGT Seeds

“I manage a genetic analysis lab for RAGT Seeds, based just outside Cambridge. We run DNA analysis on hundreds of thousands of samples of wheat and barley every year, from breeding programmes all around Europe. Using DNA markers, we track beneficial, naturally-occurring genes which control important traits such as disease resistance, bread-making quality and yield.

In the lab, we can identify varieties with combinations of beneficial genes and select those varieties more quickly and efficiently than by growing plants in the field.

A key part of my job, and one that I particularly enjoy, is working in public/private partnerships throughout Europe to conduct research into the genetics that control important traits in crops.

It would not be possible for a company such as RAGT to conduct this research by ourselves, but by collaborating with other companies and with academic partners, we can all advance our understanding and ensure the benefits reach farmers, end-users, and crucially consumers, through better crop varieties.

The UK has a strong track record in this kind of research with BBSRC programmes such as Longer Larger Grants, LINK and CASE PhD studentships. It is important to us that these continue.

UK-based research has provided us with important insights into traits such as pre-harvest sprouting in wheat (to improve bread making quality), and resistance to a range of important diseases such as yellow rust, Septoria and Fusarium.

Faced with increasing challenges of climate change and rapidly evolving diseases, continued support for this long-term, underpinning plant genetic research is essential.”
We are supporting

BSPB staff support ‘toilet twinning’ campaign

During 2018, BSPB staff have joined hundreds of other businesses and individuals around the UK to support the ‘Toilet Twinning’ water and sanitation charity initiative (www.toilettwinning.org). Financial controller Steph Spiers, who has championed BSPB’s support for the campaign, explains:

“By raising money and donating to twin your toilet, the campaign helps those in desperate poverty to have access to a proper latrine, clean water and the information they need to be safe and healthy.

“In return your smallest room becomes the proud owner of a certificate, complete with a colour photo of its twin and GPS coordinates so you can look up your twin’s location on Google Maps.”

Over the course of the year, the Society’s staff have used their imagination and had fun giving time to support the initiative, with fund-raising activities ranging from pub quizzes and guess the number of sweets competition to a World Cup sweepstake, ice cream sales and birthday donations.

The BSPB team also had a chance to get creative with a photography competition themed around the countryside, with visitors to the Society’s offices in Ely invited to judge the winning entries.

The top three photos are shown below. First place was awarded to ‘Lakeland Sheep’, by Lewis Crowder, while ‘Trotters Independent Traders’ (Cindy Felton) and ‘Honey Bee’ (Louise Everest) were joint runners-up.

“I am proud of our achievements in raising several hundred pounds to support this worthwhile cause,” says Steph.

“Above all it has served as a reminder of the everyday things we take for granted, and how much difference a relatively small donation can make to those in desperate need.”
Meet the
BSPB team
Emma Human, Licensing Co-ordinator

Emma Human has been with the Society for 16 years.

With a strong background in administration, Emma trained as both a personal assistant and legal secretary and was working for a firm of land agents and surveyors in Cornwall, before a move to Cambridgeshire found her joining the team at BSPB in 2002.

Emma co-ordinates the Farm Saved Seed Potato collection each year and is also responsible for maintaining BSPB’s many licenses and agreements.

She is the first point of contact for anyone requiring a license to produce and/or sell certified seed of protected varieties, and she also collates and produces the updated lists of protected varieties and their rates each year.

“I really enjoy the diversity that my job brings, as no one year is ever the same. This means that, despite my 16 years’ experience, there are always new things to learn as each season brings different challenges to breeders, licensees and growers,” she says.

Family life, and keeping up with all that brings, keeps Emma busy outside of work.

If you have any questions, please contact the Farm Saved Seed team on fss@bspb.co.uk or phone 01353 653209

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Members of the BSPB farm-saved seed team at Ely are on hand to help with any queries on seed use and the FSS declaration process. The new-look FAIR PLAY website at www.fairplay.org.uk also includes a section answering some of the questions most frequently asked by farmers and their advisers. Some more recent queries received from farmers are answered below.

Q. Where can I find the farm-saved seed payment rates?
A. Details of eligible varieties and FSS payment rates are published on the farm-saved seed section of the BSPB website (www.bspb.co.uk).

Q. I grow hybrid rye for grain production in crispbreads. Can I save some seed to grow as biomass for my local anaerobic digester plant?
A. No. The law on plant variety rights specifies that F1 hybrid varieties cannot legally be used as farm-saved seed without the breeder’s consent, regardless of end use.

Q. I am using some farm-saved oat seed as part of a green manure cover crop this autumn. Do I need to declare this to BSPB?
A. Yes. Although cover crops are not taken to harvest, a farm-saved seed payment is still due once the crop has been planted. If in any doubt please contact the FSS team at Ely for advice.

Q. Since neonicotinoid seed treatments were banned, I have been sowing FSS OSR straight from the heap at a higher seed rate to help mitigate flea beetle damage. Why should I declare this extra seed to BSPB when I am taking all the risk?
A. Farm-saved seed payments become due at the point of sowing and all FSS use must be declared promptly, regardless of the outcome or use of the crop.

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