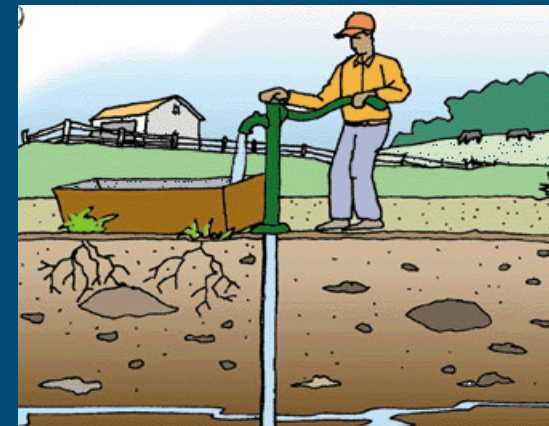# Scenarios
EU FOCUS scenarios in a tiered approach

Mechteld ter Horst,
(presented and slightly adapted for
PRRP-Ethiopia by Paulien Adriaanse)

Alterra, Wageningen University and
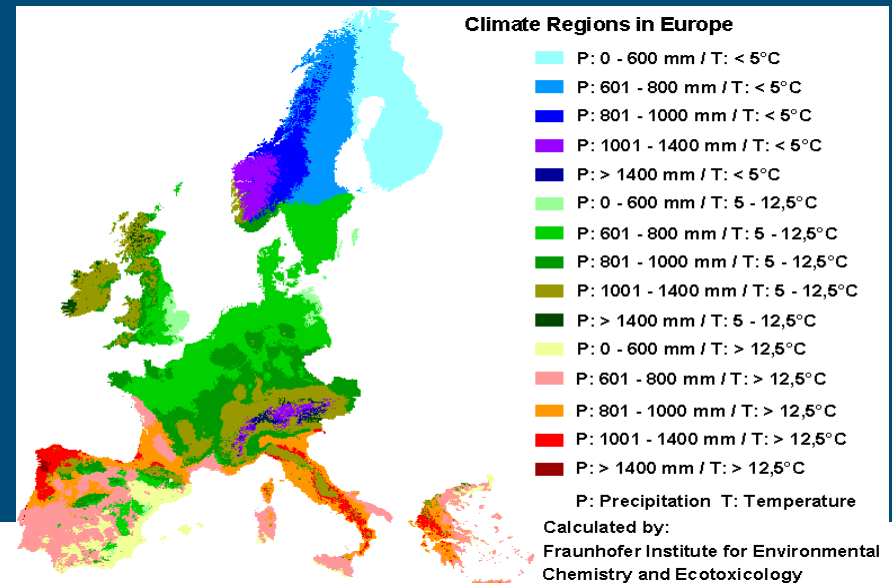Research Centre, the Netherlands

Outline of presentation

1. What is a scenario?

2. Relation model, scenario, input data

3. Why scenarios?

4. Tiered approach in EU

5. Concluding remarks

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1. What is a scenario?

FOCUS, EU → a set of fixed input parameters in a pesticide fate model

i.e. soil parameters, climate etc.

Climate Regions in Europe

- P: 0 - 600 mm / T: < 5°C
- P: 601 - 800 mm / T: < 5°C
- P: 801 - 1000 mm / T: < 5°C
- P: 1001 - 1400 mm / T: < 5°C
- P: > 1400 mm / T: < 5°C
- P: 0 - 600 mm / T: 5 - 12,5°C
- P: 601 - 800 mm / T: 5 - 12,5°C
- P: 801 - 1000 mm / T: 5 - 12,5°C
- P: 1001 - 1400 mm / T: 5 - 12,5°C
- P: > 1400 mm / T: 5 - 12,5°C
- P: 0 - 600 mm / T: > 12,5°C
- P: 601 - 800 mm / T: > 12,5°C
- P: 801 - 1000 mm / T: > 12,5°C
- P: 1001 - 1400 mm / T: > 12,5°C
- P: > 1400 mm / T: > 12,5°C

