
RISING FOOD PRICES SHOWCASE THE NEED FOR GREATER INNOVATIONS IN AGRICULTURE

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At WisdomTree, we believe that one of the biggest megatrends over the coming decades will relate to biotechnology. Part of that relates to human health, and we have already seen how innovations in [messenger RNA \(mRNA\)](#) have provided incredibly novel vaccine applications with respect to COVID-19.

However, with an expanding global population and greater attention being paid to sustainability, novel approaches to agriculture may be at least as important in the long run.

Making It Concrete: Tomatoes

Scientists at the John Innes Centre in Norwich have created tomatoes that are a source of vitamin D. They made small deletions in the plant's genome that prompted the plants to accumulate provitamin D3, which can be converted to vitamin D in sunlight. A single upgraded tomato could provide around 20% of the recommended daily allowance of the vitamin.¹

But how can the UK encourage the appearance of something like the tomatoes described here on supermarket shelves? The answer is by recognizing the complex journey of genetically modified organisms in Europe and gradually adjusting the legislative environment.

Different Countries, Different Views

In recent years, there has been no shortage of polarizing issues. Questions around the safety and desirability of genetically modified crops has generated strong responses, particularly in Europe. In certain respects, the legal environment has made it very challenging to picture a reality where any of these potential innovations could widely proliferate in Europe.

However, it would not be appropriate to paint every country across the continent with the same brush. Even if there is a common regulatory structure and common market, that doesn't always mean all countries and people share the same views.

It is in these different views that change can sometimes emerge.

The U.K. Presents: The Genetic Technology (Precision Breeding) Bill²

It's true that following [Brexit](#), the U.K. has struck out on its own away from the European Union, thereby creating flexibility. 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 fertilizers. The U.K. has some incredible academic centers of excellence and they are poised to lead the way.

Precision breeding technologies could have a range of benefits, such as:

1. They will give U.K. 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.
2. It can create safer food by removing allergens and preventing the formation of harmful compounds in food.

Sustainability at the Forefront

It's possible that precision breeding techniques can produce crops with fewer inputs, such as pesticides and fertilizers. Globally, between 20% and 40% of all crops grown are lost to pests and disease, but it's possible that precision breeding can increase both pest and disease resistance. NFU Vice President David Exwood said:

This science-based legislative change has the potential to offer a number of benefits to U.K. 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.

Will the European Union Follow?

According to an announcement from the European Commission, published on April 29, 2021, a study on new genomic techniques (NGTs) showed that NGTs have the potential to contribute to a more sustainable food system as part of the objectives of the European Green Deal and the Farm to Fork Strategy.

The study also found that the current genetically modified organism (GMO) legislation, adopted in 2001, is not fit for purpose for these innovative technologies. The Commission announced a wide and open consultation process to discuss the design of a new legal framework for these biotechnologies. Commissioner for Health and Food Safety, Stella Kyriakides, said:

The study we published today concludes that New Genomic Techniques can promote the sustainability of agricultural production, in line with the objectives of our Farm to Fork Strategy. With the safety of consumers and the environment as the guiding principle, now is the moment to have an open dialogue with citizens, Member States and the European Parliament to jointly decide the way forward for the use of these biotechnologies in the EU.

We cannot, of course, guarantee any outcomes, but what's clear is that the legal framework and views are evolving, possibly with the focus on sustainability as a catalyst. There is no question that now in 2022, as we type these words, the agricultural system is facing stress due to the Russia/Ukraine crisis. It's important to give all possible solutions and mitigating factors due consideration.

Conclusion: Look for Agricultural Applications of the BioRevolution to Grow

WisdomTree has been following the BioRevolution for some time, and it's clear that the focus on human health came first. Over time, we expect the focus on agriculture and food to grow, and if the legal frameworks in certain regions of the world tend toward being more permissive rather than less, it will only help things along in that regard. Those interested in a specific strategy that may touch on these trends, consider the [WisdomTree BioRevolution Fund \(WDNA\)](#).

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DEFINITIONS

Messenger RNA (mRNA) : A single-stranded RNA molecule that is complementary to one of the DNA strands of a gene. The mRNA is an RNA version of the gene that leaves the cell nucleus and moves to the cytoplasm where proteins are made. During protein synthesis, an organelle called a ribosome moves along the mRNA, reads its base sequence, and uses the genetic code to translate each three-base triplet, or codon, into its corresponding amino acid.

Brexit : an abbreviation of “British exit” that mirrors the term Grexit. It refers to the possibility that Britain will withdraw from the European Unio.