

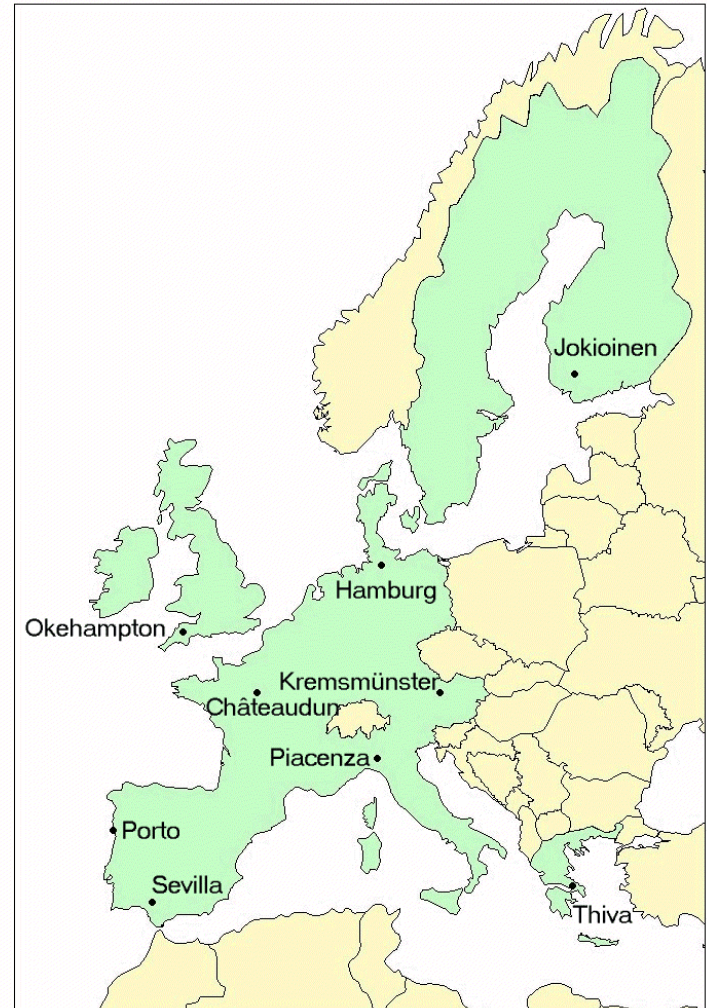
**Are different approaches
required for the prediction of
pesticide leaching to
groundwater on EU and on
national levels ?**

European FOCUS Groundwater Scenarios

Nine reasonable worst-case groundwater scenarios have been defined, which collectively represent agriculture in the EU.

Soil properties and weather data have been defined for all scenarios.

Crop information has also been defined for each scenario, including **five crops which can be grown across the whole EU, and **a further twenty which are particular to specific parts of the EU**.**

