

Where were we in July 1997?

- **95th percentile drift into 30 cm deep, one dimensional water body (no runoff or drainage)**
- **No flowing waters**
- **No regionalisation (conceptually N Eu scenario)**
- **Simplistic, back of the envelope calculations (no modelling)**
- **No agreement on:**
 - **Multiple applications**
 - **Time-weighted average approaches**
 - **Sediment PECs**
- **No higher-tier approaches – simplistic risk management approaches (buffer zones)**

Development of Steps 1 and 2

- **Step 1 and 2 conservative - designed to identify compounds with large safety margins**
- **Includes spray drift plus a 'calibrated' estimate of a combined 'runoff/drainage' input (Step 1 fixed; Step 2 season/location specific)**
- **Visual basic software**
- **Outputs: initial PEC and time-weighted averages water and sediment**
- **Scenarios developed using combination of existing precedent and 'expert judgement'.**
- **Sanity check on assumptions conducted by comparing to step 3 values**



Step 1

- **Water body - static water 30 cm deep, 5 cm sediment (bd 0.8 g/cm³, 5% OC)**
- **Application:**
 - maximum annual application rate, unless DT50 is < 1/3rd application interval when single application is used
- **Loadings:**
 - 3.4-34% spray drift by crop (90th %iles) plus 10% drainage/runoff ('expert judgement') = total of 13-44% possible input
- **Dissipation:**
 - Degradation in water-sediment to calculate TWA PECs.
 - Adsorption occurs on 'day 2' (i.e. initial PEC does not account for adsorption)

Step 2 - same as Step 1 except

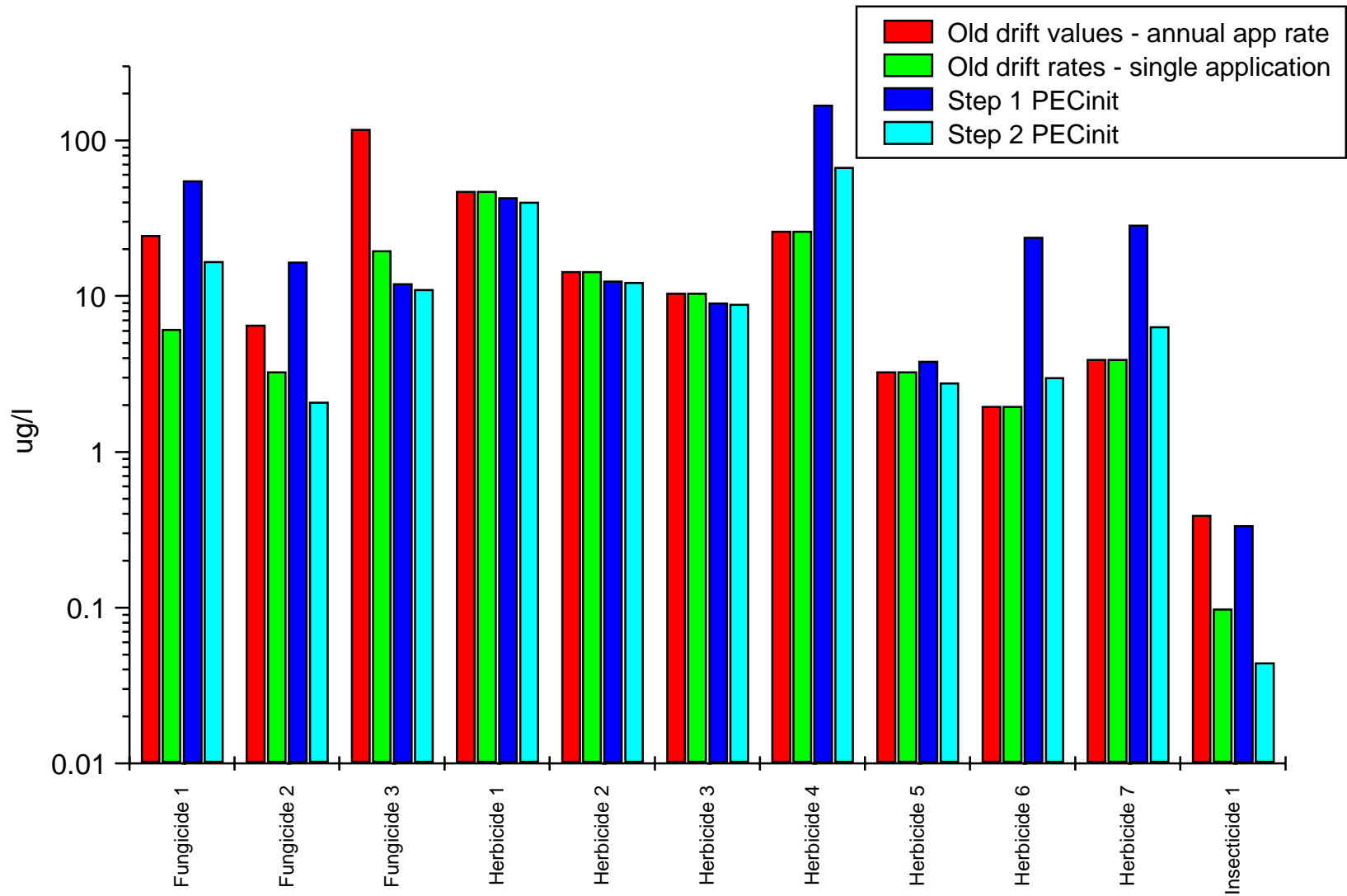
- Applications are treated individually with labelled intervals between treatments
- Inputs determined by region and season (N, S, A/W, Sp, Su)
- Each application has a separate drift component which enters on day of treatment - combined probability of 90%(i.e. for multiple apps, individual drift events are <90%)
- Crop interception included (0-75% depending on growth stage)
- Each application subject to soil degradation, then 4 days after last application residue is lost from soil via runoff or drainage (depending on location/season of use - from look-up tables: (1-4%))

