

Evaluation of the policy document on sustainable crop protection

Summary

The Dutch crop protection policy for the 1998–2010 period has been documented in the policy document on sustainable crop protection (*nota Duurzame gewasbescherming* (LNV, 2004)). This report presents an evaluation of this policy, conducted by the PBL Netherlands Environmental Assessment Agency, with regard to target achievement and lessons learned for the future. Sustainable crop protection has been the policy's main objective. This means that risks related to the use of pesticides (plant protection products) must be of acceptable levels for humans, animals and the environment, while maintaining the economic prospects for Dutch agriculture and horticulture. In the policy document, therefore, quantitative targets were defined for good ecological quality of surface waters, for the quality of drinking water abstracted from surface waters, and for exceedances of maximum levels for pesticide residues in foods, as well as for the safe handling of pesticides.

Crop protection has become more sustainable, but objectives for environmental quality and safe handling by workers have not been achieved

As a result of efforts made by growers, pesticide manufacturers, water companies, water boards and government administrations, since 1998, Dutch crop protection has become safer for humans, as well as for aquatic environments. Although pesticide levels in surface waters are down and surface water quality has

improved, the related policy targets have not been achieved. Voluntary measures and mandatory regulations have seen to it that growers have substantially reduced ecological risks to surface waters, although there has been insufficient compliance with regulations. This insufficient compliance is one of the reasons why concentrations of pesticides in surface waters often have been found to be too high. In addition, and although they have become increasingly aware of environmental risks, growers are insufficiently mindful of the health risks that are related to the handling of pesticides.

The target relating to maintaining the competitive position of Dutch agriculture and horticulture, however, has been achieved.

Ecological quality of surface waters is still insufficient...

The main goal of the Dutch policy document on sustainable crop protection – to have no exceedances of water quality standards by 2010 – had not yet been achieved in 2009, as pesticide levels remained higher than the statutory water quality standards, at over half of all the Dutch measuring locations. An important reason for this failure is the fact that standards for pesticides allow a temporary effect on aquatic organisms, while such standards in water quality policy do not. Other reasons refer to negligent behaviour by growers, and to the fact that not all emissions of active substances in these pesticides have been incorporated into the criteria for approval of active substances.

Trend in sustainable crop protection and target achievements

Objective	Indicator	Trend policy term	Objective achieved?
Ecological quality	Ecological quality surface waters	Cannot be determined	No
	Environmental pressure on surface waters due to agriculture	Large improvement	No
Drinking water quality	Problems related to drinking water quality	Large improvement is likely	No
Food safety	Exceedance of maximally permitted residue levels in food	Large improvement	Yes
Safe working conditions	Risk inventory and evaluation	Slight improvement	No
Maintaining economic prospects	Economic prospects (in relation to this policy)	Unchanged	Yes

Source: PBL.

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...but ecological risks clearly have diminished

In order to achieve a situation in which there are no further exceedances of the statutory standards, the policy document states that, by 2010, the environmental pressure on surface waters caused by the use of pesticides and herbicides in agriculture and horticulture had to be reduced by 95% compared to that of 1998. Environmental pressure in this case was defined as the measure of ecological risks to aquatic organisms, associated with the use of pesticides. Growers were able to reduce this environmental pressure by no more than 85%, instead of the intended 95%. Two thirds of this reduction was related to the application of mandatory low-drift spraying techniques. The rest was due largely to the fact that the most-polluting pesticides had been taken off the market, and because new and less-polluting products were introduced onto the market. This reduction in environmental pressure was realised particularly during the first part of the policy term, between 1998 and 2001.

In order to achieve no exceedances of water quality standards, compliance with mandatory spraying regulations must be guaranteed. In addition, environmental quality standards and the criteria for approval of active substances must be better aligned.

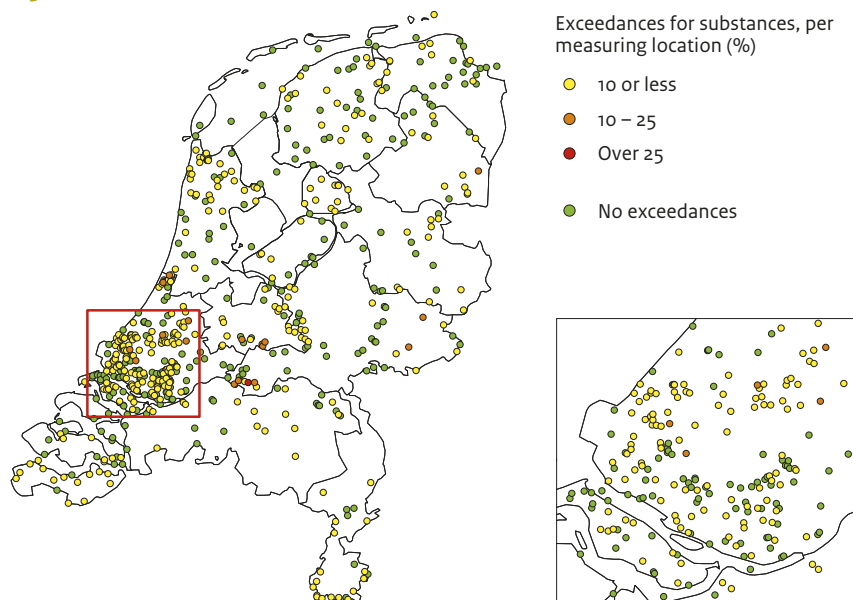
Surface water quality for drinking water has improved

The quality of surface water as a source of drinking water has improved. The number of drinking water problems was reduced by 75%, indicating that the target to reduce these problems by 95% within the policy timeframe, was not achieved. Problems relating to drinking water standards are defined as exceedances per substance, per year, per drinking water abstraction site. Most of these problems were solved by a ban on the use of certain herbicides.

