

Comparing PNEC to Swedish Pesticide Monitoring Data

How Reliable Is the Registration Process?

CONCLUSION

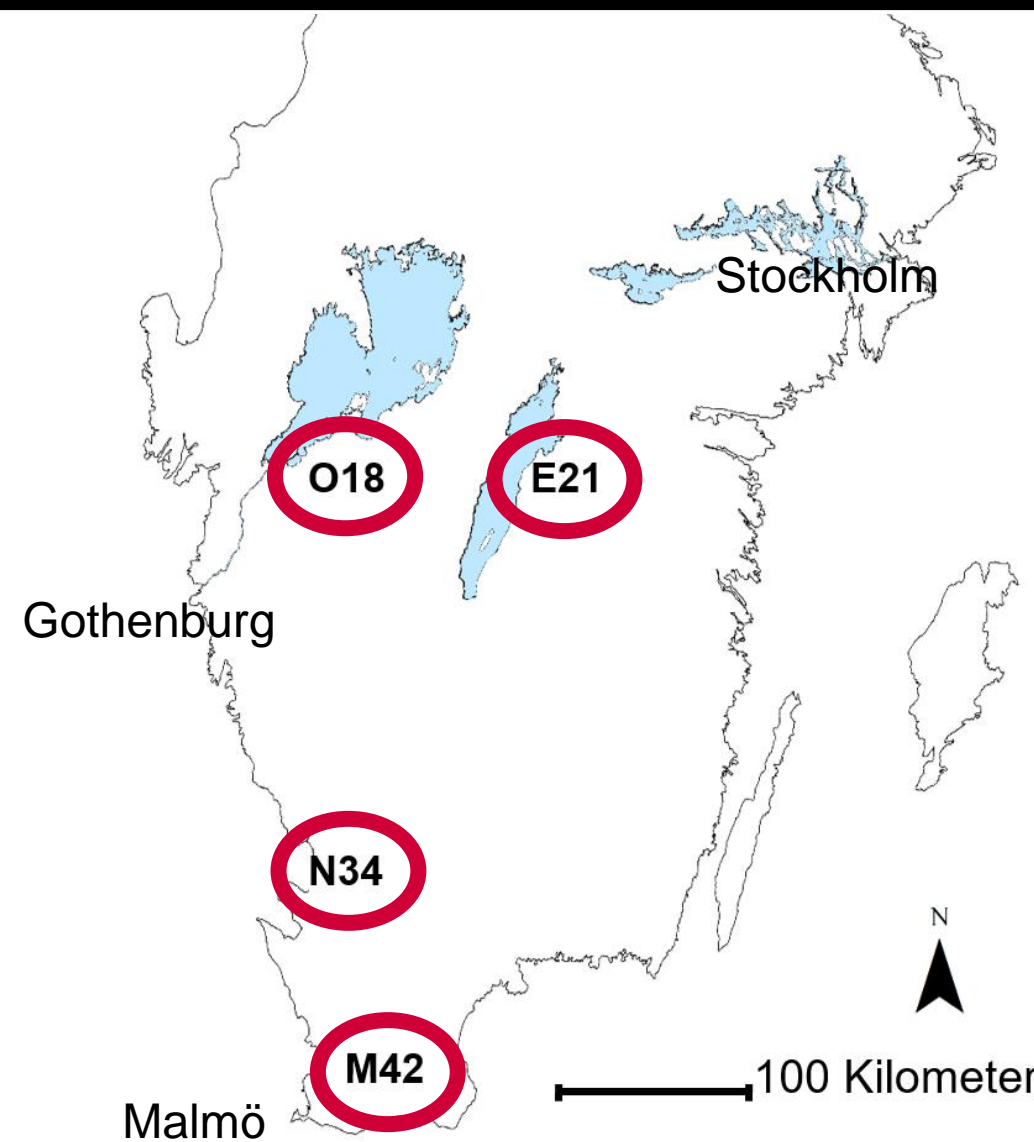
- Most plant protection products measured in Swedish surface waters rarely exceed PNEC values
- A few substances regularly exceed PNEC and can be seen as problematic, i.e. diflufenican
- Most problematic substances have not got a renewed approval and concentrations are decreasing in surface waters, i.e. imidacloprid
- Some newly approved substances show up in surface waters and need to be followed closely

