

## MANAGING ORGANIC NITROGEN IN AGRICULTURE

Livestock manure is a source of nutrients (nitrogen, phosphorus, trace elements, etc.) and organic matter for agricultural soils. However, there is a risk of surface water and groundwater pollution due to excess nitrogen inputs in excess of crop requirements or improperly applied spreading methods.

### Sustainable Management Programme for Nitrogen in Agriculture (PGDA)

In order to reduce the pollution of surface water<sup>1</sup> and groundwater<sup>2</sup> by nitrate from agricultural sources, the PGDA III<sup>3</sup>, resulting from Directive 91/676/EEC (the "nitrates" directive), requires that the organic nitrogen balance is in equilibrium at farm level. The latter is monitored by calculating the soil binding rate (SB), which corresponds to the ratio between the quantities of organic nitrogen (N organic) available on a farm (internal production + imports - exports) and its spreading capacities authorised on the Walloon territory. The method of calculating these capacities determines on the one hand a global SB, calculated in the same way throughout the territory, and on the other hand a SB for vulnerable zones (SB VZ), calculated differently in and outside vulnerable zones<sup>4,5</sup>. Neither can exceed a value of 1. The PGDA also lays down criteria (i) for the spreading of organic and mineral nitrogen fertilisers (periods, establishment of nitrate trapping intermediate crops after spreading organic matter, etc.) and (ii) for the minimum capacities and characteristics of livestock manure storage infrastructures. Additional constraints apply to farms located in vulnerable zones<sup>5</sup>: monitoring of potentially leachable nitrogen in the soil, stricter standards and criteria for spreading, special rules for land cover between crops, etc.

### Soil binding rate respected in 98% of farms

In the event of excess effluent production in relation to

valorisation possibilities within the farm (internal SB<sup>6</sup> > 1), the PGDA provides for the possibility of transfers between farms, in order to restore equilibrium. This type of exchange also makes it possible to make better overall use of organic nitrogen resources. The global SB and the SB VA include these transfers (imports, exports). In 2014, 88.3% of farms had an internal SB ≤ 1. Following an effluent exchange, 97.7% of farms had an overall SB ≤ 1. In the same year, in vulnerable zones<sup>7</sup>, 97% of farms had overall SB and SB VA ≤ 1, whereas they were 94% in 2008. At the municipal level, the proportion of farms that did not meet these criteria reached a maximum of 33% in 2014<sup>8</sup>.

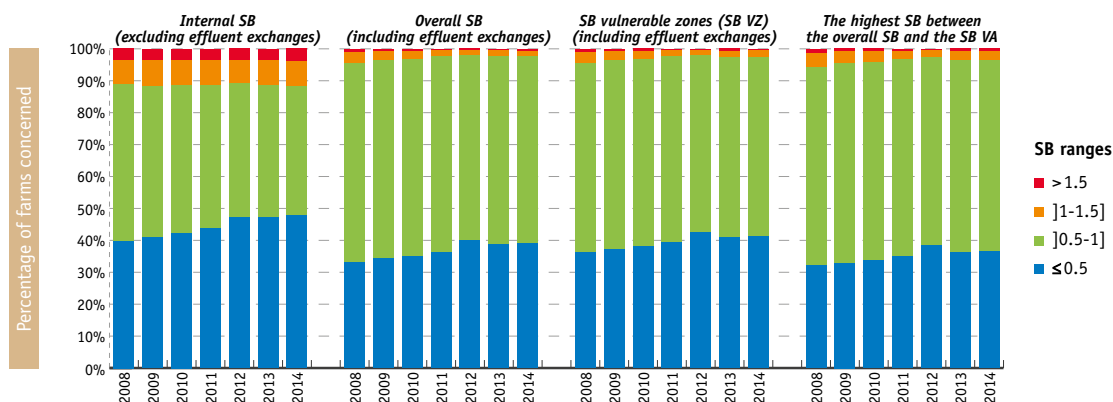
### Towards more effective controls

In addition to the extension of vulnerable zones in 2013, the PGDA was revised in 2014 in order to improve the quality and follow-up of inspections<sup>9</sup> (obligations to hold a certificate of conformity for storage infrastructures, spreading contracts with pre-notification and post-notification of movements to the DG03, etc.).

[<sup>1</sup>] → WATER 6 | [<sup>2</sup>] → WATER 13 | [<sup>3</sup>] Walloon Government Decree of 13/06/2014 |

[<sup>4</sup>] For the calculation of the overall SB, the quantities of spreadable N organic are calculated by multiplying the surface area (ha) of crops and grasslands by the spreading standards of 115 kg N organic/ha and 230 kg N organic/ha respectively. For the calculation of the SB VA, the calculation is based on the same standards outside vulnerable areas and an average standard (crops and grasslands) of 170 kg N organic/ha in the vulnerable area. | [<sup>5</sup>] → AGRI 9 | [<sup>6</sup>] The internal SB is calculated by only taking into account the N organic produced within the farm (excluding imports and exports). | [<sup>7</sup>] At least one plot of the farm in a vulnerable area | [<sup>8</sup>] → Map 50 | [<sup>9</sup>] → CONTROL 4

Fig. AGRI 8-1 Soil binding rate\* (SB) of farms in Wallonia



\* Off-marginal farm values (less than 90 kg of organic nitrogen produced), excluding soil-free farms (infinite SB) and farms which are not required to complete an declaration of surface area.