Development of methodology to assess atmospheric deposition on nature areas

## Theme: Risk assessment procedures for pesticide registration   BO-06-010-007

Problem

For the assessment of the risk to exposure of aquatic organisms to plant protection products (PPP), all relevant pathways of pesticide inputs need to be considered. So far, loadings due to atmospheric deposition have not been taken into account.

Approach

A tool has been developed to assess the exposure of nature conservation due to atmospheric deposition at the local and regional scales. Two models were selected to build this tool: PEARL for emission from crops and OPS for transport via the air. The procedure to develop this tool was as follows:

- Coupling the PEARL model to OPS. To that purpose, physicochemical properties and application data have been added as input data for OPS
- The deposition module of OPS has been extended to take differences in surface characteristics into account
- The PEARL model has been modified to create the emission output data for OPS
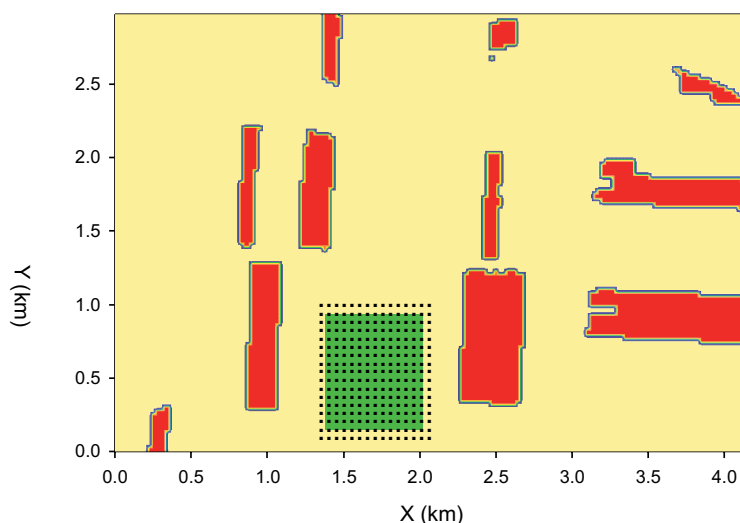
Example of an area with various sources (red) in the vicinity of a nature conservation area (green, receptors indicated by points) .

Results

Example calculations were done with the coupled PEARL-OPS model described above.

- The emission source configuration can be specified by the user
- The receptor area (nature conservation area) can be specified by the user
- The deposition module is flexible, so different approaches to calculate deposition rates can be used

Future use for risk assessment

This prototype tool is a good basis in the development of a tool that can be used to include atmospheric deposition in the Dutch registration procedure of plant protection products.

Emission during spraying of a potato crop.

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