



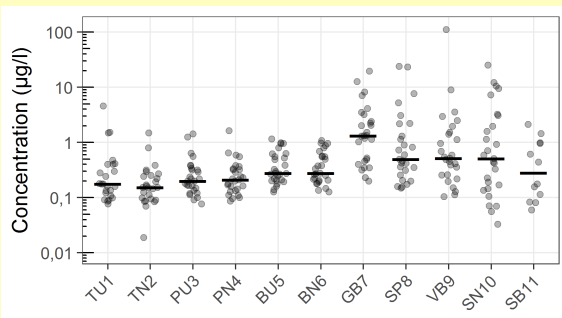
Screening of pesticides in streams draining Swedish greenhouses 2017-2018

Conclusions

- From several greenhouses there is an ongoing transport of pesticides to nearby surface waters
- From some greenhouses there is negligible leaching
- Several detected substances are clearly linked to use in greenhouses
- Further work with risk mitigation is needed within the greenhouse branch

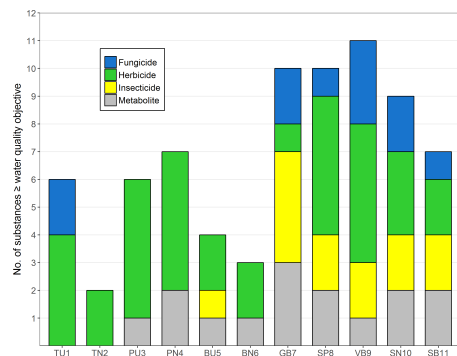
Results

- 105 different substances were detected in at least one sample
- 34-64 different substances were detected per sampling location
- Some sites demonstrated little difference between upstream and downstream sampling (TU1 vs TN2, PU3 vs PN4 and BU5 vs BN6) - indicating well functioning greenhouses
- Other sites demonstrated clear influence from ongoing pesticide applications in the greenhouses with elevated concentrations (GB7, SP8, VB9 and SN10)
- The highest concentrations were detected using TIMFIE sampling:
 298 µg/l propamocarb (Proplant, Previcur E.)
 149 µg/l pymetrozin (Plenum)
- Maximum concentration with grab sampling:
 107 µg/l propamocarb (Proplant, Previcur E.)



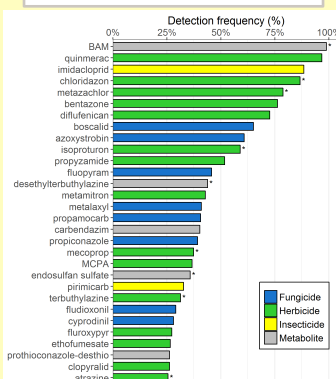
Study design

- Sampling during one year – summer 2017 to summer 2018
- Sampling in small streams and rivers – catchments sizes from 1 to 212 km²
- Samples collected bi-weekly - grab sampling (11 sites) and time integrated (TIMFIE) sampling (4 sites)
- Greenhouse production: vegetables and ornamental plants
- Samples analysed for up to 148 different substances
- LOD in the 1-10 ng/l range

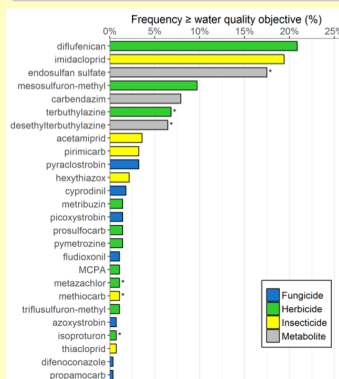


26 different substances were found ≥ Water quality objective

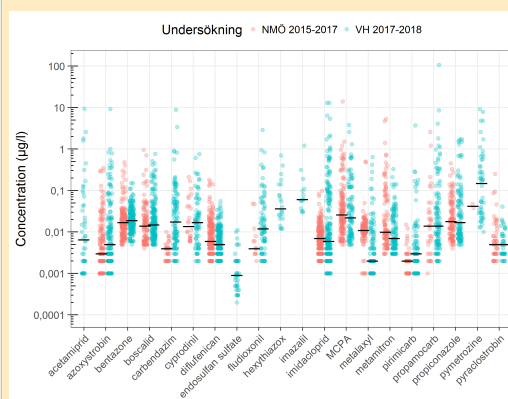
30 different substances were found in ≥ 25 % of samples



Imidacloprid had the highest exceedance: 217 times higher than the Water quality objective



Comparisons to results from monitoring in agricultural areas



Some substances with typical greenhouse use occur more often and in higher concentrations