

Neonicotinoid seed treatment has no immediate impact on bees in Finland

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The Neomehi project studied the impact of seed treatments of turnip rape on bees under field conditions during the growing and winter seasons.

Research conducted in Finland on neonicotinoid seed treatment has

yielded different results from the studies on which the European Commission's ban is based. In Finland, the residue levels are so low that they seem to cause no acute harm to bees.

In 2013, the European Commission restricted the use of neonicotinoid products, banning them in the [seed treatment](#) of crops favoured by bees, such as oilseed and turnip rape. Neonicotinoids are neurotoxins used as active ingredients in pesticides. The decision was based on the European Food Safety Authority's (EFSA) risk assessment, according to which neonicotinoid use on crops attractive to bees is harmful to bees and other pollinators.

Finland objected to the Commission's decision. Natural Resources Institute Finland (Luke) and Finnish Food Safety Authority Evira launched the Neomehi project to examine the impact of neonicotinoid insecticides on bees in the cultivation of spring oilseed crops. The suspected risks of their detrimental effects were observed in more southerly farming conditions.

The research conducted in Finland yielded different results from the studies on which the Commission based its decision.

"Neonicotinoid seed treatment seems to have no immediate impact on bee survival in Finland," says Luke researcher Jarmo Ketola, who headed the soon-to-be-completed project.

Neonicotinoid residue levels low in bee hives

The Neomehi project studied the impact of seed treatments of turnip rape on bees under field conditions during the growing and winter seasons. Neonicotinoid spraying was performed on part of the trial fields in both summers when the plants were in flower. Crop growth and the numbers of flying pollinators were monitored, and the success of test [bee](#)

[hives](#) was assessed. Additionally, residues in plants, bees, pollen and nectar were analysed.

The results show that residues of neonicotinoids migrate to bee hives in pollen and nectar.

"The residue levels in the samples collected from the hives were so low that acute harm to bees is unlikely. However, risks associated with reproduction and orientation behaviour cannot be ruled out," says Evira senior researcher Kati Hakala.

Entrepreneur Lauri Ruottinen, who provided bee care research services for the project, agrees.

"Neonicotinoid treatments did not cause acute harm to bee hives during the study.

The trial design does not, however, eliminate other factors that may cause changes in the number of adult bees," he notes.

Fears of reduced willingness to cultivate oilseed crops

There are currently no alternatives to neonicotinoids. Small beetles, such as flea beetles, interfere with the growth of oilseed and turnip rape seedlings in the spring, and can lower the quality and quantity of the crop.

In Finland, it is feared that the pesticide ban will affect the crop certainty of oilseed plants and reduce farmers' willingness to grow them.

"This would jeopardise the use of oilseed and turnip rape as domestic raw material in vegetable oil, food and fuel, and as a source of protein in farm animal feed. Flowering oilseed and turnip rape are also important

food sources for [bees](#), and if their cultivation is reduced, so will the benefits of crop rotation," explains researcher Jarmo Ketola.

The area under oilseed crops has decreased in recent years, but not dramatically, since the Finnish Safety and Chemicals Agency (Tukes) has granted special authorisation for the use of seed treatment products both last year and this year. Special authorisation has also been granted for 2016. EFSA is currently analysing new research data on the use of neonicotinoid products. It is not yet known when the European Commission will review its 2013 decision to restrict the use of these products.

Provided by Natural Resources Institute Finland

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