



3-6-2025



Pesticides in Dutch sources for drinkingwater supply (2018-2022)

Arnaut van Loon (KWR)

Inge van Driezum (KWR)

Sharon Clevers (KWR)

Tessa Pronk (KWR)

Mirja Baneke (Vewin)

Chemical pressures on sources of drinking water

EU Water Framework Directive:

- Water quality standards:
 - 0,1 µg/l individual pesticides
 - 0,5 µg/l sum pesticides
- No decline in water quality

KWR (2019)¹ en RIVM (2020)²:

- Pesticides exceed standards
 - All intake points of surface water
 - 40% of groundwater sources

Be patience

More effort



This presentation

- Overview of pesticides in drinking water sources across the Netherlands
- Discuss contribution to debate on pesticide policies
- Data analysis:
 - 2018-2022
 - 9 intake points, 63 vulnerable groundwater well fields
 - 455 compounds: approved, restricted, baned
 - Removal Requirement Index¹⁾: sum of exceedances

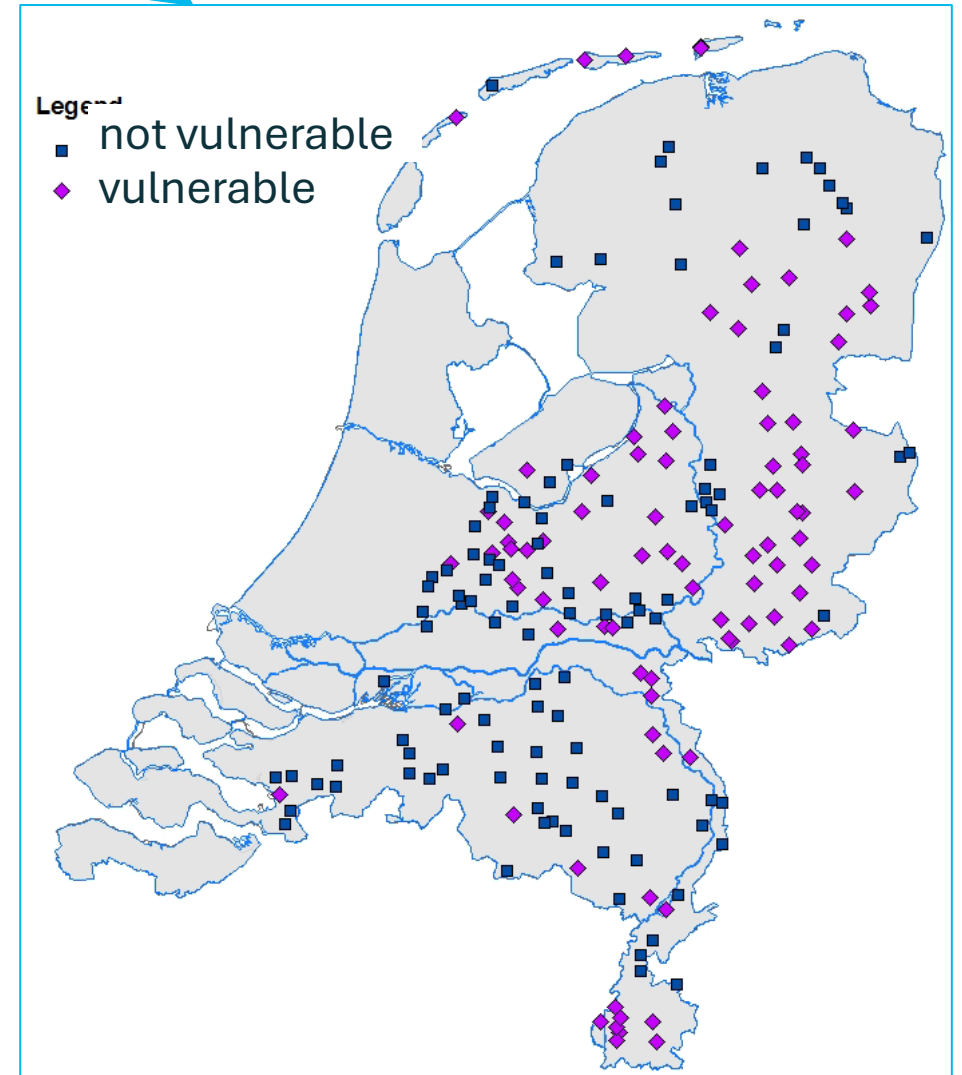
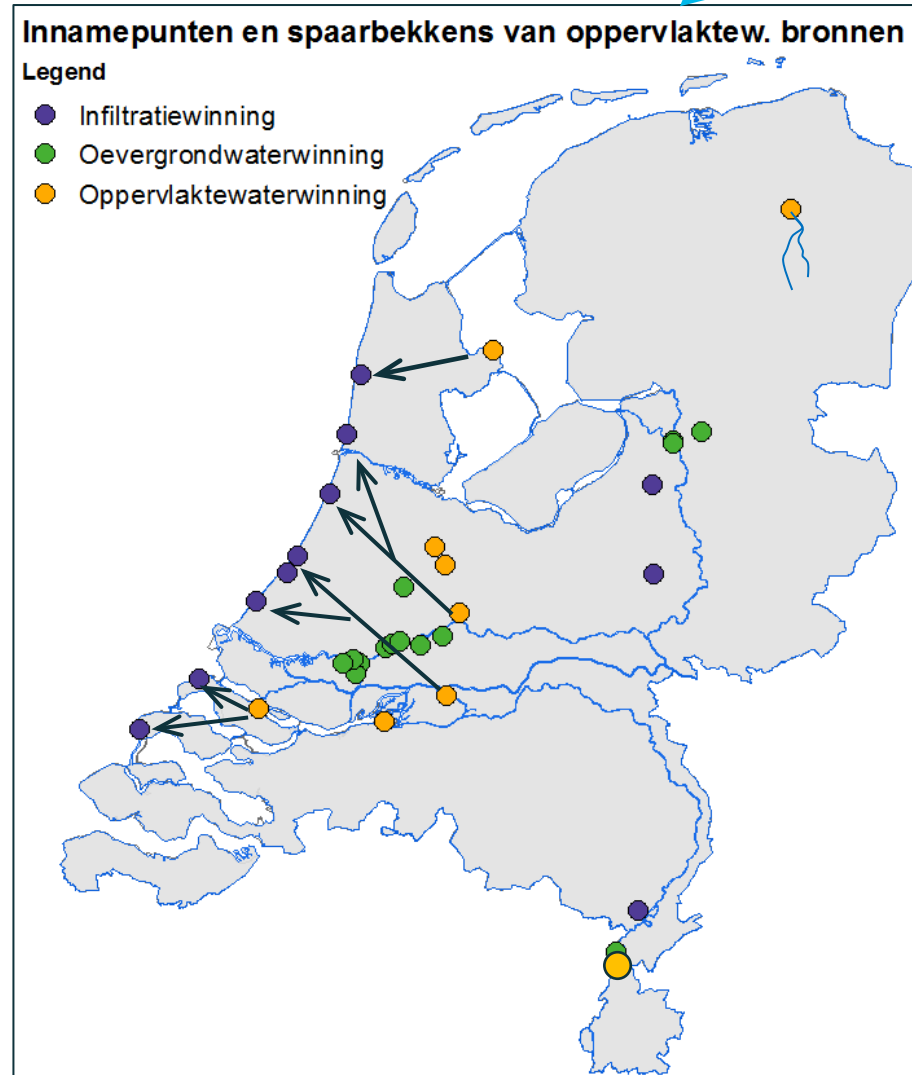
$$RR_i = 100 * \left(1 - \frac{C_{DWB,i}}{C_{MAX,i}}\right) \quad \text{if } C_{MAX,i} > C_{DWB,i} \quad (1)$$

