

FOOTPRINT

Functional Tools for Pesticide
Risk Assessment and
Management



FOOTPRINT annual meeting, 23-24 November 2006

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Agenda for the 2 days



> Day #1

- Welcome
- Overall presentation of FOOTPRINT
- Reporting on some of the science undertaken in FOOTPRINT
- FOOTPRINT dinner tonight
 - Restaurant 'Balkonen' inside Tivoli
 - Dinner at 19:30
 - Map in your packs
 - Meeting time for those at the CAB INN: 19:10

> Day #2

- Discussion sessions
- Split-up groups and get-together sessions
- Coffee from 8:30; Start at 9:00



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Agenda for today



- > Welcome speech by Johnny Fredericia
- > The FOOTPRINT project
- > The FOOTPRINT science
 - The FOOTPRINT literature reviews
 - *Focus on* Mitigation strategies and their effectiveness

 - Defining agro-environmental scenarios for the whole of the EU
 - Focus on key climatic factors determining the loss of pesticides to water resources

 - The FOOTPRINT PPDB
 - PArameterising MACRO and PRZM for a large number of scenarios



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The FOOTPRINT week



- > Our week started on Monday afternoon
- > Activities:
 - 2.5 days of intensive scientific meetings for partners and socialising
 - Preparation of the Annual meeting
- > Thanks!
 - Many thanks to Jeanne, Anker and GEUS
 - Many thanks to FOOTPRINT partners and their husband, wife and children



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The FOOTPRINT project



The FOOTPRINT project



- > 3-year EU-funded research project as part of FP6
- > Specific Targeted Research Project (STREP)
- > Priority 8: Scientific Support to Policies
- > 1 January 2006 - (31 December 2008)



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



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The FOOTPRINT partners



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FOOTPRINT partners



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The grinning faces



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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)



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Project operational 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.



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The three FOOT tools



			
End-users	Farmers Extension advisers	Water managers	Policy & decision makers
Scale	Local (farm)	Catchment	National / EU

- > All three tools will share the same philosophy and underlying science.

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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



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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



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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



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Underlying philosophy

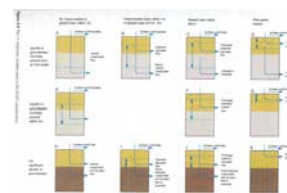
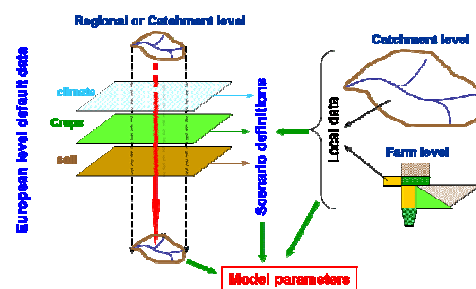


- > Definition of a **LARGE** number of representative scenarios
- > Modelling for all these scenarios
- > Development of a metamodel (emulator)

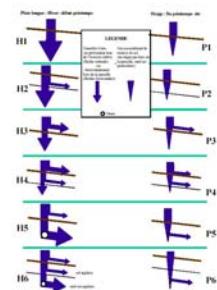


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Developing agro-environmental scenarios for the whole of the EU25



HOST



CORPEN

ca. 15 climate scenarios
ca. 100 soil scenarios
ca. 30 crop scenarios
ca. 10 application dates

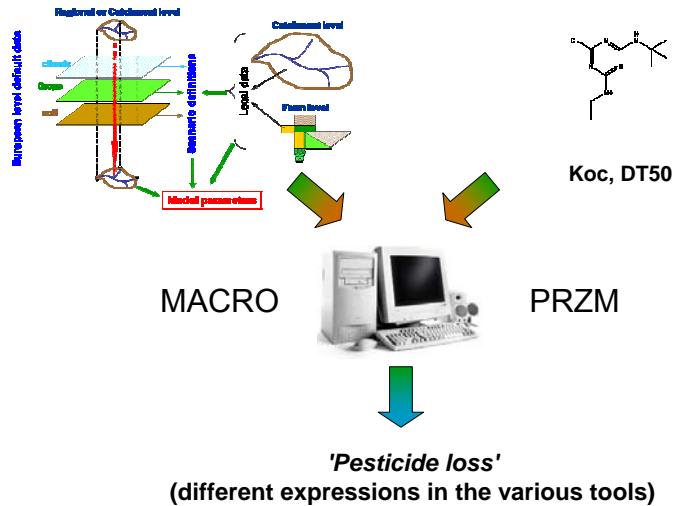


ca. 500,000 agro-environmental scenarios??



