THE EU FUTURE OF NEW PLANT BREEDING TECHNIQUES

SPECIAL REPORT | MAY 2019
http://eurac.tv/9QiU
New plant breeding techniques (NPBTs) emerged as an innovative agricultural solution in the last decade, allowing the development of new plant varieties by modifying the DNA of the seeds and plant cells.

In July 2018, the European Court of Justice (ECJ) ruled that organisms obtained by mutagenesis, or gene editing, plant breeding technique are genetically modified organisms (GMOs) and should, in principle, fall under the GMO Directive.

The court ruling sparked intense debate. The industry and farmers said the decision would deal a severe blow to the EU farming sector competitiveness while environmentalists hailed it, saying “hidden GMOs” were prevented from entering Europe through the back door.

But according to EU Health Commissioner Vytenis Andriukaitis, there was too much manipulation and “scare-mongering” around the issue. The ‘new plant breeding techniques’ need new EU legislation that takes into account the latest advanced technologies, he recently told EURACTIV.com.
Commission in search of ‘robust response’ to gene editing challenge

14 EU countries call for ‘unified approach’ to gene editing in plants

Companies seek clarity on breeding innovation to stay in EU

Andriukaitis: New plant breeding techniques need new regulatory framework

Tackling the Next Agricultural Revolution Together
Commission in search of ‘robust response’ to gene editing challenge

By Gerardo Fortuna | EURACTIV.com

"It’s a quite sensitive issue for ministers and society," EU Commissioner Phil Hogan said. [EPA-EFE/OLIVIER HOSLET]

The EU executive has already prepared the ground for a new initiative on gene editing to overhaul the current GMO legislation, EU agriculture commissioner Phil Hogan has said.

"What Health Commissioner Vytenis Andriukaitis has done is to continue to get the legal advice from the Commission to evaluate the outcome" of the European Court of Justice ruling on new plant breeding techniques, Hogan said after a meeting of EU agriculture ministers on 14 May.

Meanwhile, he said the Commission has asked EU member states to provide the necessary data in order to help the EU executive to come up with a "robust response" to the EU court’s ruling and draft a legislative response for the next Commission.

New plant breeding techniques (NPBTs) emerged as an innovative agricultural solution in the last decade, allowing the development of new plant varieties by modifying the DNA of the seeds and plant cells.

Environmentalists have called them "hidden GMOs," claiming it is a covert attempt by the agri-food industry attempts to bring them into Europe through the back door.

The European Court of Justice (ECJ) said last July that organisms obtained by mutagenesis, or gene editing, plant breeding technique are genetically modified organisms (GMOs) which should therefore fall under the GMO Directive.

The court ruling was seen as a victory for environmentalists while the agrifood industry and farmers organisations warned about severe economic consequences for the EU.

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farming sector.

In an interview with EURACTIV.com last March, EU health Commissioner Vytenis Andriukaitis said new plant breeding techniques need new EU legislation that takes into account the latest technological advances.

Andriukaitis said the ECJ had been asked to interpret a law, the EU’s GMO Directive, which was adopted 20 years ago and does not reflect the technological progress achieved since then in this area.

**A SENSITIVE TOPIC**

Asked by EURACTIV, Hogan said there were frequent exchanges with EU member states at expert level already.

“It was interesting that today the vast majority of ministers were looking for a Commission initiative in order to deal with this legal situation resulted from the recent ECJ judgment,” Hogan said.

“It’s a quite sensitive issue for ministers and society. Different member states have different views and different approaches to the genetically modified organisms (GMOs) and the core EU legislation on this has been in place since the 1990s and it was only updated in 2001,” he added.

“But I expected that a new initiative will be required in the next Commission,” he concluded.

Paolo De Castro, an experienced outgoing MEP, agreed with this view.

“The next Parliament will soon become aware that, after the ECJ ruling, there is a need to legislate again on the issue,” he told EURACTIV in an interview.

The current EU rules, he added, leave the member states in a hazy state without clarifying differences between transgenesis and mutagenesis and the ECJ ruling only worsened the situation, leaving the ball further in member states’ field.

**SCIENTIFIC EXPERTS**

Hogan also referred to the Commission’s Scientific Advice Mechanism (SAM), which recommended revising the existing GMO directive last November in order to “reflect current knowledge and scientific evidence, in particular on gene editing and established techniques of genetic modification”.

“There is a need to improve EU GMO legislation to be clear, evidence-based, implementable, proportionate and flexible enough to cope with future advances in science and technology in this area,” the advisory body said.

According to Hogan, this recent statement on gene editing fits as well into the ongoing discussions on the role of modern biotechnologies and sustainable agriculture.
The Netherlands and Estonia are leading a coalition of 14 EU member states calling on the next European Commission to update EU GMO laws with regard to so-called new plant breeding techniques (NPBTs).

12 other EU member states supported the discussion point added by the Dutch delegation to the last meeting of EU agriculture ministers, which took place last week (14 May).

In addition to the Netherlands and Estonia, the list of EU countries supporting a “unified approach” to NPBTs includes Belgium, Cyprus, Finland, France, Germany, Greece, Italy, Portugal, Slovenia, Spain, Sweden, and the UK.