$$WQI_{RR} = \sum_1^n RR_i \quad (2)$$

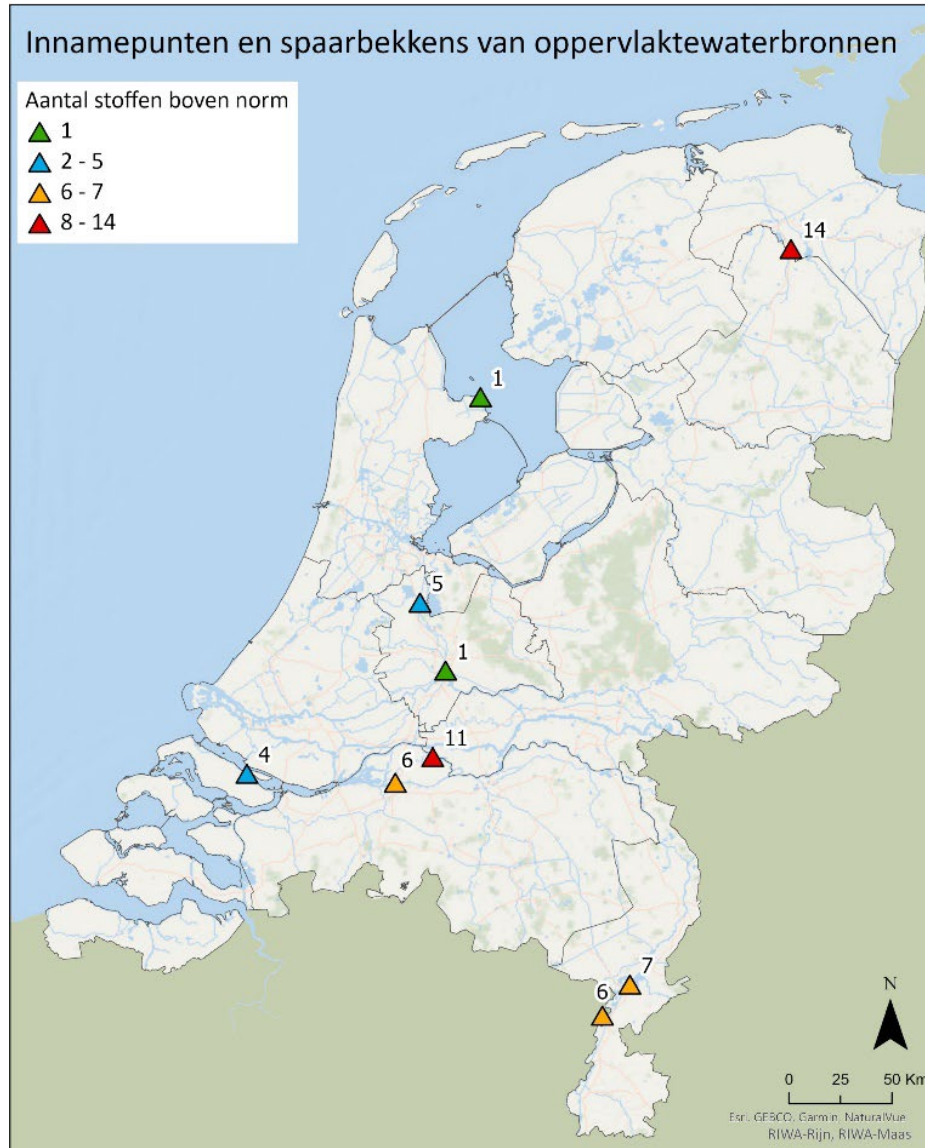
Drinking water production in The Netherlands

1.300 Mm³/j | 40% surface water | 60% groundwater¹

KWR | waterwijs



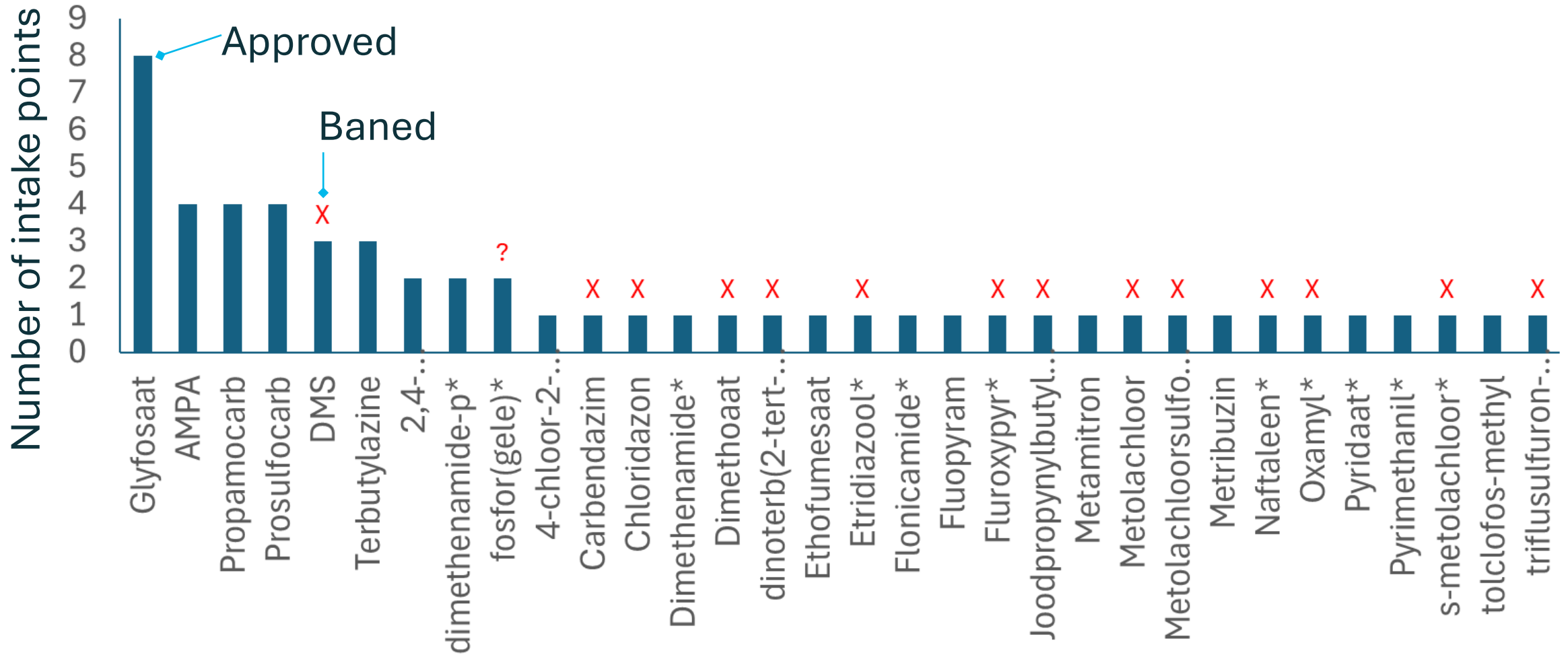
Intake points of surface water Pesticides and metabolites (2018-2022)



