Bündnis für eine enkeltaugliche Landwirtschaft

Study: Pesticides in the air

A study on atmospheric transport of synthetic pesticides in Germany

Authors: TIEM Integrated Environmental Monitoring

Initiated and financed by : Bündnis für eine enkeltaugliche Landwirtschaft (BEL) / Umweltinstitut Munich

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Study 2015

Urinale

→ Glyphosate residues in 99,6% of urine samples

Suspicion:

Widespread distribution of pesticides via atmospheric transport

Study 2018

Tree bark monitoring at 47 locations

→ *Suspicion is confirmed*

Study 2021

Atmospheric transport of pesticides

163 samples, 4 different sampling methods

Study: Atmospheric transport of pesticides

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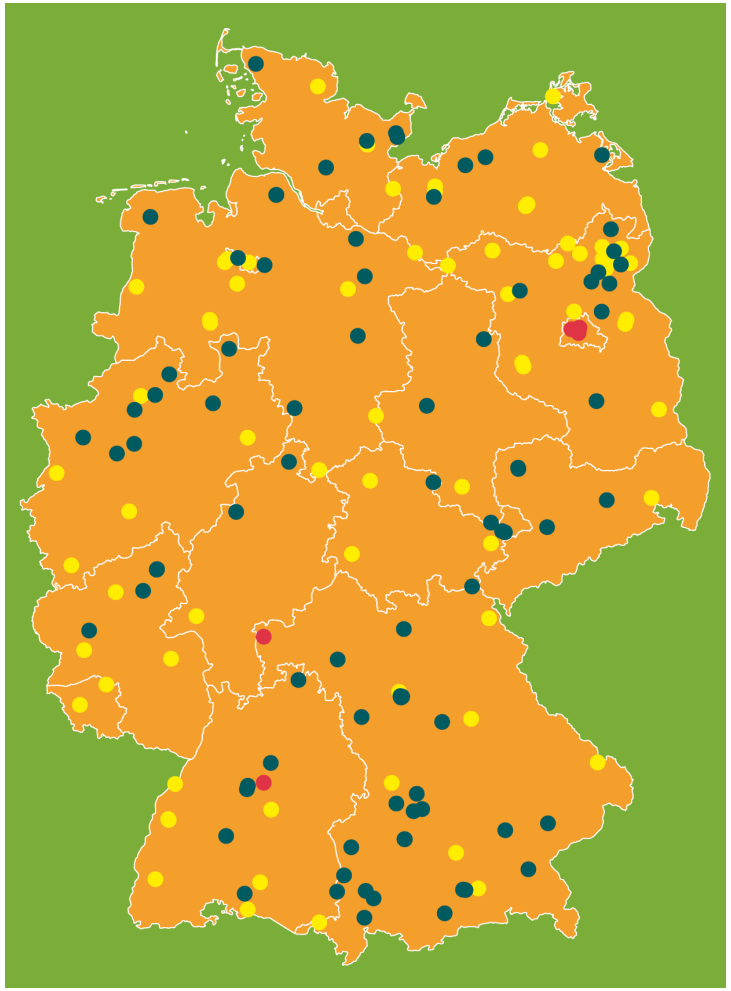
- So far the most comprehensive data set on this subject in Germany

- 163 sampling sites across the country

- Sites included:
  - Non-protected areas
    (e.g. Agricultural areas, private gardens)
  - Protected areas
    (e.g. national parks, nature reserves)
  - cities