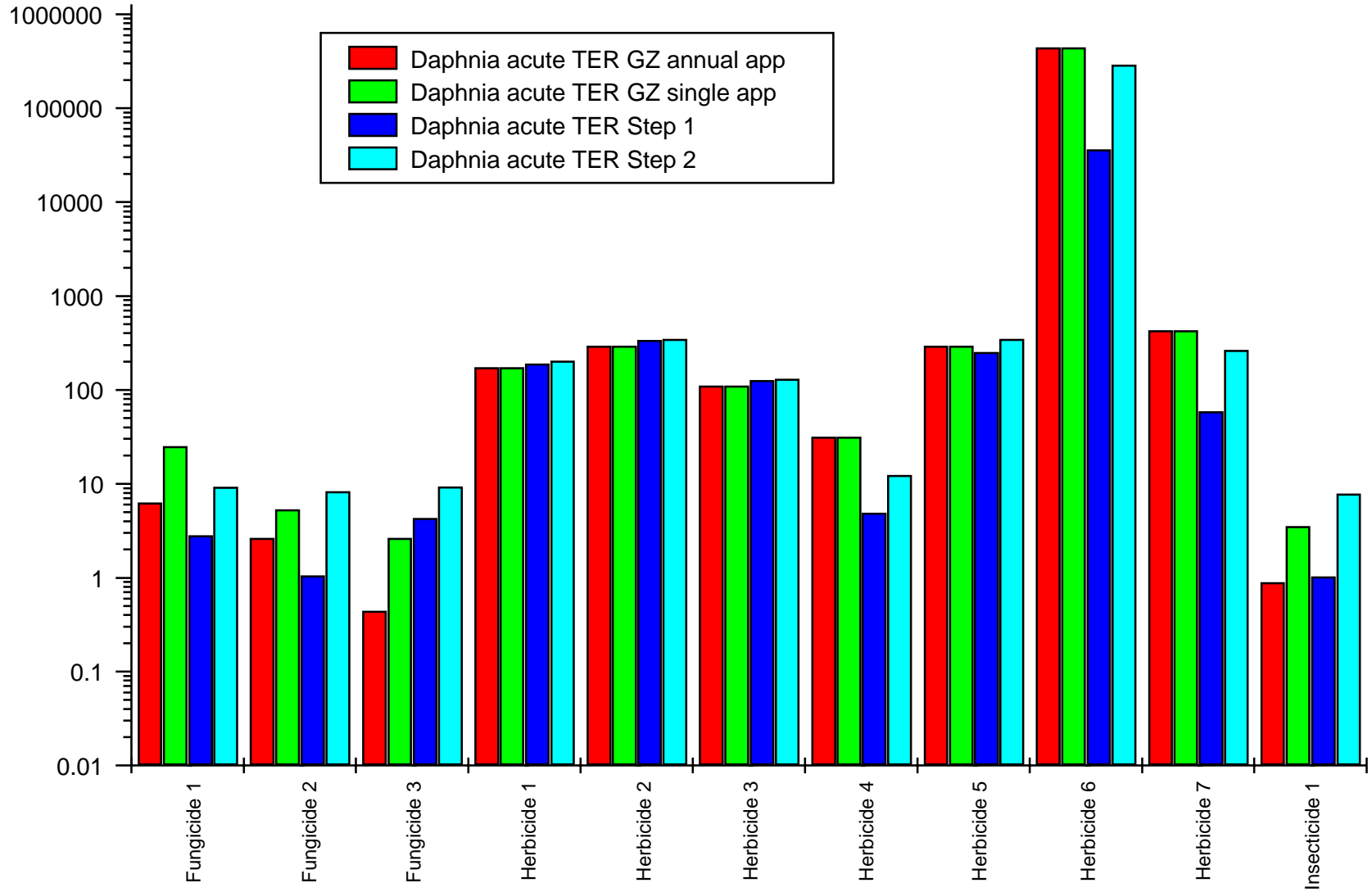
Demo of Steps 1_2 in Focus

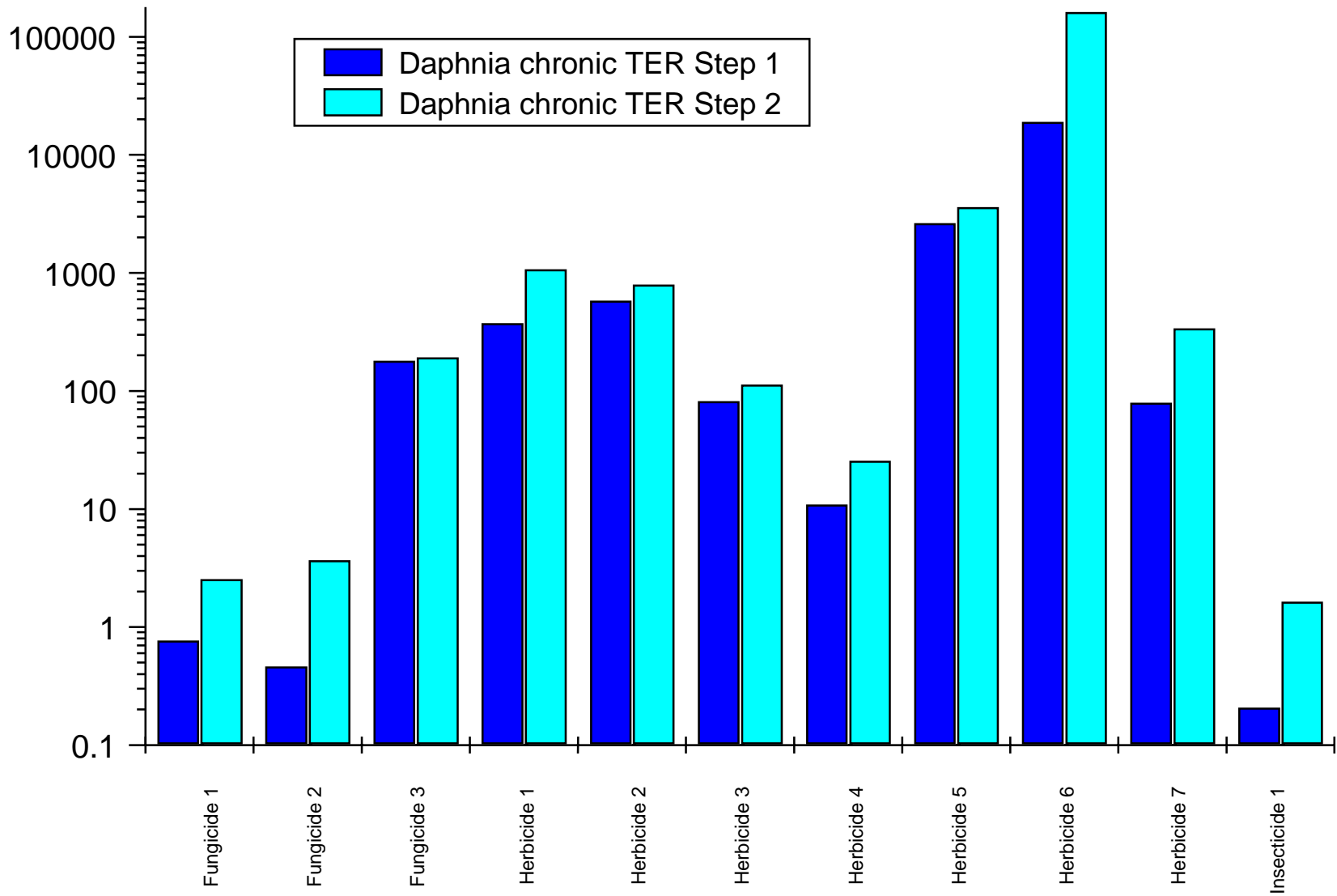
Step 1 and 2 - example uses

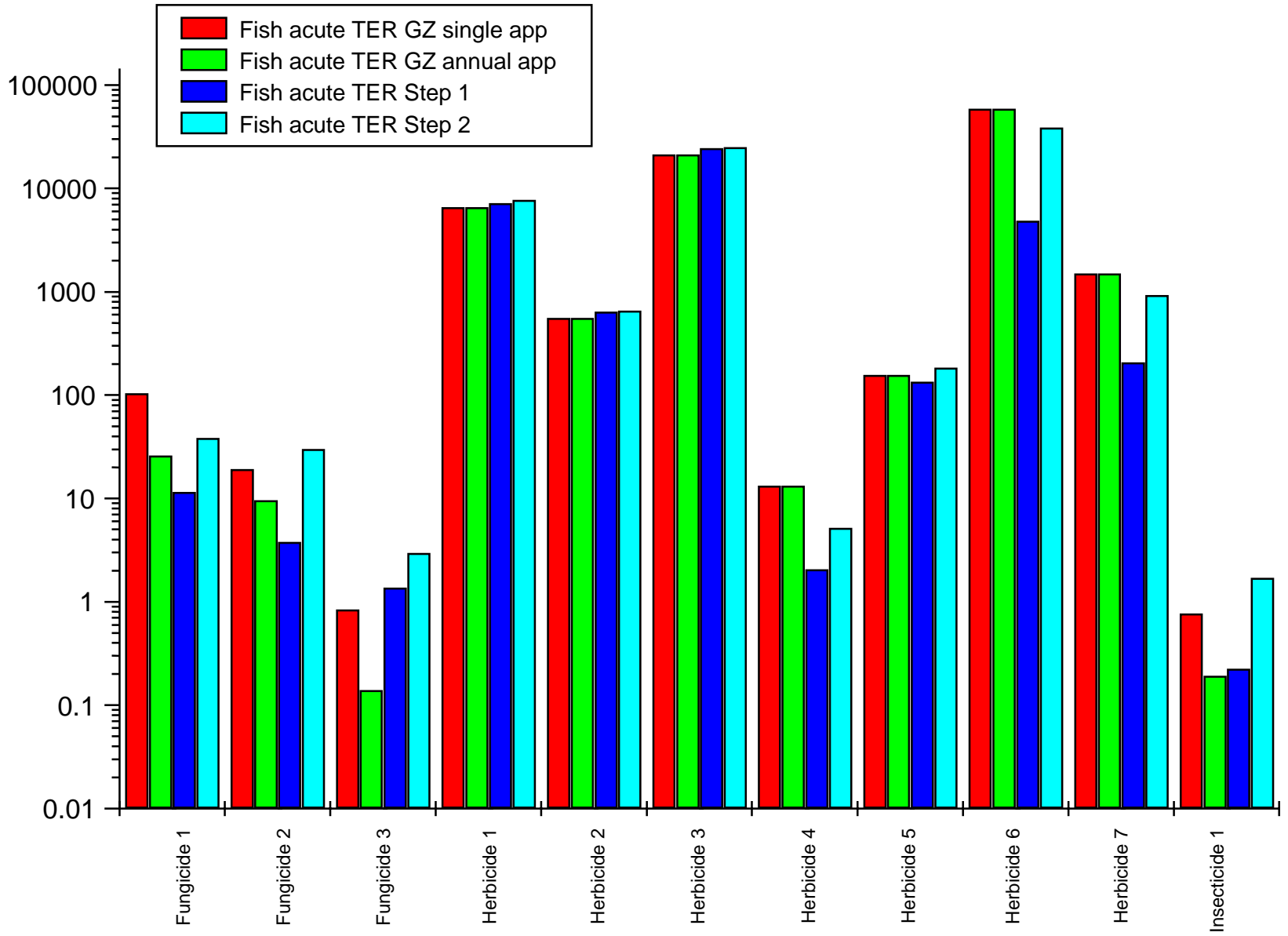
	App rate (g/ha)	No apps	Crop	Koc	DT50
Fungicide 1	250	4	Vines		
Fungicide 2	250	2	Cereals		
Fungicide 3	1500	6	Arable		
Herbicide 1	3600	1	Arable		
Herbicide 2	1100	1	Arable		
Herbicide 3	800	1	Arable		
Herbicide 4	2000	1	Maize		
Herbicide 5	250	1	Arable		
Herbicide 6	150	1	Maize		
Herbicide 7	300	1	Cereals		
Insecticide 1	7.5	4	Cereals		

