

## Section VI: Monitoring

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### 6.1 Honey bee poisoning incidents in Germany

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#### **Abstract**

Poisonings of honey bees may occur following exposure to bee toxic substances, e.g. pesticides, biocides and varroacides. In agricultural cropping systems, bees are often exposed to a number of different pesticides, like insecticides, fungicides and herbicides. Some products used in agriculture, especially insecticides, may be harmful to bees if used inappropriately. Depending on the properties of a substance, the formulation, the mode of action, the number of bees oversprayed, the concentration in and quantity of contaminated nectar and pollen and water brought back to the hive, pesticide exposure may result in a detectable damage of adult bees and/or bee brood. However, some symptoms which are observed following a poisoning, such as disorientation, aggressive behaviour, cramping, paralyzed bees, bees showing abnormal wing movements, weakening of the colony, high mortality, brood damage and/or pupal mortality may also be caused by various bee diseases or mistakes in bee management. Often the cause of a bee incident is not clear in the first instance and the extent to which it may be caused specifically by pesticides may be uncertain, triggering the need for biological investigations and residue analyses.

In many countries systems are established for reporting and analyzing bee incidents that may have been caused by agrochemicals. As an example, in Germany beekeepers who suspect an incident possibly linked to a pesticide application can send samples free of charge to the JKI for further investigation.

Samples of bees and relevant plant matrices are needed for residue analyses to identify those substances relevant and to establish a cause-effect relationship between an agricultural treatment and the incident.

The most important causes for poisoning incidents are contact exposure after overspraying of bees and oral exposure, by the uptake of contaminated nectar, honeydew and/or pollen from flowering crops following inappropriate insecticidal spray treatments, often caused by a misuse or wrong way of applying a product classified as hazardous for bees. Cases of mistakes, misuse or abuse of pesticides are frequently reported in the incident schemes.

An overview on the reported incidents of the last years that were analysed and interpreted in the JKI will be presented in the talk.

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## Julius-Kühn-Archiv

Pieter A. Oomen, Jens Pistorius (Editors)

### Hazards of pesticides to bees

12<sup>th</sup> International Symposium of the  
ICP-PR Bee Protection Group

15. - 17. September 2014, Ghent (Belgium)

- Proceedings -



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Hauptaufgabe des JKI ist die Beratung der Bundesregierung bzw. des BMEL in allen Fragen mit Bezug zur Kulturpflanze. Die vielfältigen Aufgaben sind in wichtigen rechtlichen Regelwerken, wie dem Pflanzenschutzgesetz, dem Gentechnikgesetz, dem Chemikaliengesetz und hierzu erlassenen Rechtsverordnungen, niedergelegt und leiten sich im Übrigen aus dem Forschungsplan des BMEL ab. Die Zuständigkeit umfasst behördliche Aufgaben und die Forschung in den Bereichen Pflanzengenetik, Pflanzenbau, Pflanzenernährung und Bodenkunde sowie Pflanzenschutz und Pflanzengesundheit. Damit vernetzt das JKI alle wichtigen Ressortthemen um die Kulturpflanze – ob auf dem Feld, im Gewächshaus oder im urbanen Bereich – und entwickelt ganzheitliche Konzepte für den gesamten Pflanzenbau, für die Pflanzenproduktion bis hin zur Pflanzenpflege und -verwendung. Forschung und hoheitliche Aufgaben sind dabei eng miteinander verbunden.

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The Institute's competence comprises both the functions of a federal authority and the research in the fields of plant genetics, agronomy, plant nutrition and soil science as well as plant protection and plant health. On this basis, the JKI networks all important departmental tasks relating to cultivated plants – whether grown in fields and forests, in the glasshouse or in an urban environment – and develops integrated concepts for plant cultivation as a whole, ranging from plant production to plant care and plant usage. Research and sovereign functions are closely intertwined.

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