According to an EU source, the group of countries requested a common EU approach on gene editing and called for a revision of EU GMO rules to be added to the working programme of the next European Commission.

In their opinion, an update has become necessary after the European Court of Justice (ECJ) issued a ruling last year saying organisms obtained by mutagenesis should be considered GMOs and therefore subject to the safety and marketing obligations laid down in the EU’s GMO directive.

In a note to EU farm ministers, the Dutch delegation also reminded that

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organisms obtained by mutagenesis have been used in farming for many years and have a long safety track record.

Until last year’s ruling, NPBTs were exempt from the GMO directive. EU countries were free to decide whether to subject them or not to the obligations laid down in the GMO directive.

The European Commission promised after the Agriculture Council that it will come up with a “robust response” to the EU court ruling and draft a legislative proposal in due time. “I expect that a new initiative will be required in the next Commission,” said EU agriculture Commissioner Phil Hogan in a press conference after the meeting.

IN FAVOUR AND AGAINST

Addressing other EU ministers, the Dutch delegation said that, although the ECJ ruling provided more legal clarity regarding the legal status of mutagenesis and other NPBTs, it also invoked many other practical issues which can only be resolved by the European legislator.

According to an EU source, the Dutch government considers that innovative breeding techniques can play an important role in the much-needed shift towards a more sustainable agriculture.

Gene editing could strengthen crop’s resilience to drought, heat and salinisation, the Dutch delegation argued. It can also improve resistance to plant pests and reduce the need to use pesticides, while improving yields and boosting the production of plant proteins.

In a note to the press, Italy’s junior agriculture minister Franco Manzato supported calls to adapt the European legal framework, saying EU GMO laws were adopted when new techniques, such as genome editing, did not yet exist.

However, the far-right Lega minister used the term “new generation of genetically modified organisms” to describe NPBTs in Italian, a terminology that could lead to misunderstandings with the Five Star Movement, their coalition partners in the Italian government, who have always opposed any kind of GMOs.

Polish agriculture minister Jan Krzysztof Ardanowski was the only EU minister openly rejecting the Dutch proposal, asking the floor during the debate to voice criticism against the idea.

Poland cannot support a proposal which opens a backdoor for the liberalisation of EU GMO rules, a Polish source told EURACTIV, saying new breeding techniques mentioned by the Netherlands raise such a risk.

While supporting further research into the subject, the Polish government strongly objects any kind of GMO in foodstuffs, the source explained.
A number of breeding companies have promised to relocate their advanced mutagenesis breeding programmes outside Europe and others will follow if nothing is done to change EU rules, Garlich von Essen, the secretary-general of the European Seed Association (ESA), told EURACTIV.com in an interview.

“They will have to in order to remain at the cutting edge of technology, attract the best breeders and develop the advanced plant varieties we all want to see,” von Essen added.

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In July 2018, however, the European Court of Justice (ECJ) ruled that organisms obtained by mutagenesis, or gene editing, plant breeding technique are genetically modified organisms (GMOs) and...
should, in principle, fall under the GMO Directive.

The court ruling sparked intense debate. The industry and farmers said the decision would deal a severe blow to the competitiveness of the EU farming sector while environmentalists hailed it as a victory, saying “hidden GMOs” were being prevented from entering Europe through the back door.

But for von Essen, this is not the case for farmers. “Europe's farmers and smaller breeding companies do not have the luxury to put part of their R&D as well as production outside the EU to make use of or access these new seed products. Their choice will be reduced and their choice will be restricted.”

The ESA boss insisted that farmers would face an “innovation delay”, which will inevitably hurt their competitiveness.

“Farmers expect from the EU Commission to give them access to the same innovative tools as their competitors in other parts of the world,” he said.

Von Essen said if one looks at the science in other parts of the world, the EU Court ruling had created “another pretty fine mess” for Europe.

“And that is being increasingly recognised. Right after the ruling, the Commission stated that it was now up to member states to implement the ruling and that it did not see a need for any further action,” he said.

“Meanwhile, we have the European Scientific Advice Mechanism and the JRC telling the Commission that this is actually impossible to do and to look into options to revise the respective rules to properly differentiate between methods and resulting products,” he added.

An EU source recently told EURACTIV that a group of member states, led by the Netherlands and Estonia, have requested a common EU approach on gene editing and called for a revision of EU GMO rules to be added to the working programme of the next European Commission.

“The pressure on the EU will be growing as more and more countries around the world take a different approach and will probably see the EU’s approach as a protectionist one that blocks market access and trade,” Von Essen said.

**WHAT IS THE PROPER FRAMEWORK?**

For Petra Jorasch, Manager Plant Breeding and Innovation Advocacy at ESA, the EU court ruling does not reflect the biological facts and scientific advances of plant breeding.

“A workable regulatory framework needs to be able to distinguish between regulated products and those that are exempted from a specific regulation,” she said, adding that this is not the case for plants resulting from the latest mutagenesis methods.

“These plants are in most cases indistinguishable from plants resulting from conventional breeding,” she said.

For ESA, the GM directive should be amended and exclude products of old and new mutagenesis breeding from its definition so that they fall under the regular regulation for conventional plant varieties.