Comparison of Current and FOCUS PECs

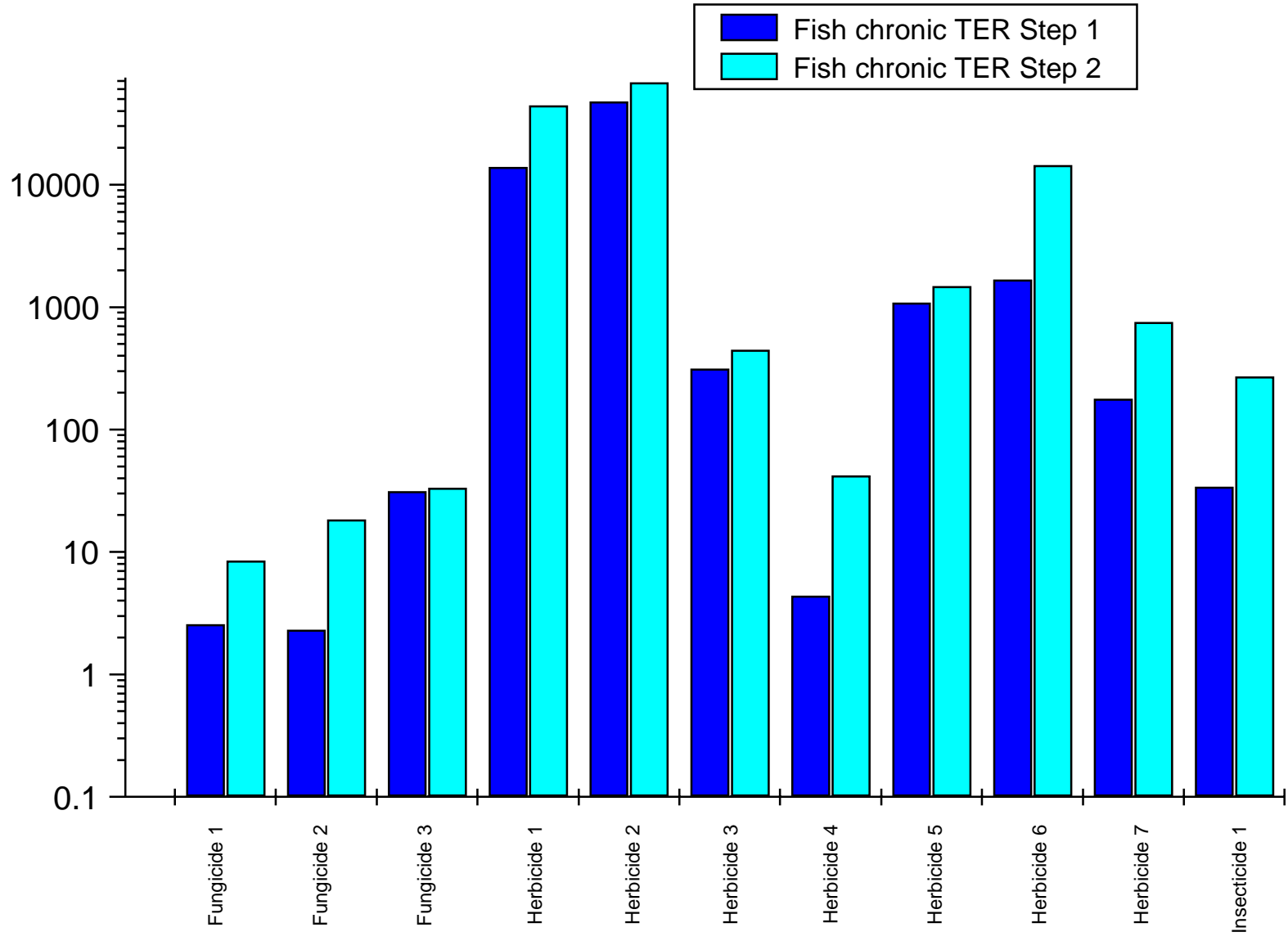


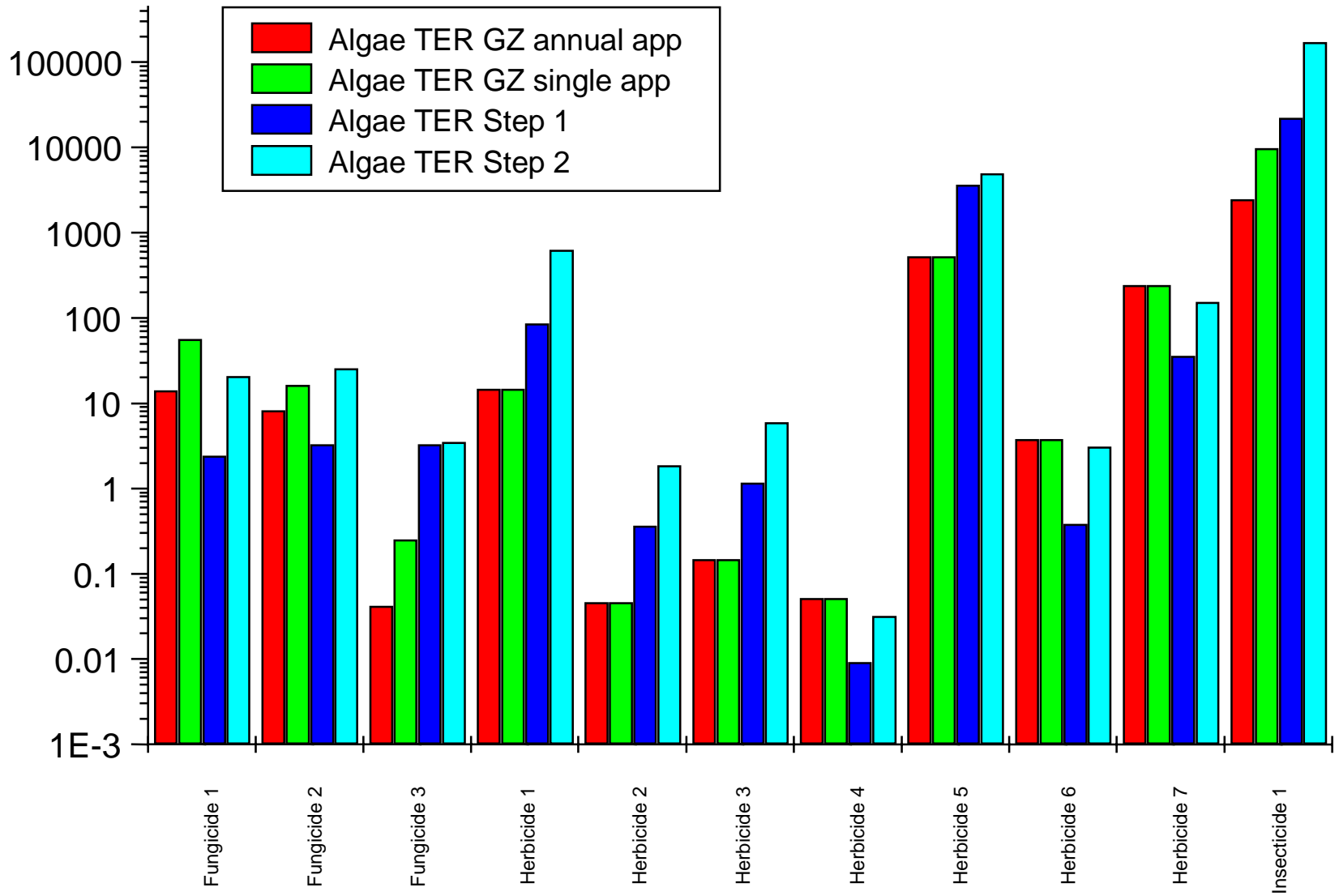






FOCUS Surface Waters





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- **Agreed, sensible and conservative approaches to:**
 - **Multiple applications**
 - **Sediment PEC**
 - **Time-weighted average approach**
 - **‘Regionalisation’ and ‘seasonalisation’ at Step 2**
 - **Runoff and drainage included**
- **Reasonable amount of flexibility for inputs at Step 2**
- **Step 1 probably redundant (political)**
- **New tool enables early and systematic identification of problem areas**
- **Robust and easy to use tool developed and available via JRC web site**

Comparison of Step 1, 2 and 3

- **Purpose: to cross-calibrate the scenarios**
- **Nine ‘dummy’ compounds selected to explore range of pesticide properties:**
 - **DT50 3, 30 and 300 days**
 - **Koc 10, 100, 1000**
- **Outputs from models (currently assuming 5 fold dilution factor at Step 3 – to be adjusted)**
- **Work in progress**

Northern Europe - Summer

Peak Concentration in surface water

1E-10 1E-09 1E-08 0.0000001 0.000001 0.00001 0.0001 0.001 0.01 0.1 1 10 100

Step

- ◆ Step 1
- Step 2
- ▲ Step 3 - D1
- ▲ Step 3 - D2
- ▲ Step 3 - D3
- ▲ Step 3 - D4
- ▲ Step 3 - D5
- Step 3 - R1
- + median

2

3

Full Screen

Close Full Screen