

Review on activities in Germany to assess the occurrence, residues and possible risk of guttation for honey bees

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Abstract

Findings of high concentrations of bee-toxic compounds in guttation fluid from young crop plants that had been seed-treated with systemic insecticides gave recently rise to concerns about a potential risk to honeybee colonies posed by exposure to guttation of seed-treated crops.

Measurements of high residue levels of some intrinsically highly toxic, systemic insecticides in guttation droplets were reported by different researchers. Consequently, in the past 3 years, a large number of different approaches have been conducted by industry and public research institutes to assess the possible risk of guttation in treated crops to bees. Different approaches of studies with bees in lower and higher tier tests were set up to gain clarification if and how this concern would need to be specifically addressed in the risk assessment for bees. A large number of studies were conducted on the environmental conditions and factors favoring guttation, the occurrence of guttation in different crops, residues in guttation droplets in different crops with different active ingredients. Studies with honey bees were conducted under laboratory conditions as well as semi-field trials, field trials and monitoring with honey bee colonies in various crops and different active ingredients. The review on available studies on guttation describes which experiments were done in different research facilities in Germany.