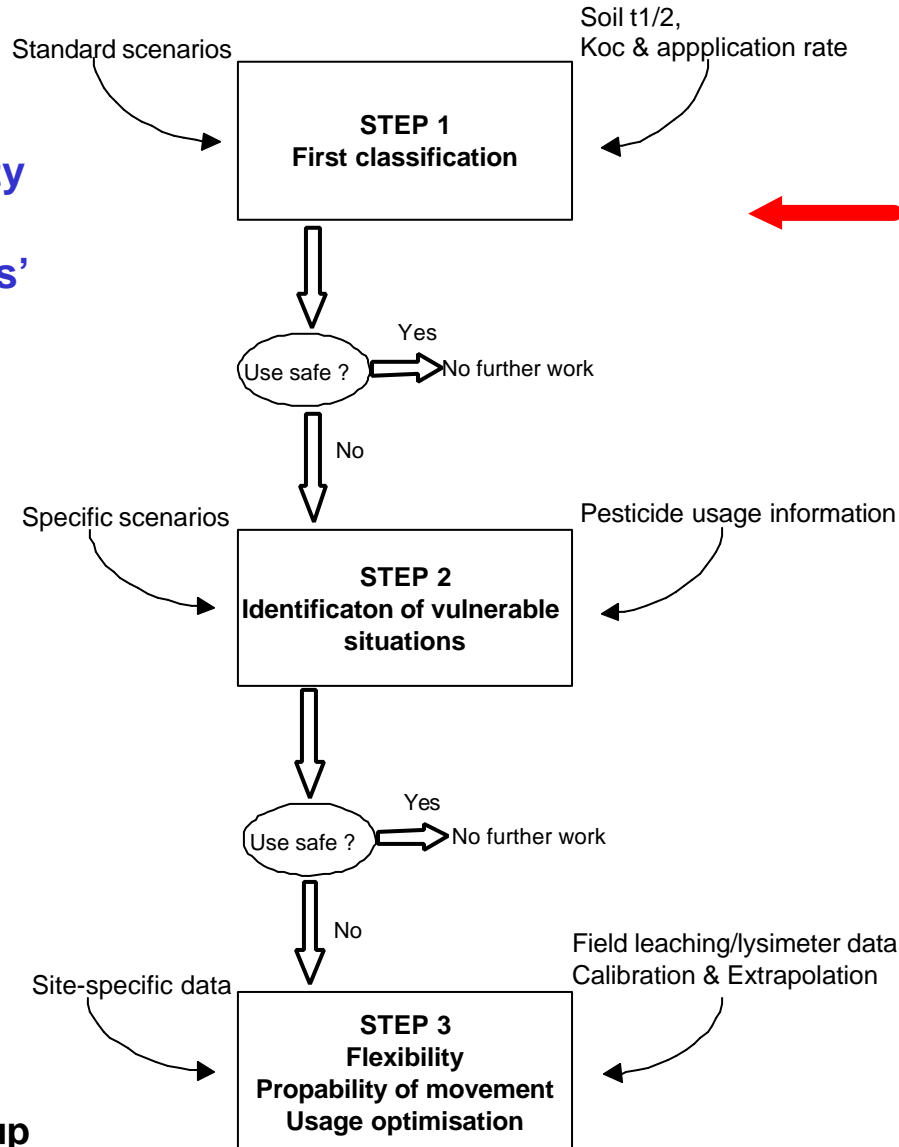


FOCUS (ground water)

Tiered approach for PECgw calculations according to FOCUS

BASF

Increasing complexity
and
'realistic assumptions'



FOCUSgw (2000)
stopped here

. . . The SCP also encourages the Commission to consider the wider implications of this (*FOCUS*) work . . ., such as:

- . . .,

- the development of relevant EU databases, how to extrapolate PEC's from 1m depth to a groundwater catchment area,

–EU co-ordinated approaches for National assessments of leaching potential

FOCUS: Forum for the co-ordination of pesticide fate models and their use

In which aspects national approaches may differ from the FOCUSgw approach?

- models
- parameterisation
- regulatory risk assessment
- climate, soils, cropping (scenarios) ?
- pp, loc

National specific and possible reasons for them

- National Models
 - *environmental processes are different on national compared to EU level (?)*
 - *FOCUS models were ,not invented here‘*
- Nat. model parameterisation
 - *FOCUS approach is different from historical ways of model parameterisation used in national registrations(!)*
- Nat. risk assessment
 - *FOCUS approach (using OECD definition) is not conservative enough for multiple-worst case assessment, which is politically wanted (!)*

personal preferences (pp), lack of confidence (loc)

Reasons for having some confidence in FOCUS model calculations

IVA project: Comparison of PELMO3.0 (Borstel Scenario) and FOCUS-PELMO (Hamburg Scenario) with Lysimeter Results

| Model (Scenario) | Evaluation | | | | |
|---------------------------------------|------------|----|-----|----|---|
| | XXX | ++ | +/- | 0 | - |
| PELMO 3.0 (Borstel, HH wet) | 14 | 9 | 10 | 12 | 0 |
| FOCUS-PELMO v2.2.2 (FOCUS Hamburg) | 15 | 7 | 10 | 13 | 0 |

XXX = huge overestimation of measured lysimeter concentrations by model (factor 5 ... > 100)

