New superbugs in the fields?

Cultivation of new genetically engineered maize could cause problems in the EU
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Today Testbiotech is publishing a new backgrounder warning that the insecticide producing genetically engineered maize MON88017 might help pest insects become even more harmful. Researchers in a US laboratory have shown that the pest insects, known as corn rootworm, may not only become resistant to the insecticide producing maize plants, but the development of the larvae can be speeded up and fertility higher. Thus, commercial cultivation of these plants could result in helping the pest insects that are also known as the 'one billion dollar bug', to spread even quicker in the fields.

This new research carried out by USDA and US EPA adds to several other US publications showing that more and more resistant corn rootworm populations are being identified in regions where these plants are grown commercially. Currently, the EU is considering allowing the cultivation of maize MON88017. This maize produces the toxin against the rootworm and is tolerant to the herbicide glyphosate (known as Roundup). Monsanto has applied for permission to cultivate these plants in the EU, and the European Food Safety Authority (EFSA) has already given a positive opinion.

“Recent research from the US shows a new dimension in the development of resistant pest insects. It is known that the rootworm adapts to this insecticidal maize – but now it looks as though the selected pest insects are showing higher fitness and might, therefore, spread faster. We strongly recommend not allowing this maize to be cultivated”, says Christoph Then for Testbiotech.

The adaptation of the pest insects is not the only problem with this maize. If it is authorised in the EU it would be the first genetically engineered plant to be grown here that is tolerant to glyphosate. There are recent studies from the US that show a substantial decrease in monarch butterfly populations caused at least partially by large-scale growing of herbicide tolerant plants. The reason is a decline in plants on which the larvae of the monarch butterfly feed.

Further, several weed species have adapted to the cultivation of these plants, leading to a higher usage of glyphosate. This implies higher risks for the environment and human health. But data on the actual residue loads from spraying are missing and were not requested by EFSA.

Currently, several new genetically engineered maize plants are being considered for cultivation in the EU. Besides MON880017, EFSA also gave a positive opinion on Bt11 (insecticidal, Syngenta), maize 1507 (insecticidal, Dupont/Pioneer), GA21 (tolerance against glyphosate, Syngenta), NK603 (tolerance against glyphosate, Monsanto). Furthermore, it is expected that the EU will vote again on cultivation of MON810 (insecticidal, Monsanto).

New publication about corn rootworm: Oswald, K. J., French, B.W., Nielson, C., Bagley, M. (2012) Assessment of fitness costs in Cry3Bb1-resistant and susceptible western corn rootworm (Coleoptera: Chrysomelidae) laboratory colonies. Journal of Applied Entomology, DOI: 10.1111/j.1439-0418.2012.01704.x

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