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Estimating pesticide losses for agro-environmental scenarios



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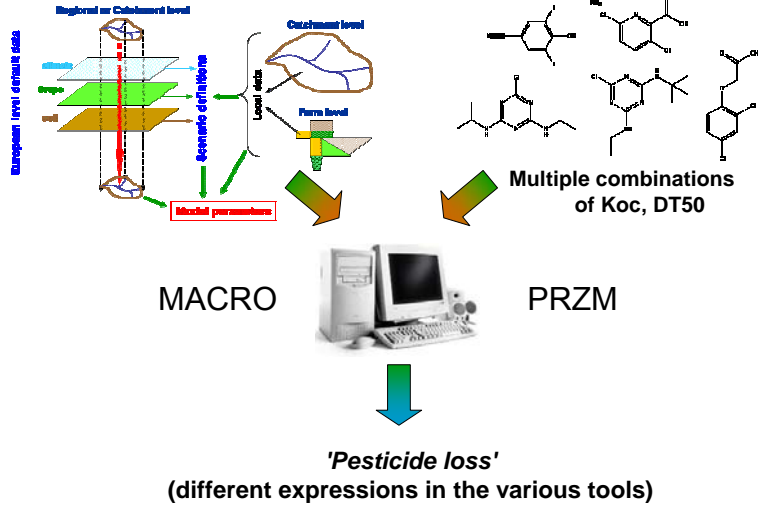
The waiting game



- > The user does not want to wait for hours to get his/her results back
- > There is thus a need:
 - to simulate the fate of a large number of pesticides in the scenarios beforehand
 - to develop emulators ('metamodels') of MACRO and PRZM running in seconds

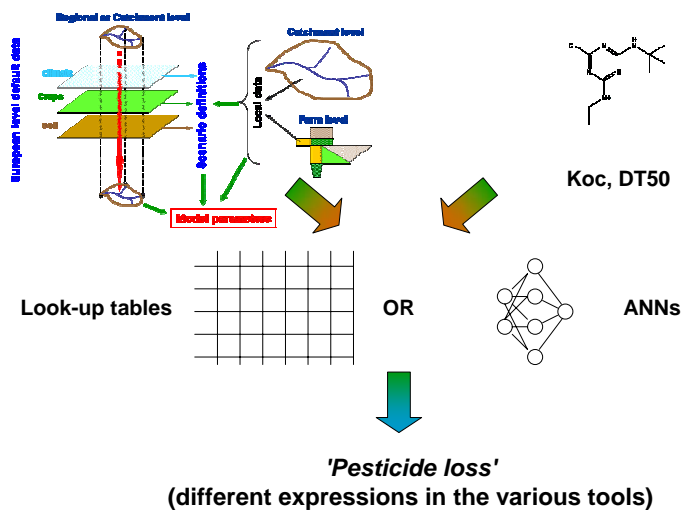
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Estimating pesticide losses for agro-environmental scenarios



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Developing meta-models



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Modelling (super)effort



- > Running MACRO and PRZM for millions of times requires ENORMOUS computing power (and storage!)
- > **FOOTPRINT@work**: development of a dedicated IT architecture which uses corporate computers which are not being used (at night, at weekends, during holidays) for running pesticide fate models



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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 representing the various potential end-user communities
 - Level-2 members: 24+ individuals
 - Communities represented: policy makers, regulators, researchers, water managers, the industry, extension advisers, consultancies



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Communication



- > Project web site: www.eu-footprint.org
- > FOOTPRINT announcement list
- > Talks at workshops and conferences
- > Scientific and less-scientific papers

- > Presentation tomorrow afternoon on communication efforts



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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



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Progress report



How is FOOTPRINT doing?



> The project is doing well

- Deliverables of good quality
- Scientific advances which are submitted to peer review as they are produced
- Very enthusiastic and motivated team
- Excellent collaboration between partners
- Part of the same challenging adventure

> Objectives for the future

- Keep the momentum going
- Keep on delivering



Activities since the start of the year



- > Administrative aspects
- > WP1: literature reviews
 - 5 reviews completed
- > WP2: definition of agro-environmental scenarios
 - Definition of climatic scenarios
 - Definition of crop scenarios
 - Definition of soil hydrological scenarios
 - Approaches to groundwater scenarios
- > Significant advances
 - WP3: landscape elements & the FOOT tools
 - WP4: parameterisation of the tools
 - WP5: capabilities of the FOOT tools
- > Communication



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The year ahead



- > 11 deliverables in 2006, 17 in 2007 (!)
- > Now we mean business!
 - Finalisation of scenarios
 - Parameterisation of the models
 - Start of the modelling effort
 - Finalise capabilities of and approaches to be used in the FOOT tools
 - Beta version of the FOOT tools by October 2007
- > A challenging year ahead



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Concluding remarks



- > A project which goes well (so far!)
- > Some significant advances, but also some key challenges to address and issues to resolve
- > A genuine will to make the tools as useful as possible



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