++ = overestimation (factor >1..2 and 2 .. 5)

+/- = same range or underestimation of conc. but simulated conc. > 0.1 µg/L

0 = simulation < 0.1 and lysimeter < LOD

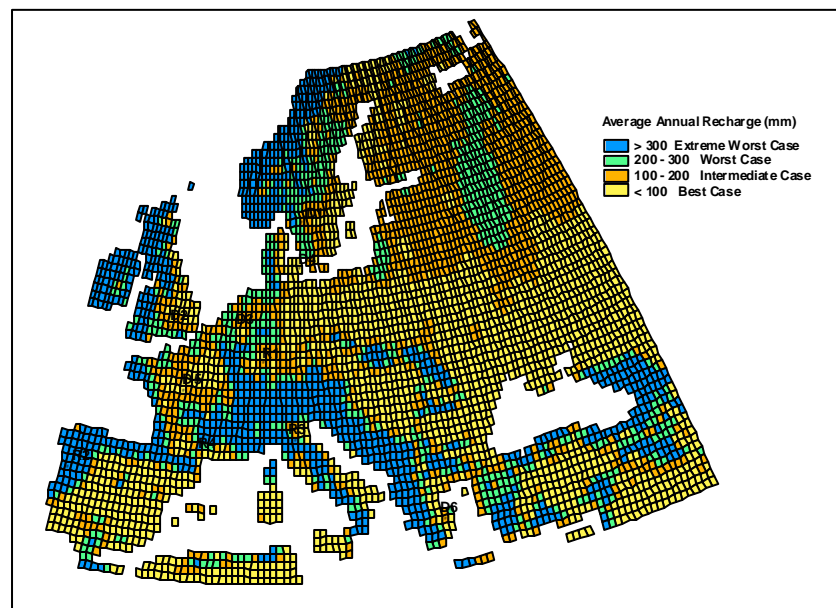
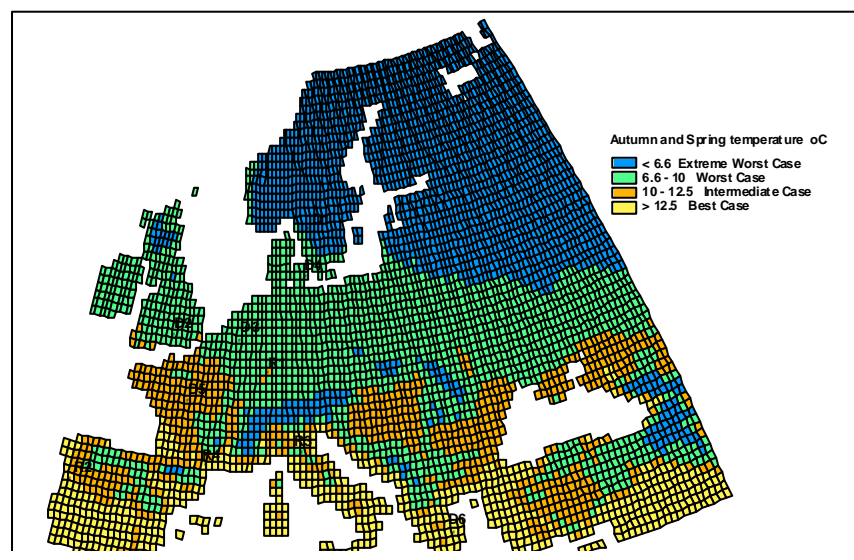
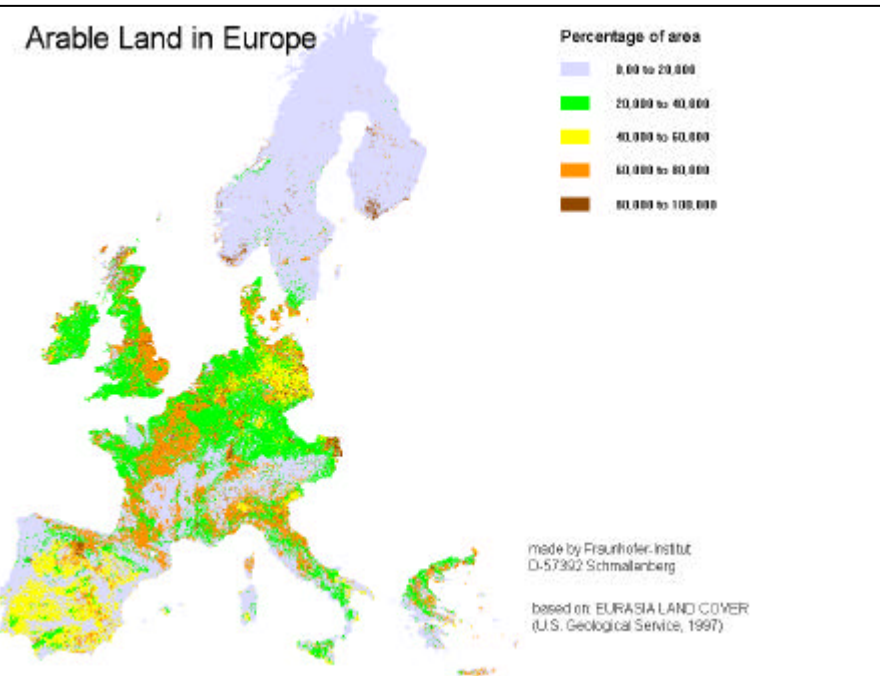
- = simulated concentration < 0.1 µg/L and lysimeter > 0.1 µg/L