P: Precipitation T: Temperature
Calculated by:
Fraunhofer Institute for Environmental
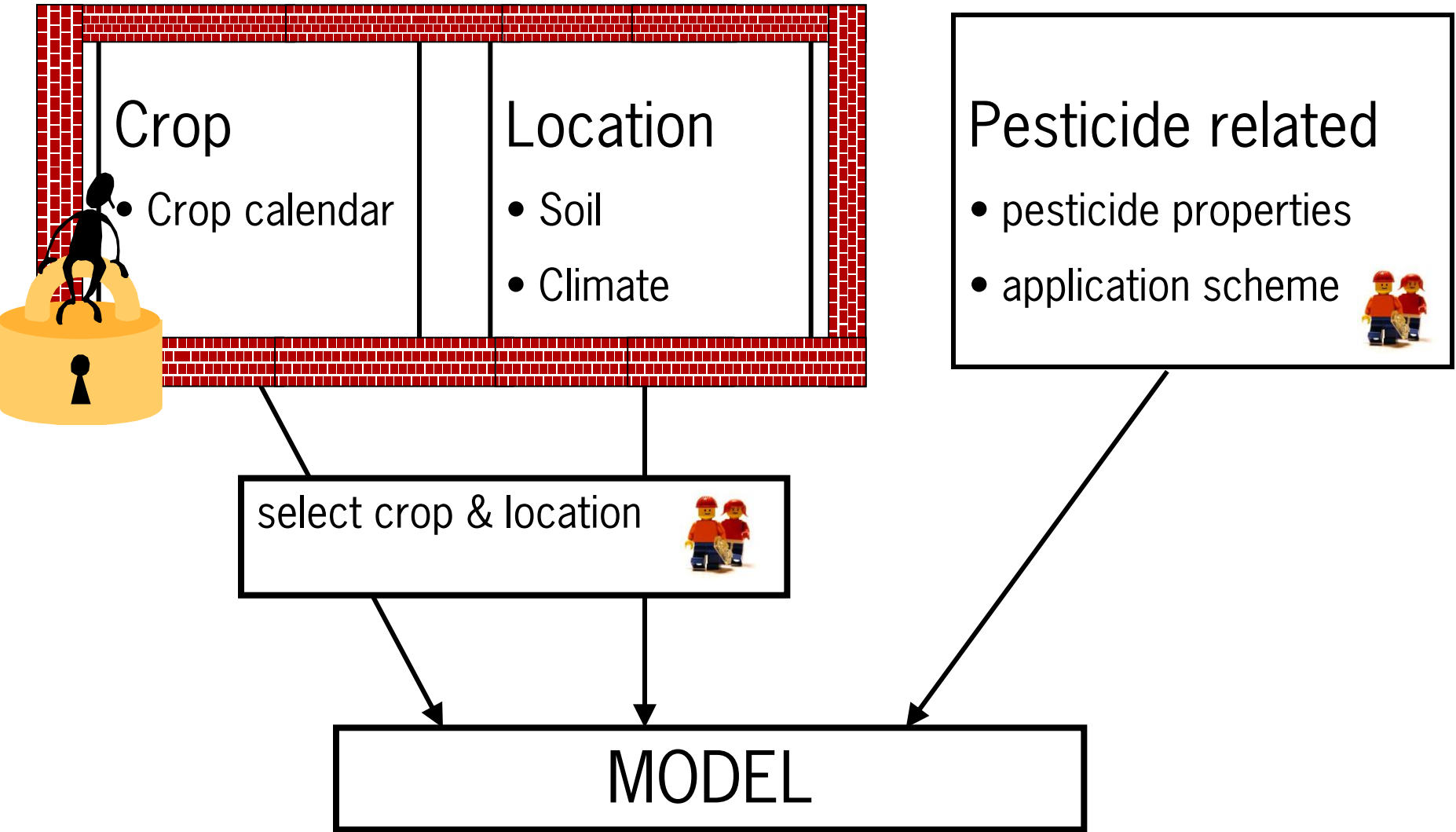Chemistry and Ecotoxicology

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1. What is a scenario?