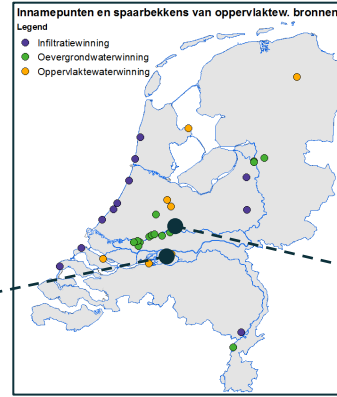
Standards exceeded at all intake points:

- Up to 27x water quality standard
- 32 different compounds

Prevalance pesticides exceeding WFD-standards at intake points

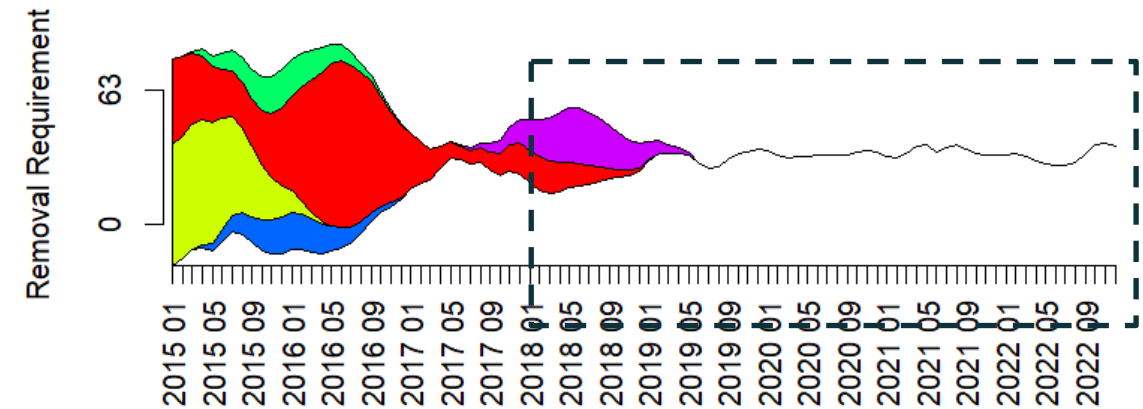
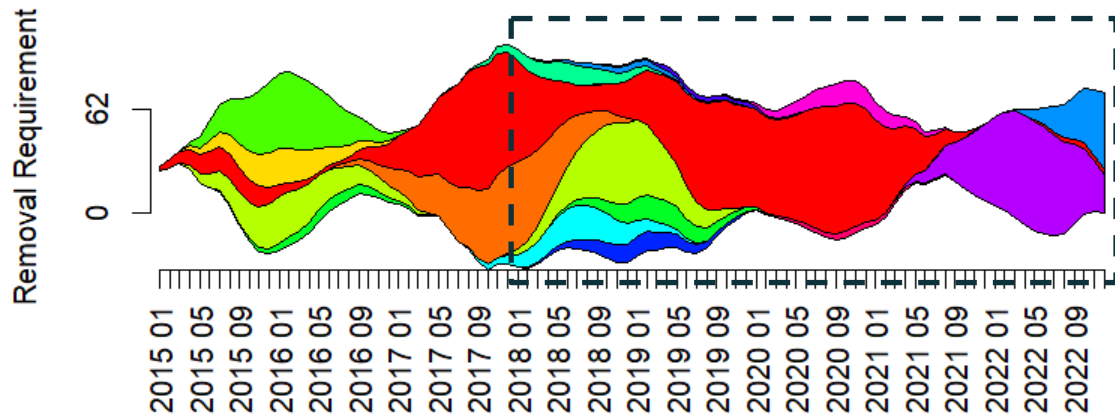


