

Improved exposure assessment in Dutch ditches

Theme: Water Framework Directive

BO-06-006-002

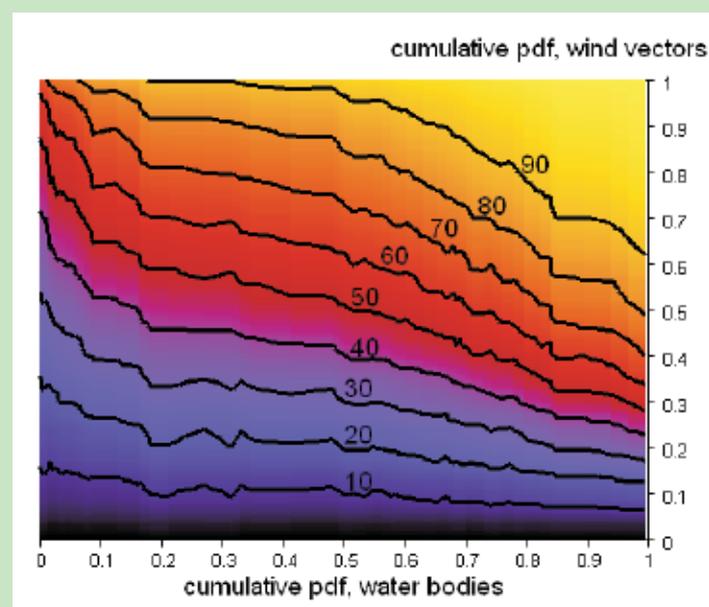
Problem

At present the exposure of the aquatic ecosystem to plant protection products is under-estimated in the Dutch registration procedure. Only spray drift is considered to be a relevant entry route in surface water. In reality drainage and surface run off may also be important routes. The EU registration procedure does take these routes into account.

Approach

We construct a Dutch ditch scenario with a 90th-percentile probability of occurrence exposure concentration, that considers the three relevant entry routes. We made two simplified sub models to select the scenario:

- One for spray drift entries, based upon the geographical distribution of ditch dimensions and the temporal distribution of wind speed and direction
- One for drainage and surface run off entries, based upon the geographical distribution of soils, drainage properties, ditch dimensions and the temporal variation of precipitation and water flows in the ditch



Contour plot of exposure concentration percentiles as a function of cumulative probability density functions for wind vectors and for waterbodies.

Results

The contour plot for exposure concentration percentiles caused by spray drift entries shows that:

- A range of wind vector and water body dimensions can result in 90th percentile exposures
- Wind vector percentiles should be 60 and higher (i.e above average) to result in 90th percentile exposures

Preliminary results for drainage entries show that rapid drainage through macropores reaching into drainpipes may result in important entries of plant protection products into surface waters.

Future use in risk assessment

The Board for the Authorisation of Plant Protection Products and Biocides (Ctgb) will use this scenario to evaluate the risks for the aquatic ecosystem in its registration procedure.

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