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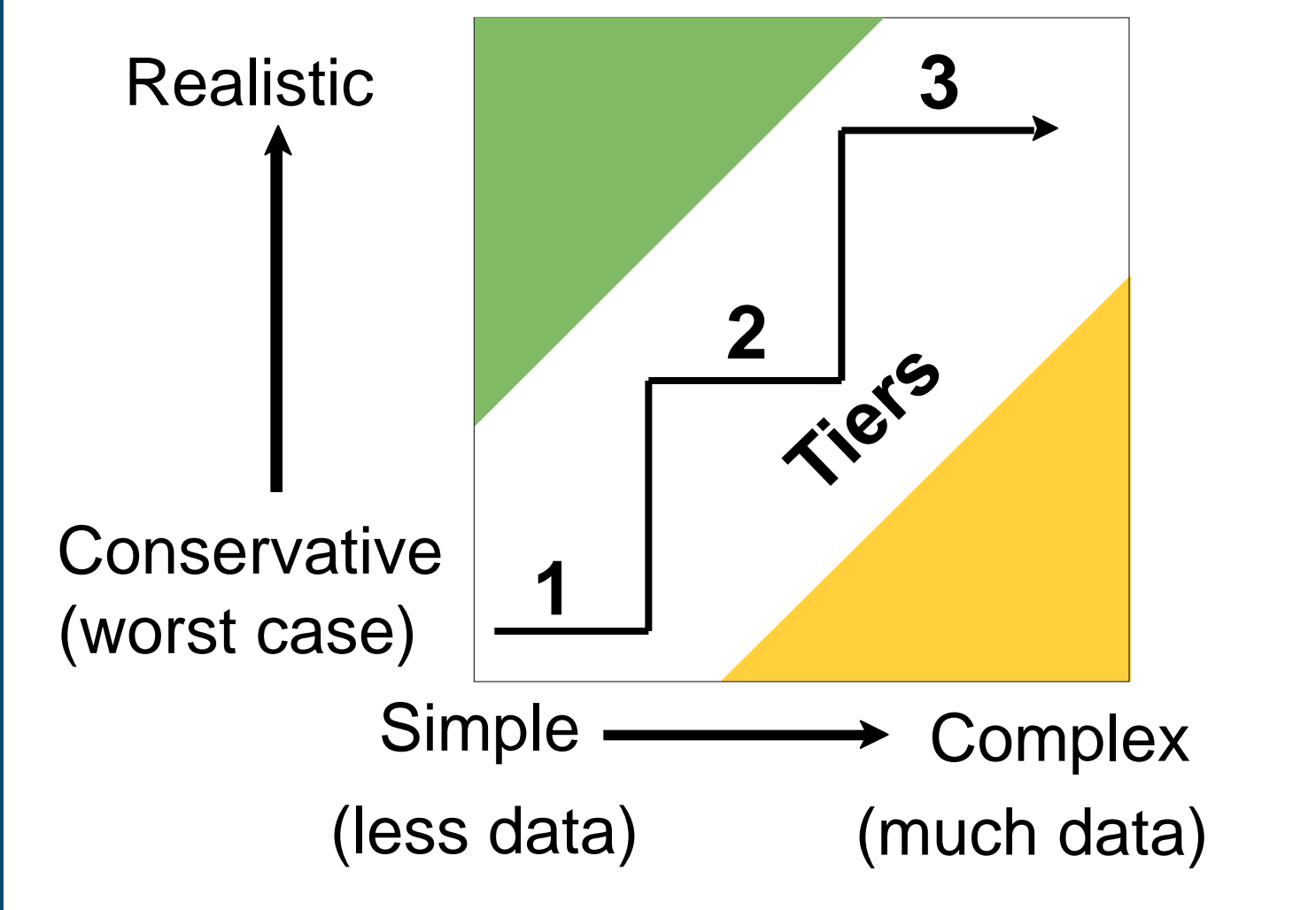4. Tiered approach in EU

5. Concluding remarks

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Scenario

Crop	Location
• Crop calendar	• Soil
	• Climate

Pesticide related

- pesticide properties
- application scheme

select crop & location

MODEL

Outline of presentation

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3. Why scenarios?

