ABSTRACT

The Centre for Best Available Techniques (BAT) is founded by the Flemish Government, and is hosted by the Flemish Institute for Technological Research (VITO). The BAT centre collects, evaluates and distributes information on techniques that minimize the impact on the environment as a whole. Moreover, it advises the Flemish authorities on how to translate this information into their environmental policy. Central in this translation is the concept "BAT". Best Available Techniques corresponds to the techniques with the best environmental performance that can be introduced at a reasonable cost.

This report discusses the BAT for the farming industry, in particular the farming of cattle, pigs and poultry. The first aim of the study was to select the BAT for minimizing the amount of fresh water that is used and to investigate the possibilities of using alternative water sources. Alternative water sources are e.g. rainwater, canal water, used process water. Another main objective was to give a list of BAT to reduce nutrient emissions into water, soil and air. Further, the BAT to reduce odour and dust emissions dust from housing systems were investigated. An additional objective was to test the conclusions of the BAT Reference Document (BREF) for Intensive Livestock Farming (EIPPCB, 2003) against the Flemish practice.

The BAT selection was based on a technical and socio-economic analysis of the sector, plant visits, discussions with industry experts and other related studies. The formal consultation was organised by means of an advisory committee of which the composition is given in Annex 1.

Ground water is the main water source used in the Flemish farming industry. Other water sources are tap water and to a lesser degree rain. Most of the BAT for reducing the water usage are preventive measures. It is not feasible to reduce the volume of drinking water for the animals. If quality standards are fulfilled, alternative water sources can be used. Some examples are:

- use rainwater for cleaning the machines;
- use pre-wash water of the milking-machine for preparing the artificial milk for young cattle.

Most of the BAT for reducing the amount and the pollution of waste water are preventive measures. Some examples of specific BAT are:

- store waste water that contains manure and spread it on the land;
- apply one of the following options of use / removal for the wash water of the milking-machine, taking into account its limiting conditions :
  - use for cleaning the stables and/or the machines;
  - discharge into the sewers;
  - treat the waste water in a small-scale biological purification system;
  - discharge into the manure store.

It is BAT to apply a nutritional management system for reducing the excretions of nutrients (nitrogen en phosphorus) in manure. Nutritional management aims to match feeds more closely to animal requirements at various production stages. Other examples of BAT are:

- draw up a nutrient balance;
- take into account the characteristics of the land, the crop and climatic conditions when applying manure;
- provide manure storage facilities with sufficient capacity e.g. until land application can be carried out.

For reducing the emissions of nutrients (e.g. ammonia) into air, it is BAT to manage the land-spreading of the manure. Some examples are:
– use techniques for the spreading of the manure that involves less ammonia emission;
– use a well-balanced amount of manure;
– distribute the manure evenly.

Although the additional costs are considerable (10-25%), it is BAT for new to build pig and poultry housing systems to implement one of the types of housing systems that are described in Annex I of the Ministerial Decree of 19/03/2004. These types of housing systems are characterized by a reduced ammonia emission level.

Most of the BAT for reducing the nuisance from odour and dust are preventive measures. For new farms, it is BAT to locate them in areas where they are least likely to cause annoyance to sensitive receptors. Technically feasible end-of-pipe air treatment techniques (e.g. wet scrubber, bioscrubber) are too expensive for implementing in existing farms. For new farms, it is BAT under specific conditions to extract air from the housing system and to treat it by using a wet scrubber.

Given the size of the Flemish farming industry (> 36 000 farms in 2004), it is preferable to implement the BREF for the Intensive Livestock Farming (EIPPCB, 2003) at sectoral level. Based on the BAT, an evaluation of the Flemish Environmental Legislation (VLAREM) was made. To concretise some general legislation, VITO proposes some adaptations to the Environmental Legislation applicable to the Flemish farming industry.