Trends at intake points according to the Removal Requirement Index



Meuse

Rhine



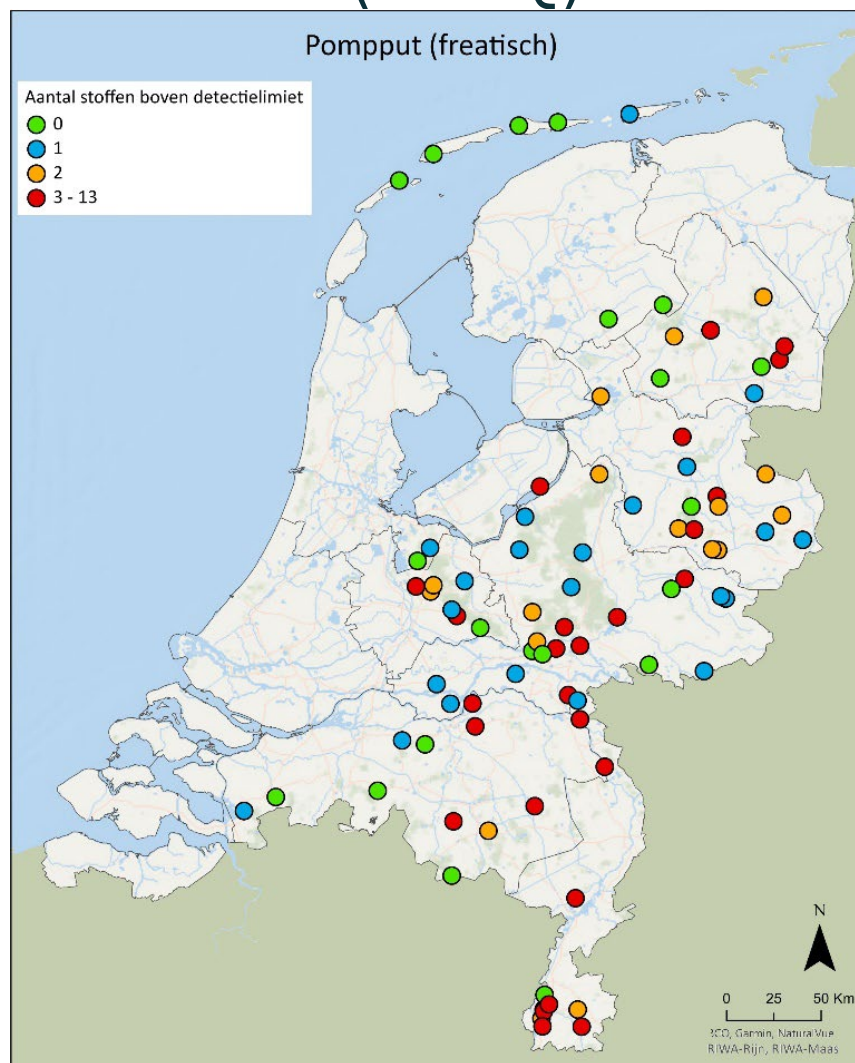
- aminomethylfosfonzuur
- etridiazool
- azadirachtin
- carbendazim
- dimethoaat
- glyfosaat
- triflusuifuron-methyl
- desethylterbutylazine
- fluopyram
- n,n-dimethylsulfamide.(dms)
- terbutylazine
- s-metolachloor
- flonicamide

- glyfosaat
- metolachloor
- bentazon
- n,n-dimethylsulfamide.(dms)
- desethylterbutylazine