- Need for consistent and reproducible calculations
  - minimize influence of model operator

- Easier for regulators
  - complex models will become easy to use, because a large part of the input is fixed and already filled in

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Outline of presentation

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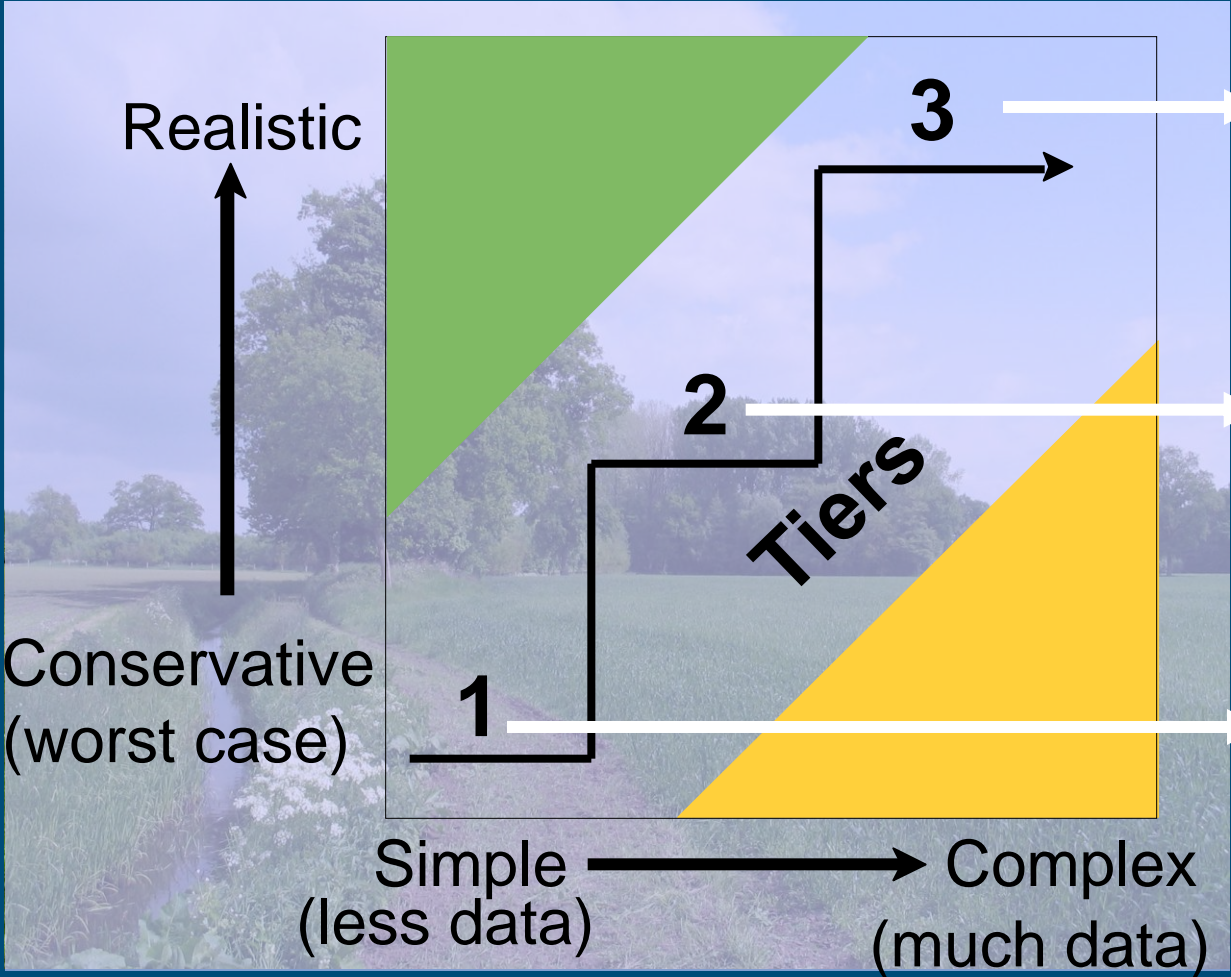4. Tiered approach in EU

