

New agricultural breeding techniques: EU must take off its ideological blinkers

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Opinion

The debate on modern agriculture and new breeding techniques must be pragmatic, says Norbert Lins.



Norbert Lins | *Photo credit: European Parliament audiovisual*

In recent years, there have been intensive and polarising discussions at national, European and global level in politics, science, society and business concerning new breeding techniques and above all, concerning CRISPR/Cas.

The primary focus is on whether these new breeding techniques (NBT) result in a genetically modified organism (GMO) and whether they should fall within the scope of legal regulations concerning genetic engineering. Linked to this, is the form and specification in which these techniques are permitted

within the European Union (EU).

The fact is that the European Commission, despite other announcements based on the debate which has mainly been characterised by ideological and economic interests, has not come to any conclusion on this sensitive issue.

In the US, CRISPR/Cas is not subject to biotechnology law. The same applies to the UK and China with regards international competition in research and innovation.

If the current political stalemate continues, the European Court of Justice (ECJ) is likely to issue a leading decision by 2018 at the latest, given that France's Supreme Administrative Court requested a preliminary ruling at the ECJ in early October of last year.

All parties involved should endeavour to distinguish between the risks and opportunities of CRISPR/Cas.

Before this technology is directly categorised as genetic engineering, the EU and its players need to carefully consider whether by international comparison, their hasty reaction means they are isolating themselves in terms of science and economics.

The basic requirement is that before a final decision is made by legislators, there needs to be a comprehensive and transparent risk assessment as well as careful consideration of the level of potential risk.

Not only will this allow for a responsible decision to be made based on facts, but will also make the emotional discussion on CRISPR/Cas more rational and objective. In this respect, the different characteristics of CRISPR/Cas must first be distinguished.

There are techniques that manage without foreign DNA. Put simply, natural mutation processes are accelerated, which would take longer in nature. On the other hand, there are CRISPR techniques with which entire genetic elements are replaced by foreign genetics. These mutations would not arise in nature.

Before a final decision is made, CRISPR techniques need to be 'de-demonised' in public debates, as science can be used as a promising tool with unprecedented opportunities for practical plant and animal breeding, as well as in the field of human medicine. Nonetheless, we need to be careful, particularly in the last two points, since ethical aspects play a very important role here.

In particular, plant breeding, on the basis of present knowledge, can be made more ecological and more effective by manipulating crop plants via natural mutation, so that positive properties are maintained and negative properties are minimised or even completely eliminated across the ecosystem.

For example, mildew-resistant varieties of potato and wheat could be developed in this way and the use of plant protection products could become unnecessary.

In animal breeding and animal protection, we could make sure that the number of male offspring is significantly reduced. Thus, for example, the mass killing of male chicks for industrial egg production, which is a very passionately discussed issue, could become unnecessary; and the painful removal of cows' horns could be possible by mutation. NBTs can anticipate these developments in traditional breeding techniques, giving agriculture opportunities for modernisation.

A degree of caution is called for with regards CRISPR techniques that introduce into cells foreign

genetic material that is prepared outside the laboratory. There are also risks involved in carrying out several mutations within a very short space of time.

It could mean that we lose control over corresponding genetic changes within an organism, which at worst would bring unexpected hazards for humans, animals and nature. Neither can there be any mutations or combinations of mutations that adversely affect the function and interaction of our ecosystem.

In order to prevent such excesses, it is essential to make an objective assessment of all risks in the run-up to making an EU-level legal decision - purely from an ethical point of view.

A pragmatic approach to NBT and CRISPR techniques is necessary to ensure modern and sustainable agriculture. In discussions, we need to take off our ideological blinkers, including for all the other areas which these methods can influence.

Science in Europe needs to command trust and we need to wait for the additional results from assessing different techniques - including in the EU's science and innovation area.

Unreasonable regulations in this area would push Europeans a long way back in terms of plant and animal breeding.

In some areas, CRISPR technology offers opportunities to improve environmental and animal protection. For these reasons and based on European principles, those responsible need to deal with this issue responsibly, but also openly.

About the author

Norbert Lins (DE) is Parliament's EPP group shadow rapporteur on technological solutions for sustainable agriculture in the EU

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