Study: Atmospheric transport of pesticides

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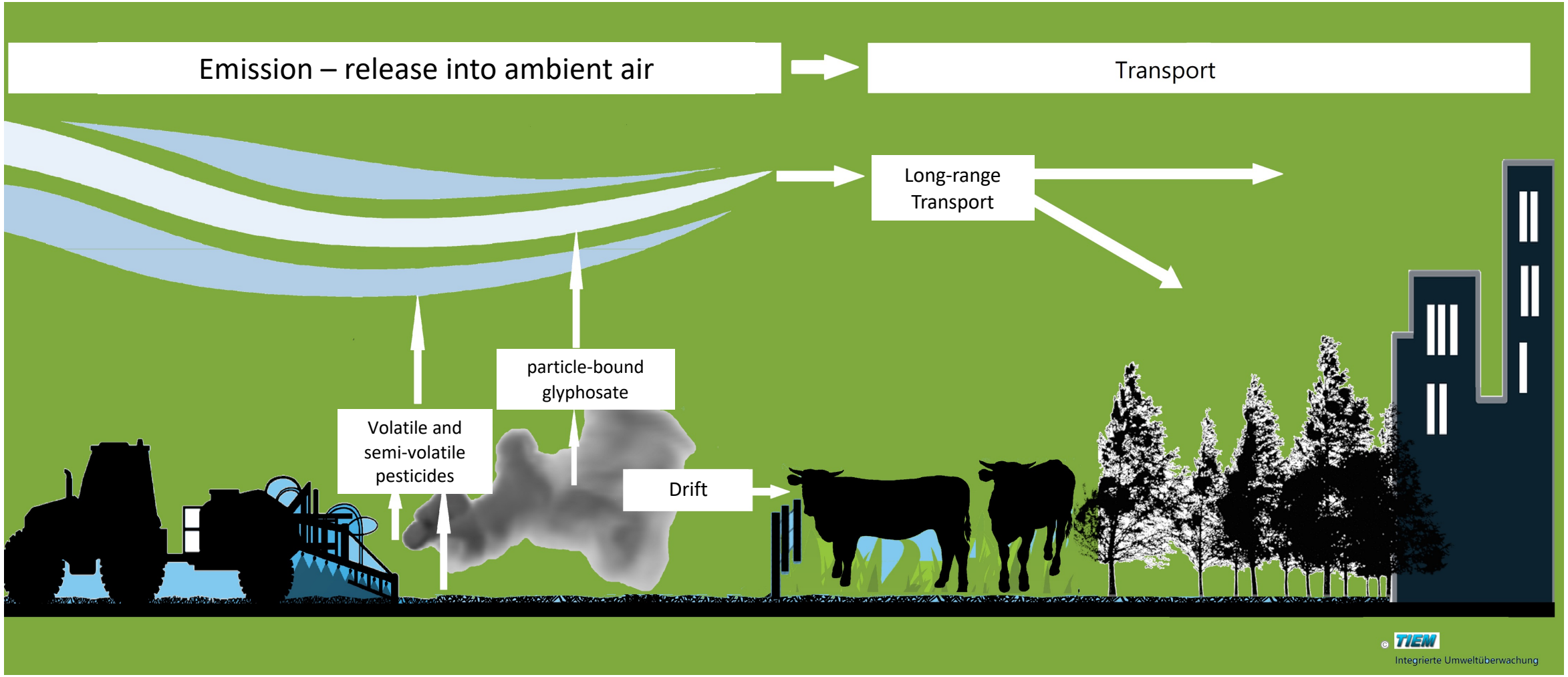
- 4 different sampling methods:
  - Passive samplers (49)
  - Filter mats (20)
  - Honeybee bread (41)
  - Tree bark samples (6) + samples from previous monitoring (47)

→ Total of 163 samples were analysed for the presence of over 500 different pesticides and their related substances