**45 comparisons a.i. + metabolites
vs. Lysimeter results**

Possible Reasons for National Scenarios

- agricultural practice is very different from EU assessment
e.g. use pattern, specific crops
- national environmental / agronomic conditions are
not 'represented' or 'not covered' by FOCUSscenarios
- safe use identified on a regional / landscape basis,
consideration of local conditions recommended

Arable Land, Temperature and Recharge



(from FOCUS surface water)

... The Committee supports and endorses the recommendations of the report and proposes that this Tier 1 assessment methodology is adopted as soon as possible by the Commission, provided adequate resources and technical support are provided for:

- ...,
- ..., **version control** of the models ...,
- ...,
- ensuring models and their shells have adequate, ongoing expert technical support to ensure queries /problems are resolved efficiently and in a satisfactory manner,
- continued efforts to develop model capability/performance and approved updates are incorporated into the Tier 1 methodology.

The need for a consistent harmonised approach

| | |
|-------------------------------------|-------|
| FOCUS scenarios | 9 |
| future member states in the EU | 20 |
| national scenarios per member state | 3 - 8 |
| <u>e.g.</u> | |
| a single use pattern | 1 |
| in a single crop in all of the EU | 1 |
| with a single a.i. | 1 |
| in a single formulation | 1 |

no. of PECgw model calculations required -> **69 - 169**

different models, ways of
parameterisation,
ways of evaluation, many sources of errors

→ **CONFUSIO**

FOCUS gw as a Basis for National Registrations

- Sound, harmonized approach
- Location scenarios designed to represent a variety of climate and soil conditions
- Wide range of crop scenarios
- Conservative assessment



Could be used as first step, starting point for national registration (already in some Member States)

Are different approaches required for the prediction of pesticide leaching to groundwater on EU and on national levels ?

In general not !

Check if your national ,differences from FOCUS‘ are really so different that the generation of a huge amount of additional scenarios is justified

Consider the existing information from FOCUS scenarios as much as possible

-> come to a coordinated consistent approach EU -> nat. level

EU Scenarios (+ RA) and National Scenarios (+RA)

- tiered approach starting at worst case conditions and getting less conservative and more realistic in higher tiers
- definition of worst case character of exposure assessment by worst case assumptions in scenario definition and not by worst case combinations of pesticide parameters
- realistic worst case scenarios, i.e. scenarios should describe an overall vulnerability approximating the 90th percentile of all possible situations
- model parameterisation and parameter selection according to FOCUS recommendations
- models supported within the FOCUS framework

These ideas may lead to a national exposure assessment which is consistent with the assessment done on EU level