The Dutch policy plan on sustainable crop protection
Target achievement and lessons learned for the future

The Dutch government established a policy plan for sustainable crop protection. According to this policy plan, risks must be acceptable for humans and the environment, while maintaining the economic prospects for growers. The main goal of the Dutch policy document was to have no exceedances of water quality standards by 2010. We present an evaluation of this policy with regard to target achievement and lessons learned for the future.

Water quality standards exceeded at 50% of the monitoring sites. Exceedances were found for both authorised and non-authorised substances. An important reason for the exceedances is the fact that the regulatory acceptable concentrations (RACs) in the authorisation of pesticides are less strict than the water quality standards. The RAC may allow for a temporary effect on aquatic organisms, while the water quality standard does not. The lack of compliance to mandatory measures was another important cause for surface water contamination by pesticides.

Potential risk to aquatic organisms based on observations by Dutch water boards

Emission reduction and substitution of high risk pesticides can further reduce the aquatic risk
We evaluated the effectiveness with respect to aquatic risk reduction of some 100 (now voluntary) measures. The most effective measures were emission reduction and substitution of high-risk pesticides. IPM-measures aimed at lowering pesticide usage of reduced pesticide usage (the first five categories in the figure below) showed a smaller risk reduction potential because these are generally not aimed at applications that cause the highest aquatic risk.

Risk reduction that could potentially be achieved by additional on-farm measures

Aquatic risk reduced by 85% over the period 1990-2010
Two thirds of this reduction was related to the application of mandatory emission reduction measures such as drift reducing technologies and crop-free buffer strips. The rest was due largely to the fact that the most polluting substances were taken off the market and replaced by less harmful substances.

Contribution of policy measures to the reduction of aquatic risks

Spray drift showed largest emission reduction in percentage terms
The focal point of attention in pesticide reduction policy was on emission reduction (i.e. drift reduction and establishing crop-free buffer zones). These policies did not affect drainage and atmospheric deposition and therefore the reduction in percentage terms of these emissions was less. The emission of pesticides (in kg) by drainage was 10-30 times higher than the emission of pesticides by spray drift. Greenhouses contributed significantly as well, but these emissions were limited to specific regions.

Emissions of pesticides to surface water

Spray drift by far the major cause of potential risk
Despite the fact that the emission by spray drift was low, aquatic risks were primarily caused by this pathway. This is because spray drift causes high peak concentrations and the peak concentration generally correlates best with effects on aquatic organisms.

Contribution of emission routes to the aquatic risk

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Poster based on the report "Evaluation of the Dutch policy document on sustainable crop protection". Scan the QR code to download the English summary.