

## **New plant breeding solutions key to EU agri-food production**

Written by Aleksandra Malyska on 10 March 2016 in Opinion Plus  
Opinion Plus

The EU needs to support technology uptake by SMEs if it wants to remain a global leader in plant breeding and agriculture, argues Aleksandra Malyska.



We are currently witnessing a major technological breakthrough. Rapidly emerging genome editing techniques could significantly accelerate the pace of plant breeding.

This will provide European farmers – and other stakeholders from the entire agricultural food chain – with access to innovation that can provide a competitive advantage in the global market.

The European plant sector is a global leader in plant breeding and European agriculture has a strong track-record in innovation. Currently, Europe invests around €3bn in plant-related research annually and “fostering knowledge transfer and innovation in agriculture, forestry and rural areas” is a major EU priority for rural development 2014-2020.

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With around 40 per cent of Europe's land area being farmed, the agriculture sector accounts for millions of jobs and significant Gross Value Added in the EU.

Higher land yields in the EU contribute to stabilising markets and reducing price volatility improving food security. This also delivers environmental benefits, making the most of scarce land resources by increasing productivity. However, feeding a rapidly increasing world population in the face of global climate change and limited land availability demands novel and advanced technologies.

New breeding techniques (NBTs) represent a range of molecular tools allow genomes to be edited quickly and precisely, usually without introducing foreign DNA into the resulting plants.

One of these tools, CRISPR, earned Science's 2015 Breakthrough of the Year award. It has also been noticed outside the scientific community. In contrast to conventional genetic modification approaches, this novel genome-editing technology uses "molecular scissors" to alter the genes in plants.

This means that in many cases, the effects of the genetic changes are indistinguishable from naturally occurring mutations.

Overall, NBTs significantly increase the speed and precision of plant breeding. Scientific achievements that have already been translated into novel products are now reaching the market.

In 2014, Canada approved the first commercial crop generated through genome editing – oilseed rape - with a number of other countries set to follow suit.

Currently, many other crops are being improved with this novel approach, including flax, rice and potato.

However, the uptake of those innovative solutions in the EU, in particular by SMEs, will strongly depend on whether they are both affordable and available without lengthy regulatory approval processes.

To date, the EU has not clarified the status of NBTs. This is despite that fact that a great deal of work has already been completed, including a report by a group of member states' experts that was finalised in January 2012.

The major issue is whether the classification of plants resulting from NBTs should be based solely on the technique used in the process, or also on their final characteristics.

In the case of the former, the cost of registration may be much higher and approval processes significantly longer. This would specifically affect EU SMEs as well as public research. Moreover,

specifically identifying those plants improved by NBTs is very difficult. This poses a serious threat of trade disruptions.

If the EU wants to remain a global leader in plant breeding and agriculture, it is time to make smart decisions supporting technology uptake by SMEs.

We should make full use of these recent advances that enable quicker and more precise plant breeding, supporting the EU's objective of competitive and sustainable agri-food production.

### **About the author**

Aleksandra Malyska is executive manager of the European Technology Platform 'Plants for the Future'

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