

Science, Innovation and Technology Committee

Oral evidence: Innovation showcase, HC 523

Tuesday 4 November 2025

Ordered by the House of Commons to be published on 4 November 2025.

[Watch the meeting](#)

Members present: George Freeman (Chair); Dr Allison Gardner; Samantha Niblett; Dame Chi Onwura; Adam Thompson; Martin Wrigley; Daniel Zeichner.

Question 42

Witnesses

I: Duncan Ribbons, VP IP & Regulatory, Tropic Biosciences; and Dr Philip Zegerman, Associate Director, Technology Development and Research, Tropic Biosciences.

Examination of witnesses

Witnesses: Duncan Ribbons and Dr Zegerman.

Q42 **Chair:** Welcome to our two innovators today, Dr Phil Zegerman and Duncan Ribbons from Tropic Biosciences in Norwich. Today, we are looking at food security, launching our inquiry. We are keen to hear from you about the great science and technology that you are developing. The floor is yours.

Dr Zegerman: Chair, members of the Committee, thank you so much for inviting us here today. It is a huge pleasure for us to introduce Tropic and to share our journey, and how Parliament and other partners can help us to achieve our mission.

Tropic is a pioneering biotechnology company at the Norwich Research Park in the east of England. We were founded in 2016. We have just over 160 professionals, most of whom are based in Norwich. To date, we have raised over \$85 million of funding.

Our mission is simple but ambitious: to use cutting-edge genetic innovation to improve tropical crops such as bananas, coffee and rice to improve food security, sustainability and livelihoods for millions if not billions of people around the world.

So, why focus on tropical crops? Between now and 2050, half of all global population growth will be in the tropics. Despite this, tropical crops receive less than 1% of global R&D funding. In addition, tropical crops are especially vulnerable to climate change, disease and supply-chain pressures. At Tropic, we saw this as a huge opportunity for us to make a real difference in the world.

What is our technology? We use advanced precision breeding—gene editing—to develop new crop breeds. This greatly accelerates the development of specific, desirable characteristics such as climate resilience, disease resilience, increased yield and so on. To be clear, we are talking here about gene editing, not genetic modification, and introducing changes than can and do happen naturally. We can do this at Norwich.

For a crop like banana which is sterile—it has no seeds—traditional breeding actually can't be used to make new varieties. Gene-editing technology is the only way to make new varieties of banana. It is exactly by using this technology that we developed a world first: a new variety of banana that doesn't go brown, and that can stay fresh and yellow even after peeling without affecting taste or nutrition. This is important as up to 50% of bananas are thrown away in the supply chain because they go prematurely brown, which is a huge waste. Our non-browning banana is a game changer for reducing waste and carbon emissions in the supply chain. We predict that it could reduce waste by up to 25%, which would be the carbon equivalent of removing 25 million cars a year from the



road. It is exactly for this reason that our non-browning banana was seen as a massive breakthrough by *TIME* magazine, which chose it as one of the best inventions of 2025 across the whole world. And we did it in Norwich.

Chair: Hear, hear.

Dr Zegerman: Importantly, gene-editing technology is relevant for not only tropical crops but also UK crops, livestock and fish farming. Because of this, we collaborate with many organisations to bring our technology to other areas of food production.

As an example from much closer to home, we are hugely proud of our partnership with the John Innes Centre and British Sugar. Together, we joined forces to tackle a huge problem in sugar beet: Virus Yellowing disease. In 2020 alone, Virus Yellowing wiped out 25% of the yield of British sugar beet production, which cost the UK £65 million. With support from Innovate UK, together we are developing a virus-resistant sugar beet. The aim for this technology is to reduce pesticides, protect farmers' livelihoods and secure this important crop for the UK. We are all about sustainable production: more from less.

Tropic is, of course, a UK leader in agri-tech and in precision-breeding technologies. We are committed to using science responsibly to solve real-world problems. On that note, I hand over to my colleague Duncan, who will discuss the benefits and regulation of precision breeding.

Duncan Ribbons: As Phil explained, we focus on developing traits that provide resistance to devastating diseases, increased productivity and reduced waste. These can make a major contribution to policy goals on food security and sustainability. The entire value chain benefits from these types of traits. Farmers' livelihoods are protected and they get better productivity. Retailers and distributors get surety of supply and better sustainability profiles. Customers get better value for money and increased choice. The non-browning banana variety that we are bringing to market is the first new variety of banana to come to market in over 70 years.

We have benefited hugely from being based in Norwich. We are nestled among several academic institutions with world-leading plant sciences faculties. That gives us access to many benefits, including a rich talent pool and availability of infrastructure for developing our products. But because we work on tropical crops, we cannot do all of our work in Norwich. We just don't have the sunshine or the tropical climate. So we have had to work internationally, in countries such as Honduras, Colombia, Costa Rica and the Philippines, where we have been fortunate enough to find favourable regulatory environments and collaborative academic and commercial partners. There, we have been able to test our products, build our supply chains, get close to our customers and gain strong traction. In this international work, we engaged with the agrifood attachés that the UK Government set up, seeking their support when



HOUSE OF COMMONS

trying to navigate some complex local situations, including non-tariff trade barriers. We welcome that support.

We are very proud to be a British company and that England, in particular, is showing leadership on a regulatory front with the implementation of the Genetic Technology (Precision Breeding) Act—which we expect to be fully implemented in coming weeks. We are particularly pleased to see that in the UK-EU reset negotiations precision-breeding varieties are being preserved and kept out of the scope of the sanitary and phytosanitary agreement. We applaud that.

However, we have some reservations about the implementation of the precision breeding Act. The lack of entire UK coverage adds complexity for developers in the supply chain. We also view the guidance published by the Food Standards Agency as overly complex and somewhat undermining the central premise that precision-bred organisms should be treated the same as conventional organisms.

One aspect, however, of the UK regulatory system that we really like is that there is a streamlined approach for testing product when in the experimental phase. This is to be applauded as many countries which have implemented gene-editing regulations have not included this, which makes it very cumbersome to develop products.

Much of the groundwork has been laid in the UK for us to capitalise on the precision-breeding revolution. However, we expect further growth and will need further investment and infrastructure to support it. The critical factor in determining the success of this technology will be how it plays out in the court of public opinion. We believe that educating consumers and the value chain on the benefits of precision breeding is a collective responsibility that falls on the shoulders of all stakeholders. We call on the Government to continue championing this technology and to support acceptance and adoption.

Chair: Great. Thank you both very much. We would like to ask you hundreds of questions. Unfortunately, we have a formal hearing on food security starting soon. You have put down a lot of markers and we would like to stay in touch. We will follow up the points that you made. I saw that the former Minister, Daniel Zeichner, was pleased—as I was, as a former Minister for Science—to hear that the precision breeding Act is about to come into force and that you are confident that it will offer advantages. Thank you very much, and thank you to everyone at the Norwich Research Park for being one of our powerhouses of plant and agricultural science.