The FOOTPRINT project

- 3-year EU-funded project as part of FP6
- STREP (Specific Targeted REsearch Project)
- Started in January 2006

- Priority 8: Scientific Support to Policies
The FOOTPRINT partnership

> 15 partners from 9 European countries
> Pesticide fate specialists, modellers, hydrologists, hydrogeologists, agronomists, data and GIS specialists, soil scientists, climatologists, ecotoxicologists, and tool developers
> Key features of the partnership:
  • Complementary profiles
  • Experience at the local, regional and national scale
  • Experience in the development or use of computerised tools
The FOOTPRINT partners

www.eu-footprint.org

The grinning faces

www.eu-footprint.org
Project objectives

> Overall objective: to develop a set of computer tools that will allow users to:
  • i) identify the dominant pathways and sources of pesticide contamination in the agricultural landscape.
  • ii) estimate levels of pesticide concentrations in surface water and groundwater.
  • iii) make scientifically-based assessments of how the implementation of risk reduction strategies is likely to reduce pesticide contamination of water resources.

> Strong focus on the tools (SSP)

Project goals

> 1) to develop a suite of three pesticide risk assessment and management tools, for use by three different user communities:
  • Farmers and extension advisors at the local (farm) scale
  • Water managers at the catchment scale
  • Policy makers/registration authorities at the national/EU scale.

> 2) to evaluate the usability and performance of the FOOT tools through piloting and evaluation studies at their various scales of application.
The three FOOT tools

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<th>FS</th>
<th>CRS</th>
<th>NES</th>
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<tbody>
<tr>
<td>End-users</td>
<td>Farmers, Extension advisers</td>
<td>Water managers</td>
<td>Policy &amp; decision makers</td>
</tr>
<tr>
<td>Scale</td>
<td>Local (farm)</td>
<td>Catchment</td>
<td>National / EU</td>
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> All three tools will share the same philosophy and underlying science.

The FOOT-FS tool

> To be used at the farm level by extension advisers and farmers

> Emphasis on:
  1. Identifying the pathways and areas most contributing to contamination of water resources by pesticides
  2. Providing site-specific recommendations to limit transfers of pesticides in the local agricultural landscape

> Stand-alone application & web portal
The FOOT-CRS tool

> To be used at catchment level by local authorities, stewardship managers and water managers

> Emphasis on:
  1. Identifying the areas most contributing to the contamination of water resources by pesticides
  2. Defining and/or optimising action plans at the scale of the catchment

> Add-on in ArcGIS

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
Involving stakeholders and end-users

> The relevance of the tools developed to stakeholders and end-users is key (SSP project)

> Advisory Committee set up for those with a strong interest in the project and its associated tools
  • Level-1 members: 10 senior individuals
  • Level-2 members: 24+ individuals
  • Communities represented: regulators, researchers, water managers, the industry, extension advisers, consultancies

Going operational

> 3 years
> 8 Work Packages
  • WP0: project launching and coordination
  • WP1: literature reviews
  • WP2: high-resolution scenario-based spatial zonation
  • WP3: identification of landscape features and contamination pathways
  • WP4: model parameterisation, meta-modelling and risk assessment
  • WP5: development of functional tools
  • WP6: piloting and evaluation of tools
  • WP7: communication and dissemination

> 46 deliverables
Some of the FOOTPRINT distinctive features

- 3 tools, 1 philosophy
- Tools tailored to the target audience
- Integration of tools and methodologies developed in the various Member States and by different communities

Some of the FOOTPRINT building blocks:

- HOST
- CORPEN
- SIP
- PRZM
- p-EMA
- MACRO
- HardSPEC
- IDPR
- ArcGIS
- AquaVallée
- AquaPlaine
Developing agro-environmental scenarios for the whole of the EU25

Modelling (super)effort

> Aim: to develop emulators of pesticide fate models running in seconds

> The fate of numerous pesticides in the numerous agro-environmental scenarios will be simulated using MACRO and PRZM

> Running models for millions of times
  • 1.5 million runs of MACRO
  • 1 computer = 170 years
  • 170 computers = 1 year
  • FOOTPRINT@work: development of a dedicated modelling architecture using idle computers (at night, at weekends, during holidays)
  • Use of high performance computers (linux clusters, supercomputers)
Keeping up-to-date

> Project web site: www.eu-footprint.org
> FOOTPRINT announcement list
> Annual newsletter
> Talks at workshops and conferences
> Scientific and less-scientific papers
> Information relay workshops for each FOOT tool
> Video tutorials for real-world applications

Conclusions

> An ambitious project, a highly-motivated team
> Tools are expected to make a valuable contribution to:
  • a range of pesticide and water quality policies,
  • pesticide management/stewardship initiatives
> Project results will be made available on the project web site as they become available
Acknowledgements

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