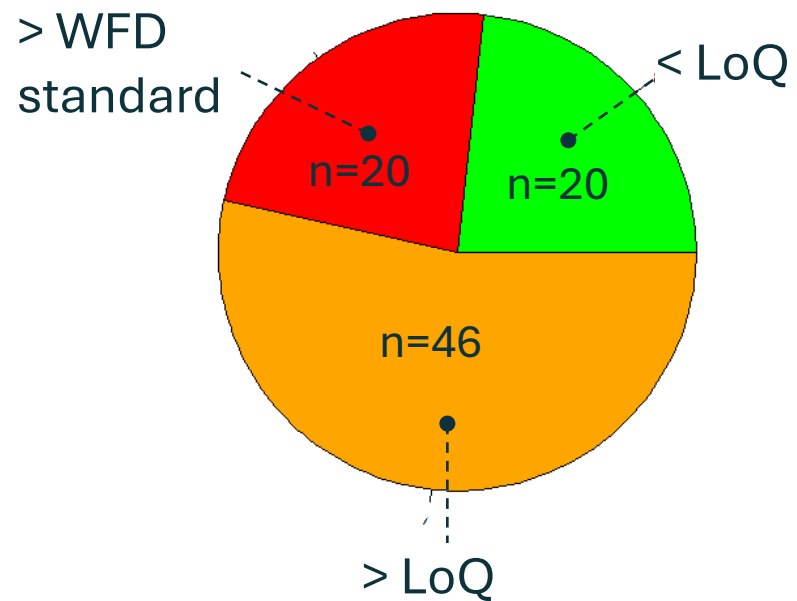
Pesticides in vulnerable groundwater sources

Individual wells, 2018-2022

Observed (> LoQ)