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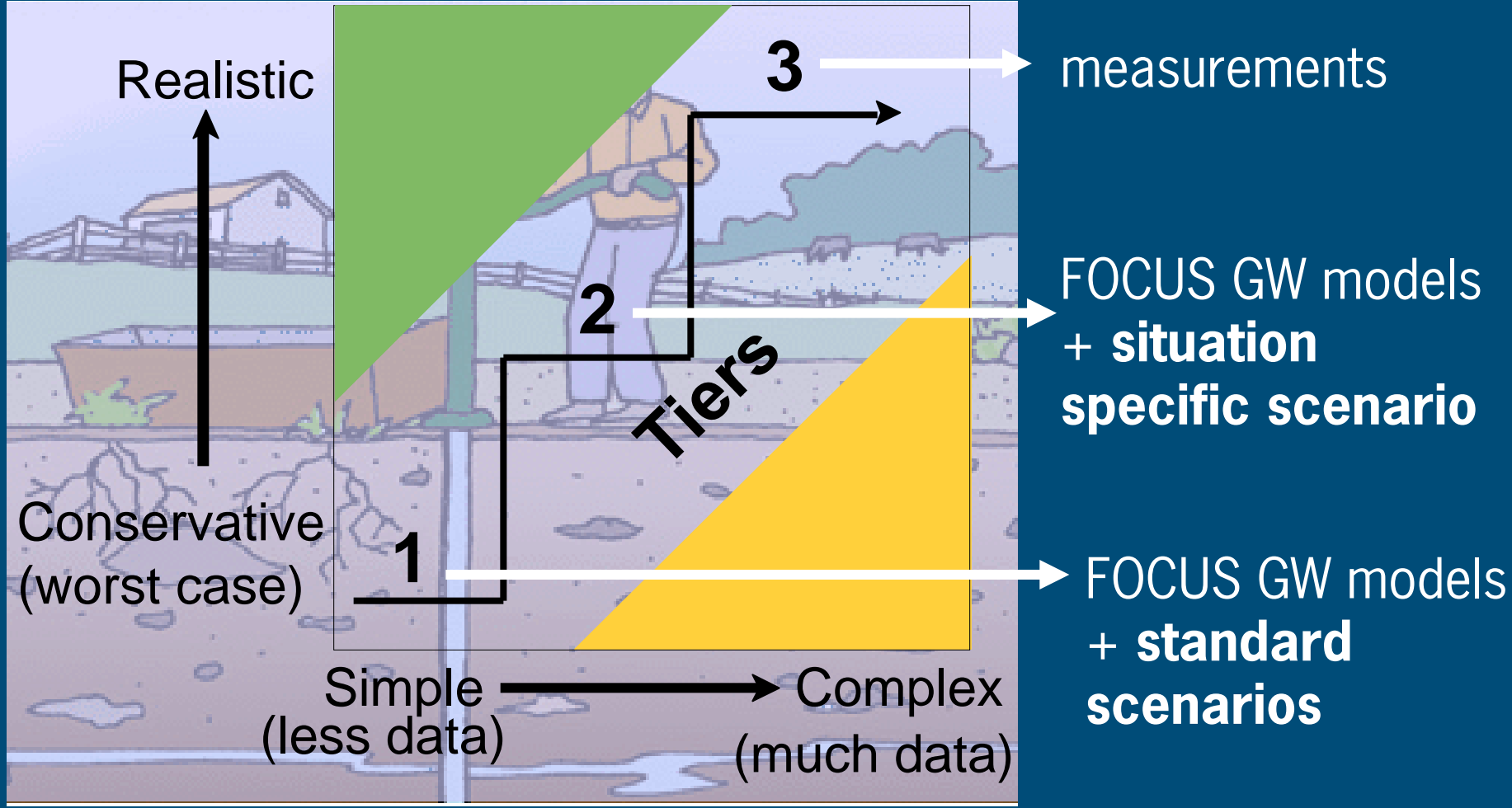
4. Tiered approach in EU: surface water

