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Nitrogen also pollutes water

In the nitrogen crisis, the Netherlands should not focus exclusively on the deposition of nitrogen oxides and ammonia in nature areas, says PhD candidate Lena Schulte-Uebbing. Nitrogen causes other problems too.

For example, a lot of nitrogen leaches into the groundwater and surface water, which has a negative impact on the water quality. 'Nitrogen needs to be tackled in an integrated approach. Nitrogen also plays a role in the high concentrations of fine particulates in the Netherlands and the production of nitrous oxide', says Schulte-Uebbing.

Nitrogen compounds are very mobile and affect the environment in various forms, says Schulte. Nitrogen affects groundwater in the form of nitrate and nature areas in the form of ammonia, while nitrous oxide contributes to global warming. Yet

A closed nitrogen cycle without losses is not attainable in practice

we still need nitrogen for food production. The aim is therefore not to waste nitrogen, but research shows that a closed nitrogen cycle without any losses is not attainable in practice. Good arable farming systems achieve

a nitrogen efficiency rate of up to 80 per cent; the rest leaks into the environment. The best solution is to add as little nitrogen as possible to our food production systems, says Schulte-Uebbing.

Models

She used two nitrogen models for Europe and the world to investigate where nitrogen losses from farming cause environmental issues. There are problems not just in the Netherlands but also in Brittany in France, the Po plain in Italy and northern Germany. The general rule is the more livestock, the higher the nitrogen emissions. Livestock populations need to decrease in those areas to combat the nitrogen problems, concludes Schulte-Uebbing. But it is also important to examine how nitrogen emissions originate, she continues. 'Various processes in nature influence the emissions, such as the temperature and humidity, and they vary from day to day.' AS