

## Gene editing and agroecology compatible? Yes, and they may lead to more eco-friendly farming

New gene techniques and agro-ecology can reinforce each other in making agriculture more sustainable, say researchers at Wageningen University & Research. This includes a debate that focuses on issues such as due diligence-wide access to these techniques and, above all, mutual respect for the views of supporters and opponents.

In a [recently published paper](#) in Outlook on Agriculture, WUR researchers Bert Lotz, Clemens van de Wiel and René Smulders investigate the compatibility of new gene techniques and agroecology. They do this by looking at how different applications of genetic modification and new breeding techniques such as CRISPR / Cas can make crops more resistant to major diseases and pests. As a result, the use of plant protection products can be considerably reduced and, for example, better opportunities are created to suppress other pests with natural attackers, such as insects that eat or parasitize pest insects.

The researched applications of genetic engineering make a major contribution to the objectives of agro-ecology-based agriculture: minimal dependence on chemical pesticides in combination with mostly preventive IPM measures (Integrated Pest Management), which together create a robust cultivation system.

In this system, growers can also fall back on biological pest and disease control and the entire agro-ecosystem will experience as little disruption as possible. An additional advantage is that the costs for the grower can be reduced. Genetic techniques can – under the right conditions – also contribute to financial sustainability in agriculture.

To investigate the compatibility of genetic engineering and agroecology, the authors focus on several points.

**Risk perception:** In the social debate about genetic modification, it is often about possible risks that would be associated with growing crops that have been bred with new techniques. In their publication, the researchers show that these risks are in principle the same or even smaller in the applications they have examined than those in the cultivation of crops that have been bred with conventional techniques.

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**Ethics:** For some groups within the agro-ecological movement, for cultural or ethical reasons (eg 'protection of the intrinsic values ??of the plant') there is no room for genetic engineering. The authors recognize that a rapprochement between genetic engineering and agroecology is problematic in this specific area. They advocate mutual respect for such personal views.

Because if new genetic engineering cannot be applied at all and as a result there are fewer opportunities to make agriculture more sustainable, this also has an ethical side: why do we as a society deny ourselves technological solutions while they can help to solve enormous challenges (including the nutrition

of to cope with the rapidly growing world population (coping with the consequences of climate change)?

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