Atmospheric transport of pesticides: Drift and long-range transport



Study: Atmospheric transport of pesticides

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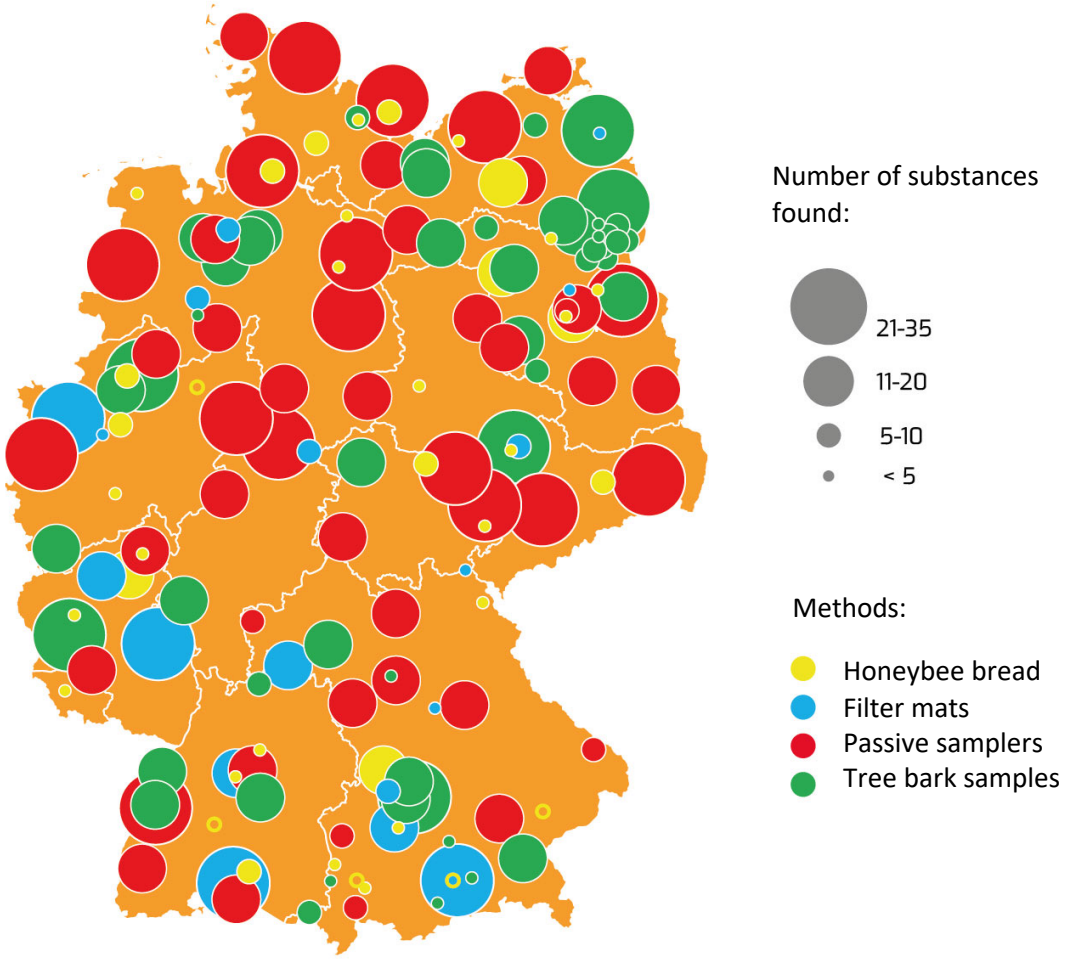
Key findings:

- 138 different pesticides and their related substances were found
- Residues of multiple pesticides at nearly every site



Number of substances found based on distance to potential source

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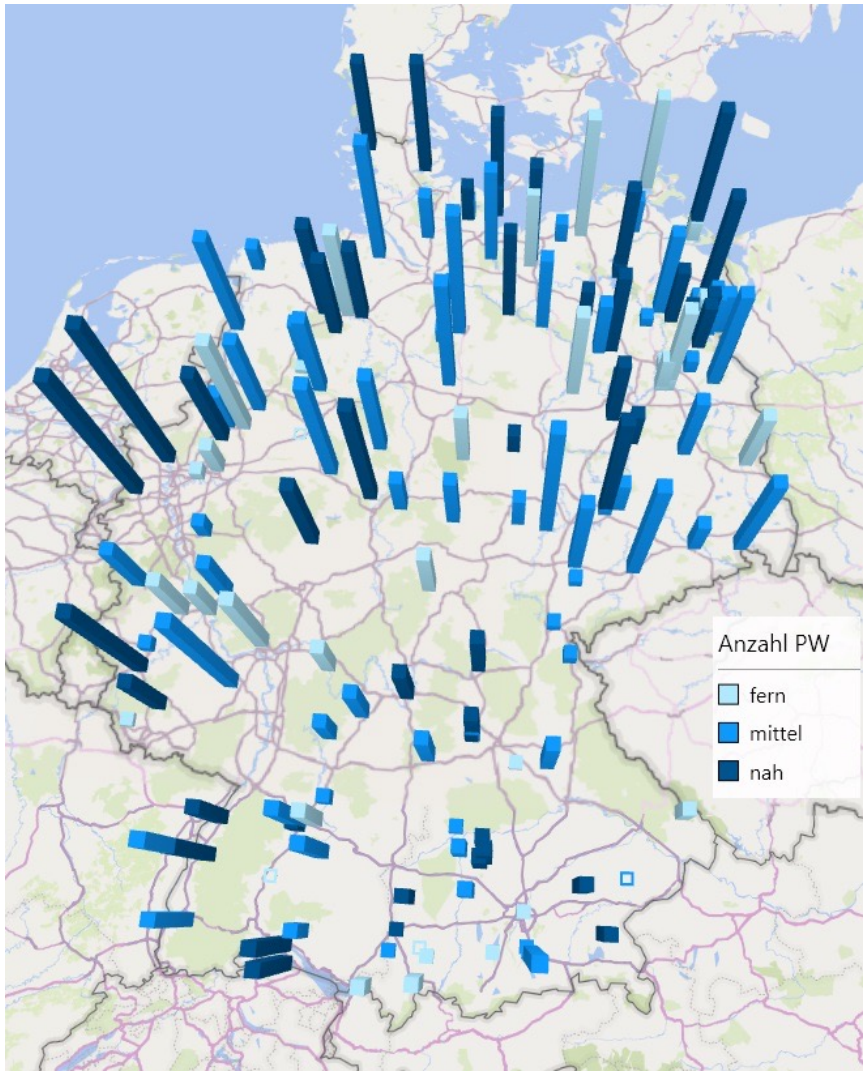