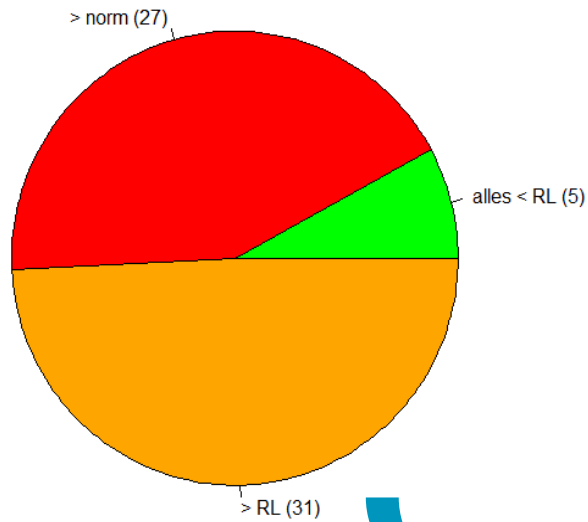


Number of well fields

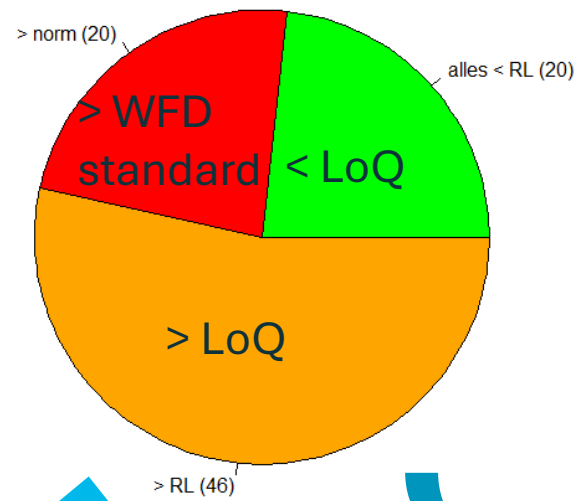


Pesticides in vulnerable groundwater sources

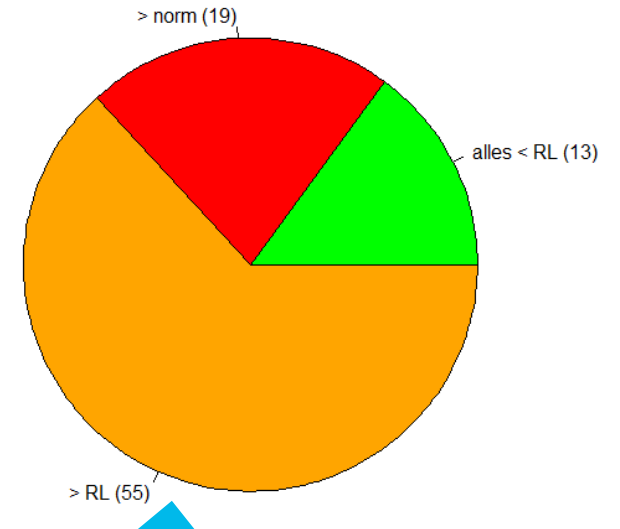
Observation wells



Abstraction wells



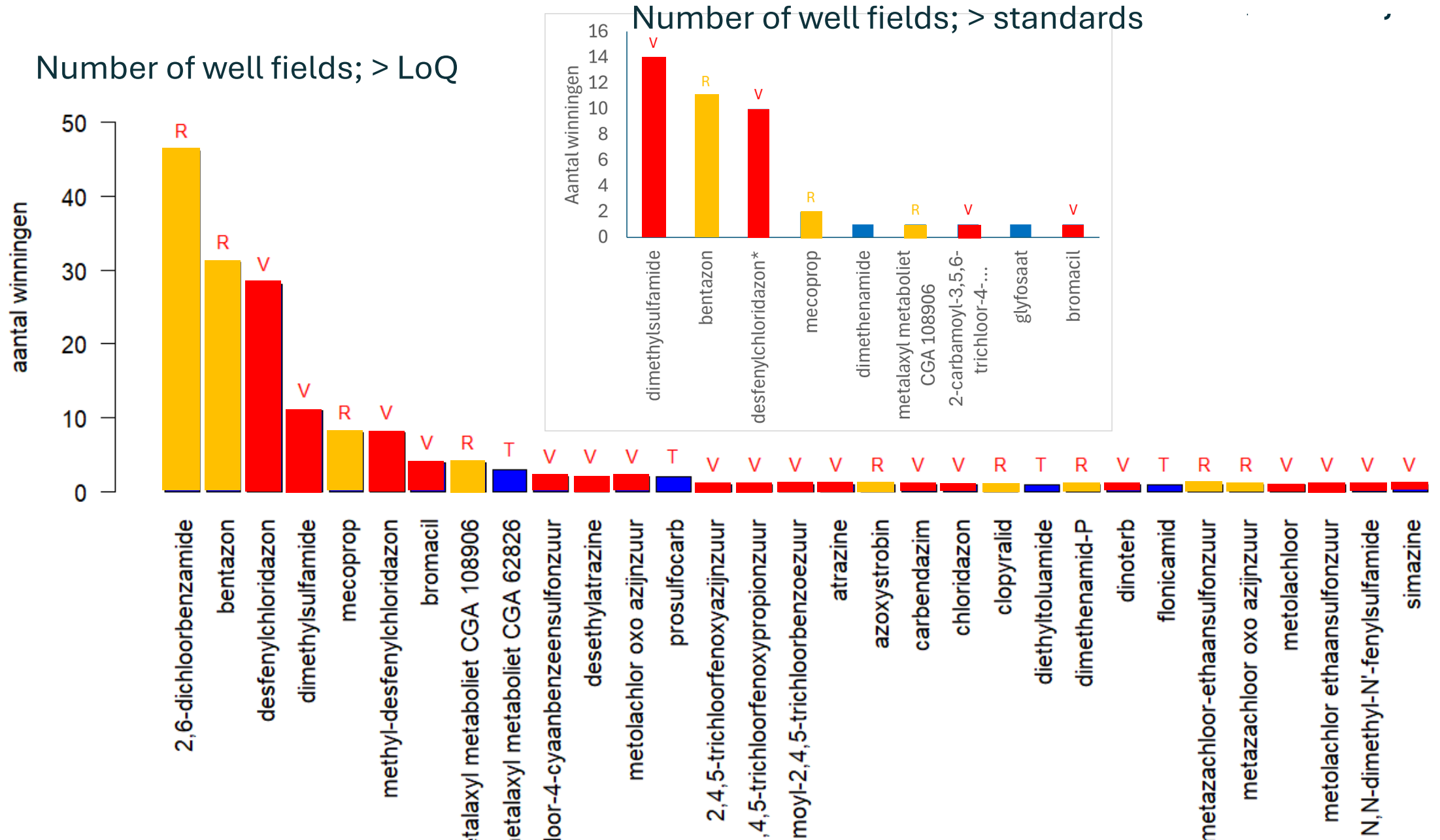
Mixed raw water



- Uncertain future

- Success of mixing is limited

Prevalence of pesticides in vulnerable groundwater sources



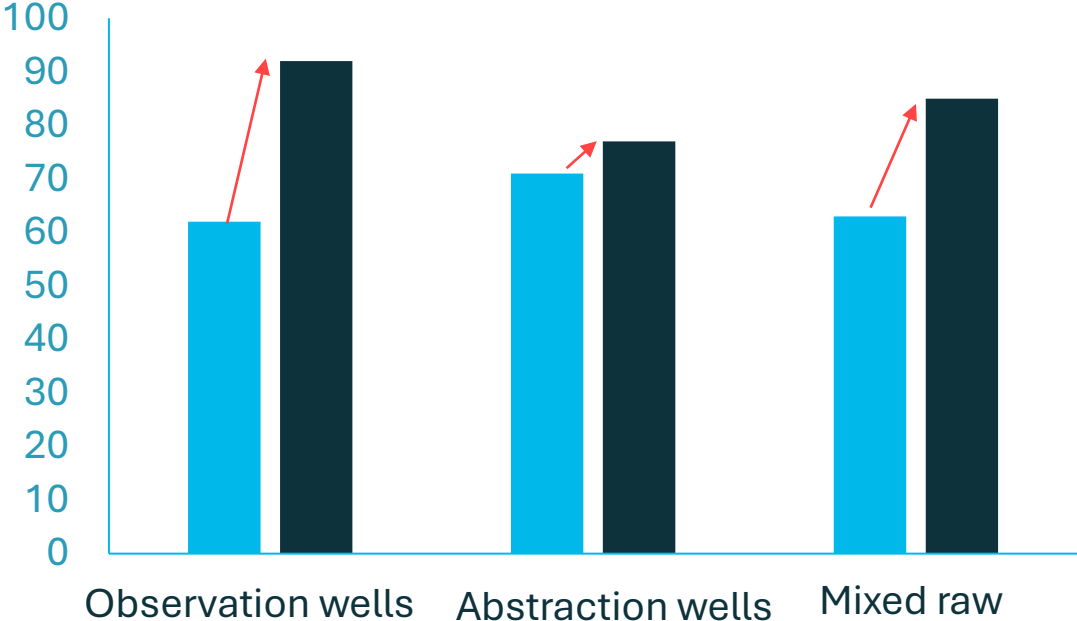
