

# The use of monitoring results of plant protection products in surface water in Product Stewardship and PPP authorisation

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## Methodology for ranking problematic substances, causal analysis and risk mitigation integrated in registration holders Product Stewardship and authorisation in the Netherlands

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### 1. Introduction

In order to meet the requirements of the European Water Framework Directive (WFD), exceedances of environmental quality standards (EQS) for plant protection products (PPP) in Dutch surface water need to be reduced. The new National Action Plan for sustainable crop protection refers to Emission Reduction Plans (ERPs) for problematic substances in surface water. Monitoring results of PPP in surface water are used by the authorities to rank surface water problems and to select substances for which a detailed causal analysis and ERP is requested from the registration holders.

### 2. Methodology

The procedure for the use of PPP monitoring results in Dutch surface water by registration holders and the registration authority has been developed and tested in a working group including several experts from research and other stakeholders. The proposed methodology consists of:

- 1) identification and ranking of problematic substances
- 2) analysis of plausible causes for the exceedances and the composition of an ERP
- 3) feedback to the board of PPP authorisation and ministries involved.

#### 2.1 Substance list

First the substances for which a causal analysis and ERP might be performed are determined. Each year the selection and ranking of these substances is updated, using the surface water monitoring results for PPPs from the Dutch Pesticides' Atlas ([www.bestrijdingsmiddelenatlas.nl](http://www.bestrijdingsmiddelenatlas.nl)). In the procedure, only substances exceeding the EQS in the WFD water bodies are selected. For substances with no EQS available, the Maximum Permissible Concentration (MPC) is applied. WFD priority substances are ranked higher than other substances. The remaining standard exceeding substances are given points based on the water body type, the degree of exceedance per monitoring location and the percentage of monitoring locations with exceedances. Exceedances outside WFD water bodies are included in the ranking process. Exceedances in WFD water bodies are awarded more points than exceedances in other water bodies. Annual changes in monitoring activities and different strategies in regional monitoring plans may complicate the interpretation of monitoring results. To overcome this, the monitoring results of three consecutive years are processed. To improve the consistency of monitoring programs over years and between regions, a new national PPP measuring program is initiated in 2013.

## 2.2 Causal analysis

For a number of substances on the list, the registration holders will be requested to execute a causal analysis and ERP. This request is triggered in three situations:

- regular re-authorisation: a request for prolongation of an existing registration.
- a request for a new registration for a substance already on the Dutch market as a PPP.
- an interim review of an existing registration, independent of the regular authorisation period (applies for the substances ranked highest)

The causal analysis searches for *plausible* relations between specific applications and emission pathways on the one hand, and standard exceedances on the other hand. The protocol starts with the compilation of a Fact Sheet which covers 5 topics; (i) substance properties (ii) Dutch authorised use possibilities (iii) usage based on national farm surveys; (iv) indicators for the emission to surface water and crop maps from the Dutch Environmental Risk Indicator for Pesticides (NMI 3), and (v) monitoring results in the Dutch Pesticides' Atlas. Next, a wide range of experts is consulted on the different subjects in the factsheet. For this purpose predefined questions referring to the fact sheet are used. A digital platform was set up for transparent and efficient documentation and interaction with and between experts. The factsheet content and expert contributions are then interpreted. If the plausible causes are identified, the protocol manager can proceed by drawing the final conclusions. Alternatively, additional fact finding and expert consultation is carried out, to conduct a more detailed analysis on a specific topic and/or certain regions.

Part of the causal analysis is the comparison of measured and calculated concentrations. In the test cases this was done visually, using maps with calculated emissions, monitoring results and land use maps. It is investigated whether a more systematic quantitative comparison of calculated and measured concentrations on a regional or local scale can be of extra value for the causal analysis.

Test cases for four substances show, that the proposed methodology of causal analysis gathers the available relevant information in a systematic and transparent way. The availability of quantitative information on emission routes is a limiting factor in defining the most relevant emission pathways. For example, it appears difficult to weigh point source emissions from farm yards against spray drift or lateral leaching. The causal analysis is used by the registration holder to compose an ERP.

## 2.3 Feedback procedure

The registration holder has the lead in proposing and implementing mitigation measures. An emission reduction plan may contain restrictions in the authorised use, awareness raising campaigns directed at farmers, etcetera. Whether the authorised use is adjusted by the registration holder, depends on the cause of the exceedances. The causal analysis and ERP are reported to the Board for the Authorisation of Plant Protection Products and Biocides and the involved Ministries. They judge it on correct application of the protocol and with respect to the content. In case it is plausible that application of the substance within the authorised use (applying Good Agricultural Practice) has led to standard exceedances, there may be obligatory consequences for the registration. When the ERP is expected to, or proves to be insufficient after a certain period, the responsible authorities may decide to apply non-voluntarily changes to the registration of the substance as a final option.

## 3. Conclusions

Implementation of this methodology is expected to contribute to the reduction of standard exceedances of PPPs in surface water, whilst respecting the responsibility that registration holders are willing to take through their Product Stewardship activities. The standardised methodology facilitates transparency, involvement of a wide range of expertise and underpinning of suggested mitigation measures.