Position of sampling site in relation to the potential source:

- far (> 1 km)
- medium (100 – 1000 m)
- close (< 100 m)

Location only had a small effect on the number of substances recorded

Height of bar indicates number of substances found

Glyphosate findings

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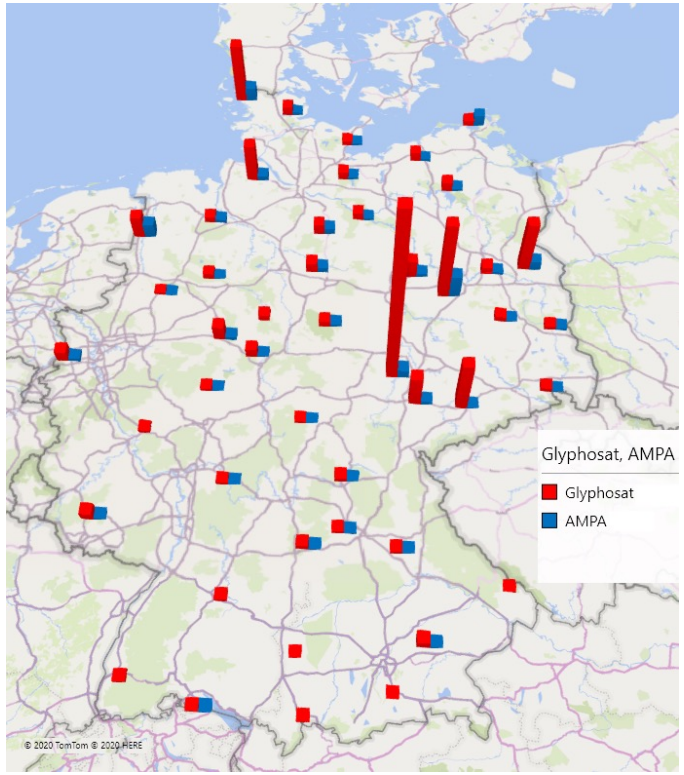
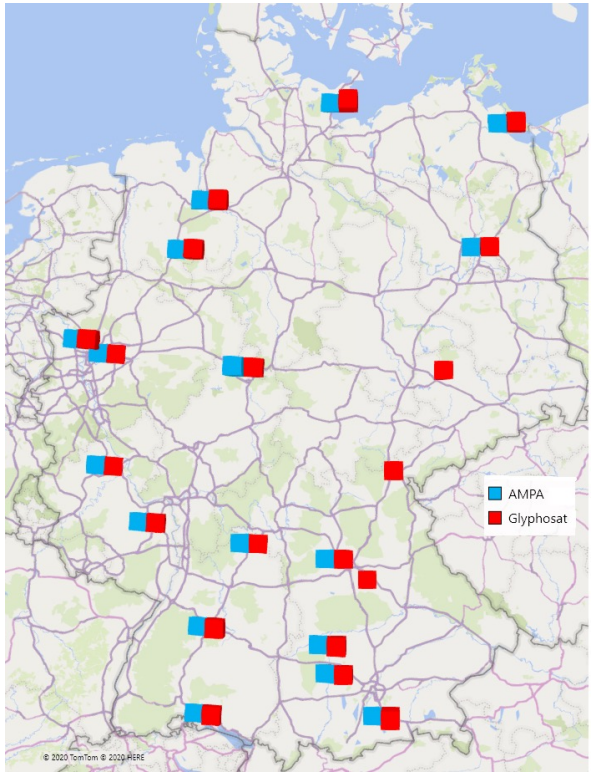
Passive samplers



Filter mats



- Glyphosate was the most frequently found substance: detected in all passive samplers (49 sites) and filter mats (20 sites)
- We must assume that there is hardly any place without glyphosate in the air Germany

