

# Exposure of Workers during Pest Control of the Oak Processionary Moth (OPM) by Spray Applications

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## Introduction



Photo: Stefanie Weick, Umweltbundesamt

### Oak Processionary Moth (OPM)

- native to central and southern Europe
- range of distribution is expanding
- caterpillars form stinging hairs starting with 3<sup>rd</sup> larval stage
- Hazard to human health: skin and eye irritation, breathing difficulties, allergic reactions

### Control of OPM

- Mostly by spraying insecticides (spray application)
  - with vehicle mounted spraying devices (VMS)
  - with handheld spraying devices (HHS)
  - with helicopters
- control of OPM to protect human health: products regulated by **EU biocides-legislation**



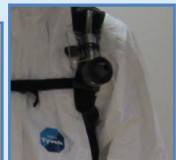
Vehicle Mounted Spraying Device (VMS)



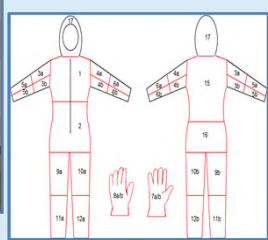
Handheld Spraying Device (HHS)

## Results

### Measurement of dermal and inhalation exposure



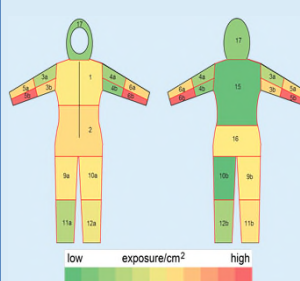
- Measurement of inhalation exposure:**
- air was drawn through a glass fiber filter using a battery-powered pump
  - inlet in the breathing zone of the worker
  - analysis by HPLC-UV/VIS



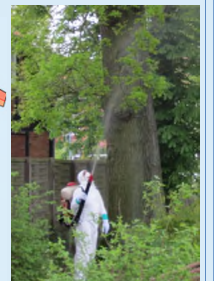
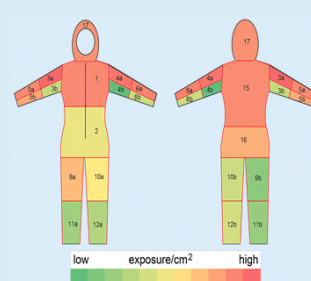
- Dermal measurements:**
- coveralls (Tyvek(R)) and cotton gloves as dermal samplers
  - on-site segmentation of coveralls
  - analysis of gloves and coverall segments by GC-PCI-MS

### Patterns of dermal exposure

#### VMS: Preparation and spraying of application liquid



#### HHS: Preparation and spraying of application liquid

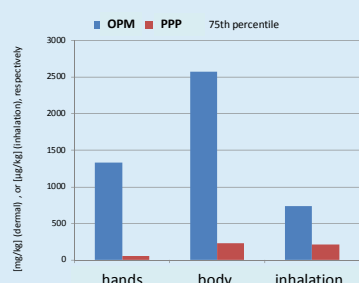


### Comparison with data used for assessment of plant protection products (PPP)

→ comparison with data from AOEM:\*

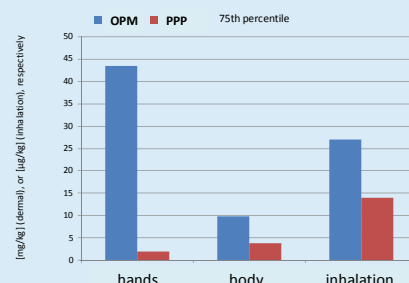
#### • hand-held spraying

- M&L: knapsack all
- App: HCHH all



#### • vehicle-mounted spraying

- M&L: ML tank WG
- App: HCTM cabin



\*Joint development of a new Agricultural Operator Exposure Model - Project Report. Federal Institute for Risk Assessment (BfR), 2013

### Links to the full report

English: <https://www.baua.de/EN/Service/Publications/Report/F2343-2.html>

German: <https://www.baua.de/DE/Angebote/Publikationen/Berichte/F2343.html>

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