“Such an approach will align the EU’s policy and rules with those established and being developed in the rest of the world,” Jorasch concluded.
The ‘new plant breeding techniques’ need new EU legislation that takes into account the latest advanced technologies, EU Health Commissioner Vytenis Andriukaitis told EURACTIV.com, adding there was too much manipulation and “scare-mongering” around the issue.

“From my point of view, we need a new legal regulatory framework for these new techniques,” Andriukaitis said, adding that it should be dealt with by the new European Commission after the EU elections in May.

New plant breeding techniques, developed in the last decade, allow the development of new plant varieties by modifying the DNA of the seeds and plant cells.

In July 2018, the European Court of Justice (ECJ) ruled that organisms obtained by mutagenesis, or gene editing, plant breeding technique...
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are genetically modified organisms (GMOs) and should, in principle, fall under the GMO Directive.

The decision was a victory for environmentalists but it shocked the industry, while EU Agriculture Commissioner Phil Hogan told EURACTIV he was “surprised” by the ruling.

Environmental NGOs said the ruling prevented “hidden GMOs” from entering the EU from the back door. The EU member states remain confused about the issue and the EU executive is now checking the possible next steps.

Andriukaitis said the ECJ had been asked to interpret a law [GM legislation] which was adopted 20 years ago and was referring to old techniques, without taking into consideration the technological progress in this field.

“We are currently analysing the ruling and discussing with member states its implementation,” he said.

Andriukaitis added that a broad public debate over the issue was needed, as it is high time that Europe de-stigmatised new plant breeding techniques.

The Commissioner also rejected the argument that multinational companies are behind these techniques, citing the example of some poor Bangladeshi farmers who took advantage of these techniques and managed to produce and feed their families on their own, without using pesticides.

He said the public opinion should rely on science and stop being manipulated by “specific actors”.

“Public opinion’s manipulation is a very dangerous issue... The level of understanding of such issues is very low, but scaremongering in Europe is very high,” the EU health chief added.

He also commented on GMOs, which are banned in Europe.

“Please tell me, how many people have died because of GMOs? Do you have statistics? How many people died because they eat meat which was produced using GM feed? No one and some are manipulating,” the Commissioner said.

Andriukaitis insisted that Europe should listen to science, otherwise “it has no chance to have sustainable agriculture and preserve biodiversity”.

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It has been over 12,000 years since the Neolithic Revolution, when our nomadic ancestors began planting roots, quite literally -- trading in their hunter-gatherer lifestyles to cultivate crops. Today we’re facing another revolution in agriculture – one we must tackle together.

Our crops are under attack from changing weather, drought, floods, heat waves, diseases and pests. At the same time, our population is growing to a projected 9.8 billion people by 2050 and consumers increasingly seek food that is healthier for their families and the planet. This means we need to grow more food that is better for people and the environment using fewer resources. To accomplish this, we must explore new innovations and technologies.

At Corteva Agriscience, I lead an

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organization whose mission is to find bold, innovative solutions that do just that – enrich the lives of those who produce and those who consume. We bring several unique assets and capabilities to address this challenge: germplasm, gene editing technology, natural products, digital tools and cross-platform solutions. But the reality is no single company has all the answers to agriculture’s greatest challenges.

We believe that the global scientific community can do truly innovative work when we collaborate. Through our Open Innovation platform, we’re bringing together thought leaders and innovators to identify and develop solutions to some of the world’s most pressing food and agriculture needs. We identify those challenges, select collaborators who offer promising new approaches or technologies and then deploy the solutions independently or jointly. This approach enables the development of tailored solutions to address local problems around the world.

For example, in September 2016, Corteva Agriscience and the International Maize and Wheat Improvement Center (CIMMYT) announced a public-private partnership (PPP) to jointly develop improved crops using CRISPR to address the needs of smallholder farmers around the world. The first project under this PPP is using CRISPR to help tackle the devastating maize lethal necrosis disease in sub-Saharan Africa.

Other examples of Open Innovation include our multiyear partnership with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) to strengthen food security by improving crops that feed millions through the sharing of high-tech and modern breeding technologies. And our collaboration with the Donald Danforth Plant Science Center, created to apply cutting-edge technologies such as CRISPR to the creation of new varieties of improved food security crops with enhanced native traits.

The truth is, we need lots of different approaches to build the future of agriculture. We’re calling on small and large companies, public research institutes, academia and governments around the world to come together to drive innovation that will enable us to solve the pressing challenges facing us in agriculture. It’s as simple as going to our website, openinnovation.corteva.com, to see how you can gain access to a flexible range of industry-leading capabilities to help elevate and advance your research.

The decisions we make in agriculture today, like those made some 12,000 years ago, will impact the lives of billions for centuries to come. No single company or organization can do it alone. But by working together and putting the farmer and consumer at the heart of everything we do, we can make these solutions a reality.

The next revolution in agriculture is here. It’s happening on farms and in research centers, by startups and established businesses. With the world’s brightest minds working to find transformational agricultural innovations, we can and will ensure progress for the hunters, gatherers and farmers of the future.