EFSA Conclusion 2015: no volatilisation from plants and soils expexted, long range transport excluded

EFSA Conclusion 2023: particle bound transport at short and medium range

Glyphosate in cities

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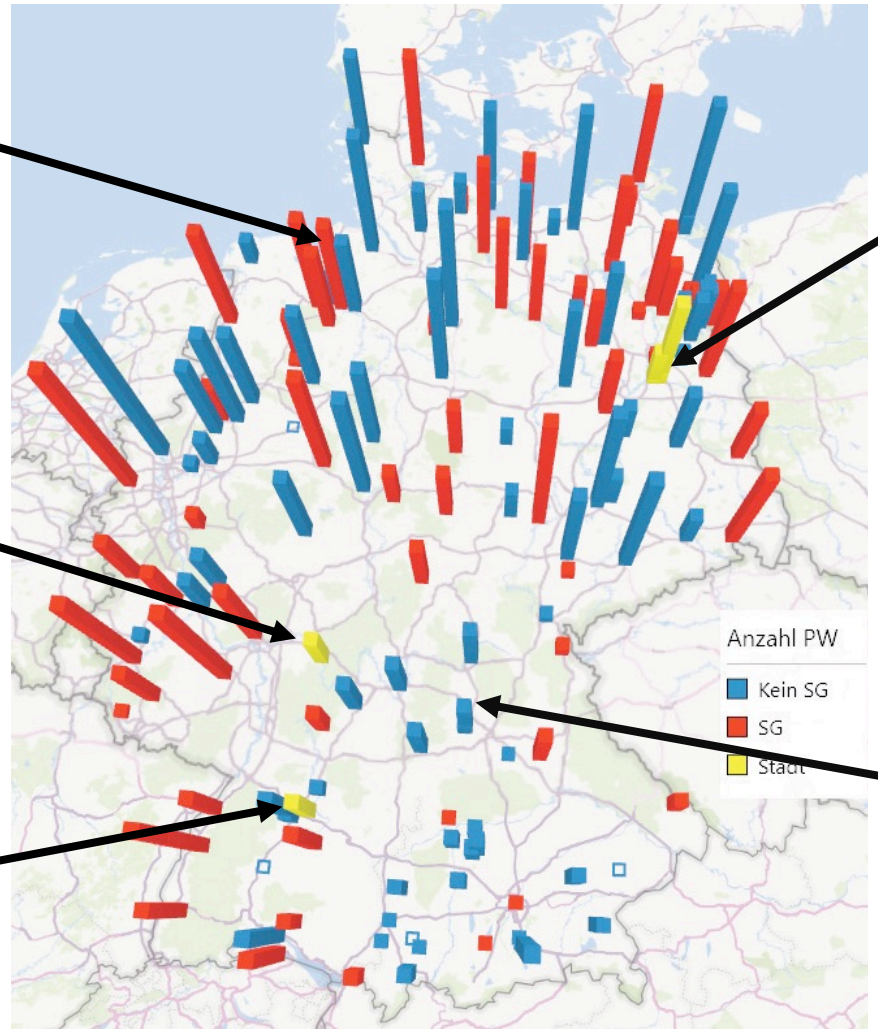
Bremen:
Residues of **6 different** substances found on the **outskirts of the city, including glyphosate**

Aschaffenburg:
Residues of **9 different** substances found on the **outskirts** of the town, **including glyphosate**

Stuttgart:
residues of **8 different** substances found near **the city centre, including glyphosate**



Berlin:
residues of **17 different** substances in the **city centre, including glyphosate**

Fürth:
16 different substances found on the **outskirts of the town, including glyphosate**

Implications

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- Unlike previously assumed, glyphosate can travel long distances via air and can be found far away from its original source of outbringing
- Impact on human health and environment of glyphosate in the air (and cocktails) largely unkown
- Potential chemical interactions between glyphosate and other air pollutants (e.g. vehicle or industrial emmissions) and its impacts on human health are unknown

What needs to happen?

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- Studies on the environmental and health implications of pesticides in the air
- The atmospheric transport of pesticides needs to be considered in the approval process of substances
- Yearly monitorings need to be implemented to monitor atmospheric transport of pesticides
- Frequently found substances in the air, such as glyphosate, need to be banned immediately

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Thank you for your attention!

For further questions, please don‘t hesitate to contact us via e-mail:

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For more Information, please visit:
www.enkeltauglich.bio