Trends in pesticides in vulnerable groundwater sources

2010-2014 versus 2018-2022

> LoQ

% well fields

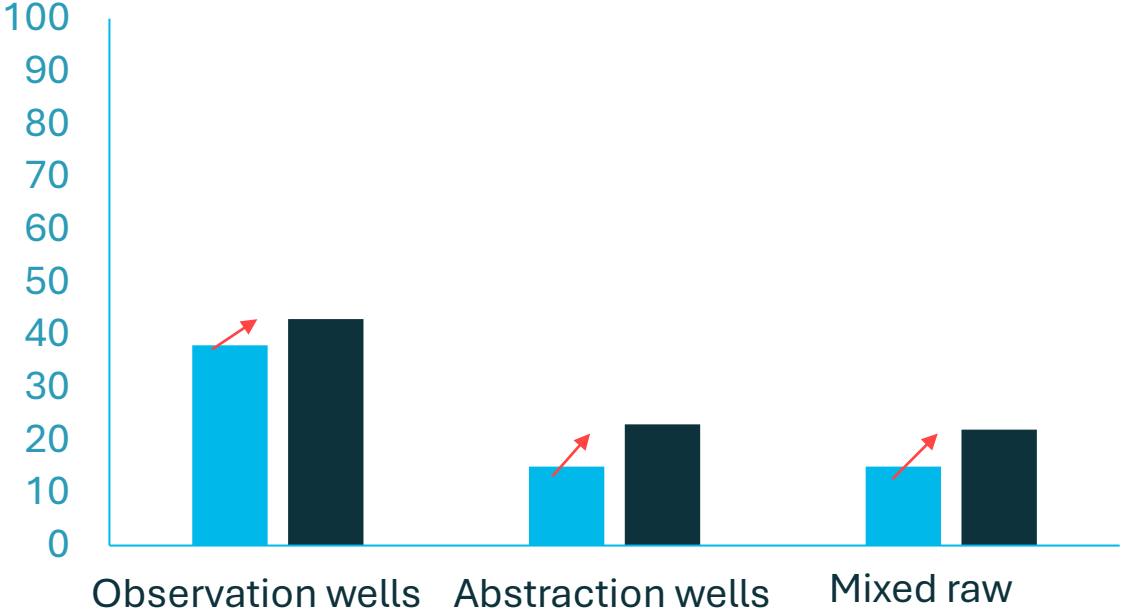
■ 2010-2014 ■ 2018-2022



> WFD standards

% well fields

■ 2010-2014 ■ 2018-2022



Contribution to debate on pesticide policies

- Pesticides continue to exert a major pressure on drinking water sources in The Netherlands
- Overview contributes to rising awareness among stakeholders
- Next step in debate on
 - Authorisation
 - Enforcement
 - Regional spatial planning
- No proof on policy-related causes:
 - Need to consider all strategies
 - Political choice how to distribute costs, benefits and risks among stakeholders

KWR | **waterwijs**

Groningehaven 7
3433 PE Nieuwegein
The Netherlands

T +31 (0)30 60 69 511

E info@kwrwater.nl

I www.kwrwater.nl



@KWR_Water



KWR



KWR_Water



Arnaut van Loon

Arnaut.van.Loon@kwrwater.nl
06 52826050

