



Strong resistance to potato disease with GMO

British researchers have found a resistance gene for the potato disease *Phytophthora*. The downside: that potato is a genetically modified organism (GMO).

The usual resistance genes in potatoes work by recognizing what is known as the avirulence protein of *Phytophthora*. This recognition allows a rapid response: the plant kills the cells that have been attacked, which stops the disease from spreading further. But *Phytophthora* can make the avirulence genes mutate fast, so the potato is no longer able to recognize the attackers and trigger the response mechanism. Most of these resistance genes come from wild potato species in the Andes. British researchers have now found a new gene in *Solanum americana-*

Development of this potato has stopped in the EU

num, a distant relative of the potato in the nightshade family. Potatoes with this gene are resistant to 19 variants of *Phytophthora*, according to the Wageningen scientists taking part in the study. 'The resistance gene in question

recognizes what are termed the conserved avirulence genes of the potato disease. We think *Phytophthora* won't be able to change these so quickly,' says WUR researcher Vivianne Vleeshouwers. 'That means this resistance can be effective more broadly against *Phytophthora*.'

GMO

The distant relative is not affected by *Phytophthora* and is seen as a 'non-host'. That is why this resistance gene is expected to keep the potato disease at bay for much longer. Such lasting resistance could reduce the need for chemical pesticides in potato cultivation. However, there is one problem: the potatoes with this gene are GMOs. The resistance gene from the distant cousin can only be introduced into potatoes through transgenesis. That is why the development of such potatoes has come to a stop in the EU but can continue in other countries, including the US and possibly the UK too after Brexit. ^{AS}