SIXTH FRAMEWORK PROGRAMME

FOOTPRINT

Functional Tools for Pesticide Risk Assessment and Management

The FOOT-NES tool
(National and EU scale)

Martin Bach
FOOTPRINT annual meeting, 20-24 November 2006

The FOOT-NES tool

> To be used at the large scale by EU and member states policy and decision-makers, and pesticide registration authorities

> Emphasis on:
1. Identifying the areas most at risk from pesticide contamination
2. Assess the probability of pesticide concentrations exceeding legal or ecotoxicologically-based thresholds

> Add-on in ArcGIS

NES

The FOOT-NES (National and EU scale) tool

- Initially directed to policy-makers, but relevance to the registration context
- The tool has the potential to support the pesticide registration authorities and the crop protection industry for higher-tier modelling purposes (if felt so!)
- Will be available as an ArcGIS extension
- Exact specifications of the FOOT tools currently being discussed.
- Later discussions in split groups clearly contributing to the definition of the specs.

What will FOOT-NES offer? (1)

- FOOT-NES will offer a wide range of capabilities and options:
  - Produce exposure maps for edge-of-field surface water bodies and groundwater resources at the national and EU scale, for all major diffuse agricultural sources of pesticide contamination: surface runoff & erosion, drainflow, leaching, and spray drift.
  - Groundwater: produce registration-relevant leachate concentrations at 1 m depth, but also give indication of the risk for groundwater using a colour coding scheme.
  - Surface water: calculate short-term and long-term exposure in FOCUS-like, but realistic edge-of-field water bodies. Comparison of simulated concentrations, e.g. the 99.7th percentile of the 20-year concentration time series, and Time Weighted Average Concentrations (TWAC) with eco-toxicological endpoints.

What will FOOT-NES offer? (2)

- Enable users to identify the range of agro-environmental scenarios (unique combinations of soil, climate and climate-specific crop scenario), associated edge-of-field water bodies (EU25, country or larger region). FOOT-NES will allow users to provide estimates of concentrations in surface water and 1-m depth leaching for all or specific scenarios.
- Facilities for higher tier modelling, including
  - Probabilistic exposure assessment
  - Facilities to export simulated exposure concentration distributions (ECD) for subsequent comparison with species sensitivity distributions (SSD).
  - Facilities to export input files for each of the scenarios (modelling runs outside FOOT-NES)

What will FOOT-NES offer? (3)

- Flexibility to account for different data availability and required levels of detail/precision:
  - Option to use those included in the FOOTPRINT PPDB or to enter physical and chemical properties for specific pesticides
  - Option to use the FOOTPRINT meta-models or the real models. However, it is likely that calculations encompassing the full range of scenarios (e.g. for screening purposes, or for nation- or EU-wide probabilistic exposure assessments) will be feasible only using the meta-models.

How will FOOT-NES work?

- Based on a set of homogeneous geo-information for the whole of the EU.
- Based on MACRO and PRZM meta-models
- Aggregation of metamodel results to obtain probabilistic PEC distributions on large scales (river basins, states) or to estimate spatial and temporal variability of pesticide losses
- Opportunity for the user to account for the spatial and temporal variability of pesticide loss by varying the pesticide parameters as well as application dates in the MACRO and PRZM model simulations.

Possible FOOT-NES applications

- Support of policy-makers in pesticide risk management policies (e.g. WFD implementation)
- Tool for a large scale exposure/risk screening all over Europe (EU-25 and Member States)
- Optimization of monitoring programmes (sampling localization, analysed substances)
- and many possible others!

Acknowledgements

The funding of the FOOTPRINT project

by the European Commission

through its Sixth Framework Programme

is gratefully acknowledged

SIXTH FRAMEWORK PROGRAMME

www.eu-footprint.org

i.dubus@brgm.fr