4. Tiered approach in EU: surface water

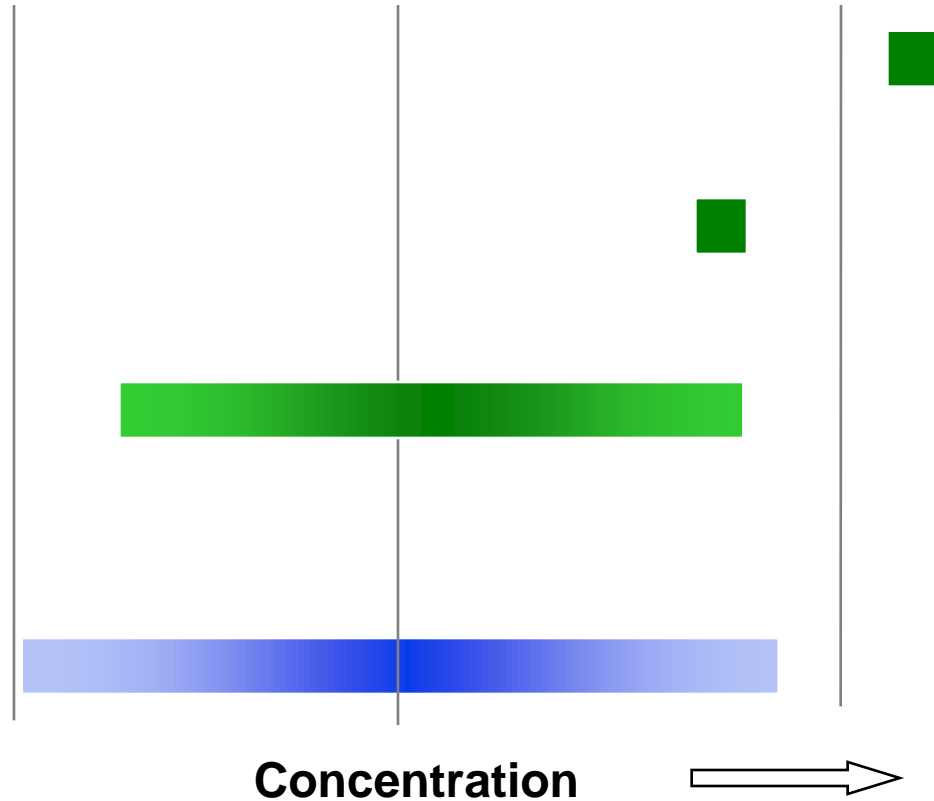## Conceptual relationship between Steps

Exposure Estimate

Step 1: *Initial estimate of aquatic exposure*

Step 2: *Refined estimate of aquatic exposure*

**Step 3:** *Deterministic estimate of aquatic exposure across a maximum range of ten scenarios*

Actual Range of Aquatic Exposure:

Concentration

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4. Tiered approach in EU: surface water