Food available from Dutch shops has become safer

Legal standards have been set for the maximum permitted levels of pesticide residues in food products; the so-called residue standards. The number of exceedances of these residue standards in foods available in the Netherlands in 2010 was over 70% lower than in 2003. This means that the policy objective of a 50% reduction has been more than achieved. In absolute terms, the amount of residues in food was also reduced. Our review also indicated improvements in food safety, according to health standards. These improvements can be explained by the fact that certain pesticides that contain active ingredients which caused many of the exceedances had been taken off the market, and because growers have become more careful when using

Exceedance of the Maximum Permissible Risk of pesticides in surface waters, 2009



Source: Pesticides atlas (www.pesticidesatlas.nl), 2011

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pesticides, as a result of buyer demands. Residue and health standards are set for combinations of one substance and one food product, while total exposure relates to all the food that is consumed. The European Commission currently is setting up protocols for estimating cumulative exposure to multiple substances in one or more food products, if these substances have similar effects in the human body. In the Netherlands, for two groups of nerve-affecting substances present in food products, the cumulative exposure was found to have decreased, substantially, since 2003.

Growers give low priority to safe handling of pesticides

The policy objective that all growers with one or more employees should work according to an occupational health and safety management plan (the so-called risk inventory and evaluation plan (RI&E)), has not been achieved. Such RI&E plans contain an overview of risks relating to work safety and an approach for minimising them. Most growers do have such an RI&E plan available, but often it is not or only rarely put into practice. Growers do not award high priority to the safe handling of pesticides, and nor does the government. Since 2007, the labour inspection has not specifically investigated compliance with regulations for the safe handling of pesticides. There has been some improvement in work

safety, however, but this is partly due to the fact that measures implemented to reduce the environmental pressures also have a positive effect on occupational safety.

Economic prospects at no time in danger

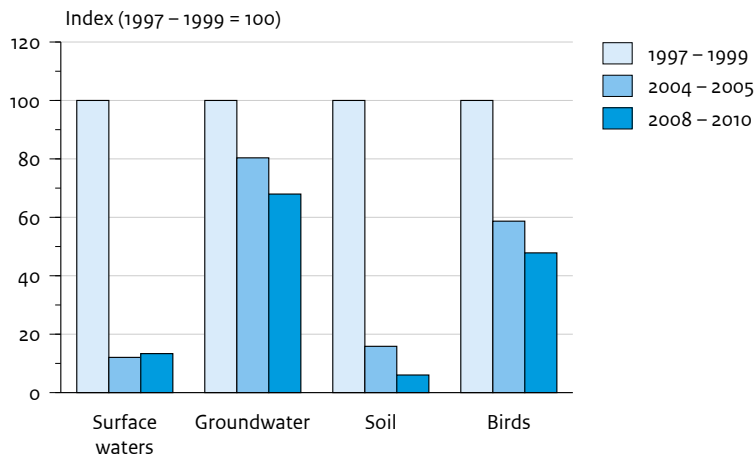
A precondition of the policy document is that of maintaining economic prospects when implementing crop protection policies. For the Netherlands, this means that regulations must not interfere with the competitive position of Dutch growers – although the large amount of surface water in the Netherlands does lead to comparatively large risks of pollution, which, thus, call for a relatively strict policy. The evaluation shows that Dutch growers, on average, had fewer pesticides available to them than their counterparts in Belgium, Germany, Great Britain and France. However, this disadvantage never posed any danger to the economic prospects of Dutch agriculture and horticulture.

Further steps are needed to achieve environmental and safe-handling targets

The Netherlands is preparing a National Action Plan to stimulate integrated pest management and to ensure a more sustainable use of pesticides. All EU Member States are required to have such a plan drawn up by the end of 2012. In addition to continual improvements in the

Environmental pressure from pesticides

Open field cultivation



Source: Van der Linden et al. (2012)

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authorisation procedures for pesticides, such a plan also offers additional opportunity for achieving targets that have been set for safe working methods and environmental quality. Continuation of existing policies – in combination with more attention for reducing emissions of substances that cause the greatest problems – could help to substantially improve surface water quality, in the short term. For the long term, the focus could be on investments in larger system innovations, and in less-polluting substances and non-chemical methods, such as that of biological control, which can be defined as the reduction in population densities of harmful organisms by exploiting one or more natural enemies of those organisms.

Safe handling of pesticides must receive a greater priority, which could be partly achieved by information being more actively supplied by employers and manufacturers of pesticides. One of the bottlenecks in relation to occupational safety is that both workers and employers often do not adhere to the indicated legal time span of restricted access to greenhouses in which crops have been treated with pesticides (re-entry period). This legal requirement especially is important for people under the age of 16, as for them there is an even longer period of restricted access. Solutions to the problem of guaranteeing the safety of employees may be found in talks between employers, labour inspection and social partners.