

PESTICIDES IN GROUNDWATER

The protection and conservation of groundwater is of major importance, firstly for groundwater-dependent ecosystems and, secondly, for the exploitation of this groundwater to supply water for human consumption. After nitrate, pesticides are the second factor in degrading groundwater quality.

Pesticides¹ in measurable concentrations in two-thirds of monitoring sites

Over the period 2011-2014, pesticides were present in measurable concentrations at 65% of groundwater quality monitoring sites. In 17% of cases, the levels measured were such that the water quality was rated as bad to moderate, while in 48% of cases it was rated as good to high².

Banned, but still present, molecules

Of the 100 pesticides examined in groundwater, 9 were responsible for most of the pollution. These 9 molecules were all herbicides. Of these, 4 were banned (atrazine, diuron, bromacil and simazine) and 2 were from banned molecules (desethylatrazine and BAM³). The most problematic pesticides were the following:

- desethylatrazine, which is the major metabolite of atrazine, a mixed-use herbicide that was authorised for use until December 2006. Desethylatrazine, and to a lesser extent atrazine, are still among the substances detected in high concentrations in groundwater, mainly due to their mobility and persistence in soils and aquifers;
- bentazone, a registered herbicide for primarily agricultural use;
- BAM, a metabolite of dichlobenil, a herbicide used primarily for non-agricultural purposes (private individuals, public administrations and managers of green areas) which was authorised for use until March 2010.

Generally localised contamination

The quality indices show that in the period 2011-2014, of the 33 bodies of groundwater in Wallonia, 3 water bodies showed marked pollution (the Brussellian Sands, the Cretaceous of the Geer basin and the Brussellian Sands of the Haine and Sambre basins), while 6 others showed signs of degradation⁴. The water bodies located in the Ardenne were relatively well preserved, probably since they are exposed to much lower phytosanitary pressure (fewer cultivated areas and less population density).

A problem addressed, but not solved

Various instruments have been put in place to prevent or limit the introduction of pesticides into groundwater. These include the Walloon Pesticide Reduction Programme 2013-2017 (*Programme wallon de réduction des pesticides - PWRP*)⁵, which includes measures such as the introduction of "zéro phyto" ("zero plant protection products") by public space managers as of 01/06/2019 and the increased protection of catchments for human consumption⁶. Due to the regular placing on the market of new active substances and the transfer time (soil-groundwater) of certain pesticides within groundwater bodies, prevention and monitoring cannot be abated.

^[1] The term "pesticides" is used interchangeably to designate active substances and the metabolites of active substances. | ^[2] Quality classes SEQ-ESO patrimonial state. The patrimonial state expresses the degree of water degradation relative to a quasi-natural state, without reference to any use. | ^[3] 2,6-dichlorobenzamide | ^[4] → Map 36 | ^[5] → TRANSV 3 | ^[6] → WATER 16

Fig. WATER 14-1 Presence of pesticides in groundwater in Wallonia