- STEP 1 FOCUS SW

- STEP 2 FOCUS SW

- STEP 3: EU surface water 'model train'
  Table spray drift deposition
  PRZM (runoff)
  MACRO (drainage)
  TOXSWA (surface water)

  calculations of PEC in a single
  watercourse next to an agricultural field

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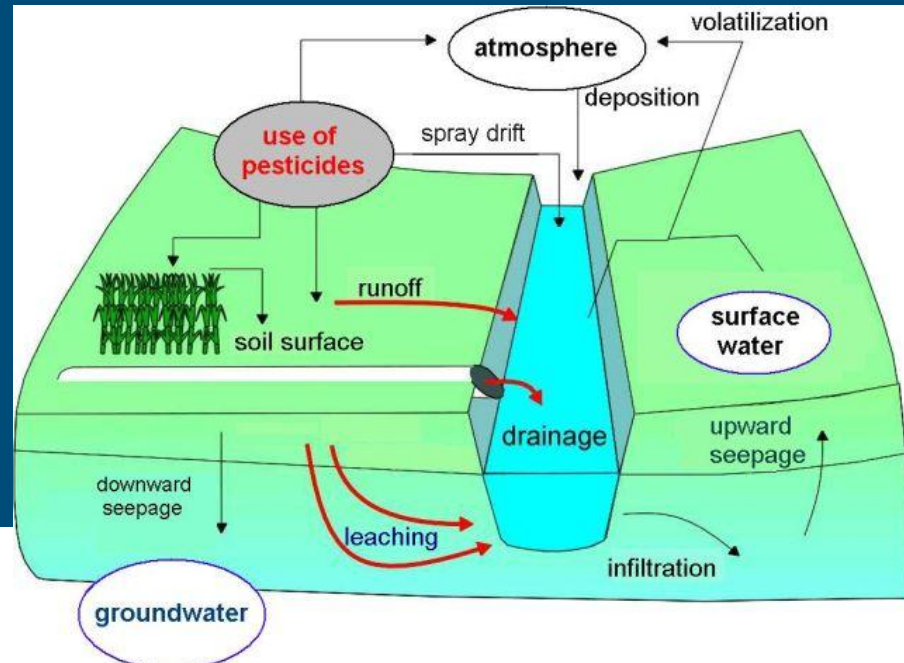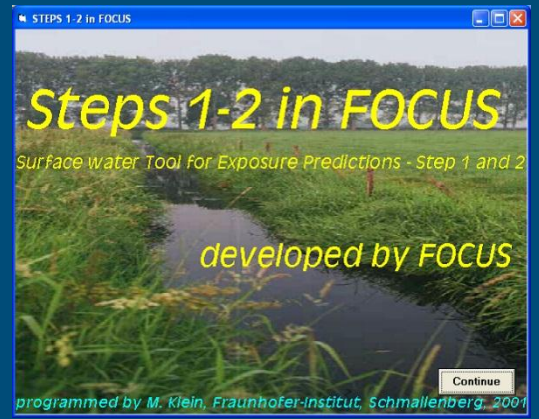
4. Tiered approach in EU: surface water

Step 1 scenarios	Step 2 scenarios	Step 3 scenarios	Step 4 scenarios
drainage + runoff = 10% of application rate	drainage + runoff = x % of application rate •Differentiation between north and south EU •Differentiation between spring, summer, autumn application	• Drainage calculated with MACRO •Runoff/erosion calculated with PRZM	•Drainage calculated with MACRO •Runoff/erosion calculated with PRZM • incl. mitigation measures (i.e. buffer strips)

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5. Concluding remarks

A scenario is a set of fixed input parameters in a pesticide fate model.

A scenario contains information on:
- Climate
- Soil
- Crop
- Topography (important for runoff)
- Agricultural management practices (i.e. irrigation, tillage etc)
- Surface water body (not for groundwater scenarios)

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5. Concluding remarks

- Possibility to use simple but conservative scenarios in lower tiers and more elaborated but less conservative scenario's in higher tiers.

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- Any questions ?

- A short break would be nice

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