

## NITRATE CONTENT IN GROUNDWATER

Excessive inputs of nitrogen fertilisers on agricultural soils can increase nitrate concentrations in groundwater above the 50 mg/l drinking water standard. Special measures must be taken in so-called "vulnerable" zones, where such (risks of) exceedances are recorded.

### The situation appears to be stabilizing in vulnerable zones

The highest nitrate concentrations (above 40 mg NO<sub>3</sub>/l) are measured in groundwater bodies that are subject to significant agricultural pressures: the Sands of the Thanetian of Flanders (Comines-Warineton), the Sands and Chalks of the Mehaigne, the Brussellian Sands, the Cretaceous of Geer and the Chalks of the Deûle valley<sup>1</sup>. Other aquifers are also contaminated but to a lesser extent: the Limestone and Sandstone of the Vesdre, the Cretaceous of the Pays de Herve, the Chalks of the Haine and the Sands of the Landénien. Between 2012 and 2015, 8% of the monitoring sites spread across the Walloon territory had an average nitrate content higher than the drinking water standard (50 mg NO<sub>3</sub>/l)<sup>2</sup>. This percentage rose to 13.3% in vulnerable zones<sup>3</sup>. However, the share of sites not in conformity is declining, following the reduction of nitrate levels in the most affected vulnerable zones. Moreover, a statistical study carried out in 2014<sup>4</sup> revealed that three quarters of sites with nitrate concentrations above 50 mg/l in 2013 showed a favourable evolution.

### A combination of factors

This situation, which is encouraging *a priori*, is partly linked to the evolution of current agricultural practices (reduction of nitrogen fertiliser inputs<sup>5</sup>). The level of contamination of groundwater also depends on other factors that are difficult

to control, such as rainfall, the time transfer for nitrate to infiltrate groundwater (which can be longer than 15 years) or the amount of nitrogen still present in the soil.

### Optimising the management of agricultural nitrogen

In order to further improve the quality of its water resources, Wallonia has recently revised the Sustainable Management Programme for Nitrogen in Agriculture (*Programme de gestion durable de l'azote en agriculture - PGDA*)<sup>6</sup>, notably by strengthening measures relating to land cover and control systems. The PGDA imposes various measures on farmers to limit nitrate leaching in the soil, including soil binding rates lower than the unit, manure spreading conditions or land cover by a nitrate trapping intermediate crop (CIPANs). Measures are also envisaged in the second River Basin Management Plans<sup>7</sup>, including the implementation of participatory catchment contracts<sup>8</sup> or the strengthening of monitoring of the implementation of the PGDA.

[1] → Map 35 | [2] Directive 98/83/EC on the quality of water intended for human consumption | [3] Within the meaning of Directive 91/676/EEC. The vulnerable zones have been extended as of 01/01/2013 and now cover 58% of Walloon territory (Ministerial decree of 22/11/2012). | [4] Trend analysis applied to 881 time series of nitrate concentrations in groundwater (EPHESIA, 2014) | [5] → AGRI 5 | [6] Walloon Government Decree of 13/06/2014; → AGRI 9 | [7] RBMPs 2016-2021 adopted by the Walloon Government on 28/04/2016; → WATER 21 | [8] → WATER 16

Fig. WATER 13-1 Distribution of monitoring sites by nitrate concentration class in groundwater in Wallonia

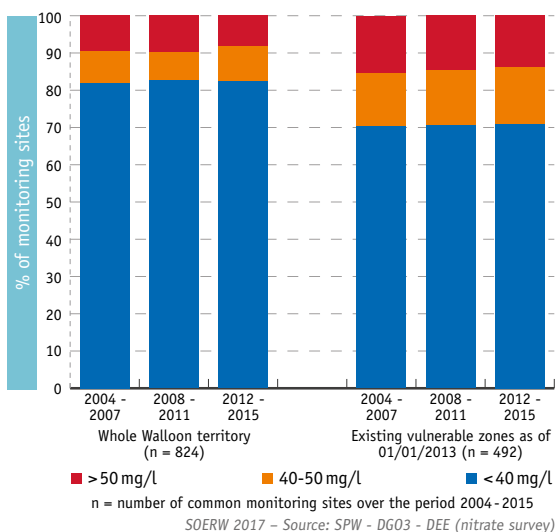


Fig. WATER 13-2 Nitrate concentrations in groundwater in and outside vulnerable zones in Wallonia