DATA INCLUDED PER YEAR

- ☐ >100 weekly samples (time integrated sampling, every 90th minute)
- ☐ Four monitoring sites
- ☐ May-October
- ☐ Analysed for 130 – 150 substances per sample

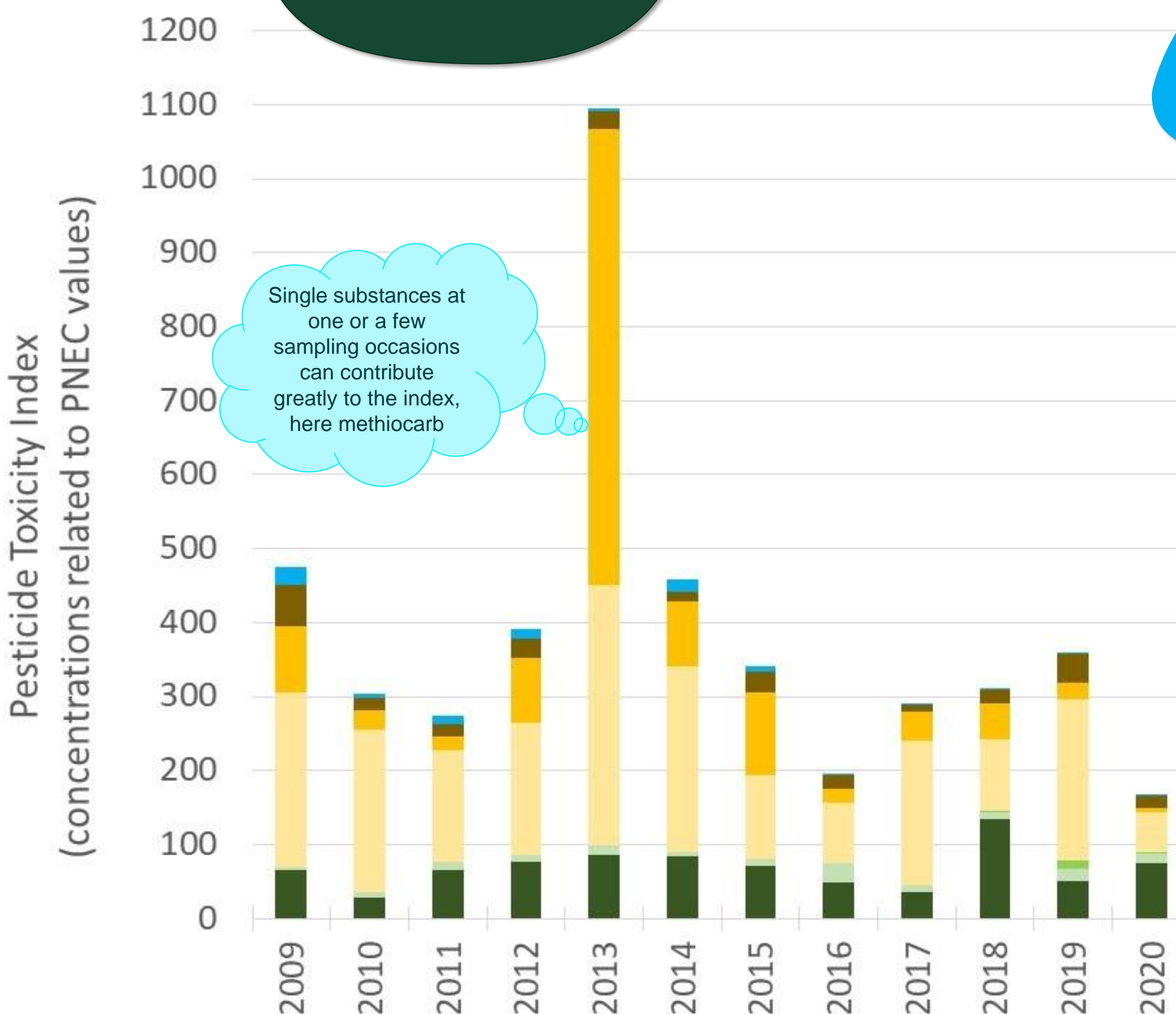
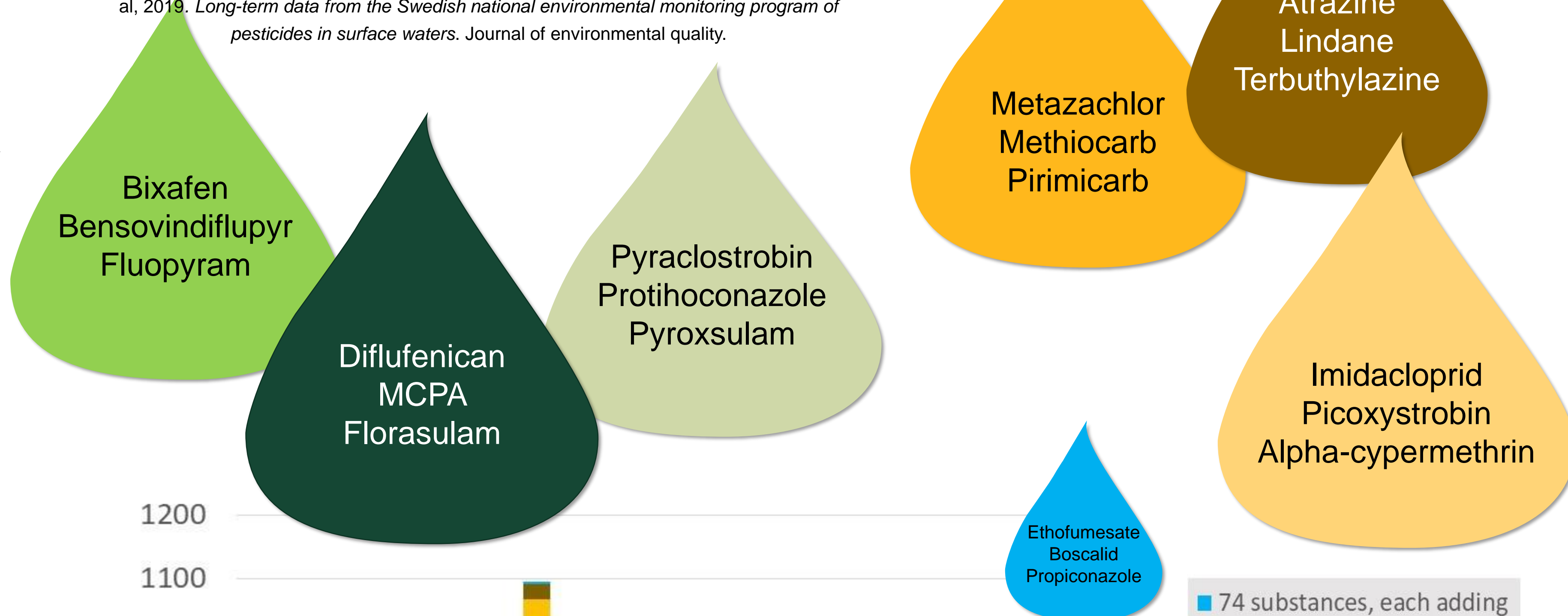
Each concentration (E_i) was divided with substance specific PNEC-values from the EU registration process ($PNEC_i$) and summarized per year for all analysed substances ($=n$), giving an annual pesticide toxicity index (PTI).

$$PTI = \sum_{i=1}^n \frac{E_i}{PNEC_i}$$



Four sampling sites of surface water

Map of southern Sweden showing the four intensively monitored agricultural catchments included in the national monitoring program of pesticides (and nutrients). Read more in Boye et al., 2019. Long-term data from the Swedish national environmental monitoring program of pesticides in surface waters. Journal of environmental quality.



- 74 substances, each adding <0.1% to total index, uncategorized
- Approval ended before 2009 (9 substances)
- Approval ended 2009-2015 (5 substances)
- Approval ended 2016-2021 (7 substances)
- Approved: after 2016 and still allowed (4 substances)
- Approved: between 2002-2015 and still allowed (8 substances)
- Approved: before 2002 and still allowed (20 substances)



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More info about the monitoring program:



CENTRE FOR PESTICIDES IN THE ENVIRONMENT