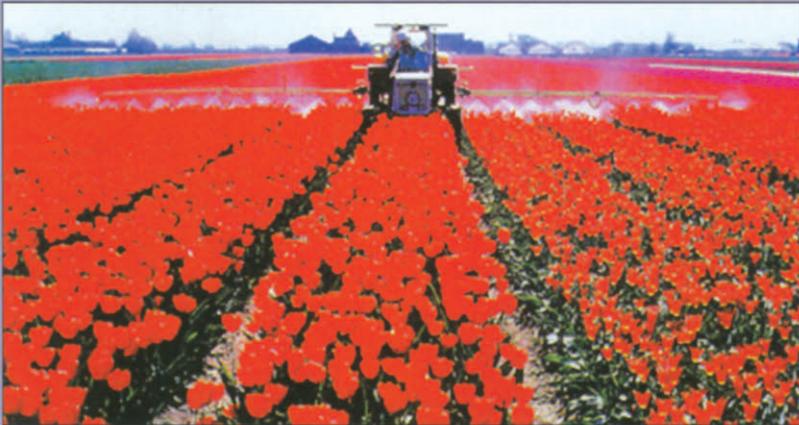


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# Fate of Pesticides in the Atmosphere

Implications for Environmental  
Risk Assessment

Edited by  
Harrie F.G. van Dijk, W. Addo J. van Pul  
and Pim de Voogt



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FATE OF PESTICIDES IN THE ATMOSPHERE:  
IMPLICATIONS FOR  
ENVIRONMENTAL RISK ASSESSMENT

# **Fate of Pesticides in the Atmosphere: Implications for Environmental Risk Assessment**

*Proceedings of a workshop organised by  
The Health Council of the Netherlands,  
held in Driebergen, The Netherlands,  
April 22–24, 1998*

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## ATMOSPHERIC TRANSPORT OF PESTICIDES: ASSESSING ENVIRONMENTAL RISKS

Current global food requirements have made great demands on agricultural production, including the need for efficient weed and pest control. In the second half of the 20th century, this had led to an ever increasing use of pesticides. Pesticides are a special case inasmuch as they are applied directly in the environment for the purpose of eliminating pests. Due to their obvious inherent toxicity, strict regulations exist throughout the world regarding their registration.

However, that non-target areas, even in remote places, can be exposed to chemicals that have become airborne elsewhere and that this exposure can cause unwanted effects, has only come to light in the last two decades. The global atmospheric transport of 'common' gaseous pollutants like sulphur dioxide and freons was already known at that time. Yet it was the observation of the presence of organochlorine pesticides (such as lindane and toxaphene) and industrial chemicals (like the polychlorinated biphenyls) in for example, animals living in the Arctic, which spurred serious scientific and political interest in the long-range transport of substances. Surprisingly, the monitoring efforts made in remote areas as a result of this awareness, have shown that compounds (perhaps) initially believed to be degraded quite rapidly after application, may still be found far away from the application area.

International bodies and governmental agencies, such as the UNEP and the UN-ECE, have launched activities to tackle the issue of the long-range transport of chemicals. Most of these initiatives focus on the so called persistent organic pollutants (POPs) or persistent, bio-accumulating and toxic (PBT) substances. This raises the obvious question of definitions. The issue of how to incorporate a chemical's potential for being transported over long distances, into the regulations for registration, of both industrial chemicals and modern pesticides, is an issue which has received relatively little attention to date. For pesticides, this is all the more surprising when one considers their typical use, where a relatively high potential for becoming airborne is obvious.

The Health Council of The Netherlands took the initiative to organise a workshop on the issue of 'Fate of pesticides in the atmosphere; implications for risk assessment'. About forty experts were invited to discuss this subject with the aims of reviewing the current scientific knowledge and possible risk assessment approaches and exploring possible statutory, environmental criteria that could be incorporated into pesticide regulation.

This special issue of *Water, Air and Soil Pollution* publishes the proceedings of the workshop held in Driebergen, The Netherlands on April 22-24, 1998. First, an extended summary of the deliberations of the workshop is presented followed by keynote papers that were presented during it. Finally discussion papers summarise the several topics discussed. Contributions were

received from invited keynote speakers, or drafted from the minutes taken and audio recordings made during the discussions. All contributions were subjected to the usual peer review procedure of WASP.

The editors wish to express their gratitude, to all the participants of the workshop, who have worked hard to deliver what has become this special issue. It is our sincere hope that this issue will become a major starting point for further efforts to estimate environmental risks associated with the long-range transport of pesticides.

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