

### Costs of regulating ammonia emissions from livestock farms near Natura 2000 areas - analyses of case farms from Germany, Netherlands and Denmark

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Natura 2000 areas are designated according to the EU's Birds and Habitats Directives in order to protect particular habitats and species. A variety of these habitats and species are particularly sensitive to deposition of nitrogen caused by ammonia emissions. Livestock farming is the primary source of this pollution. The purpose of this paper is to compare the costs of reaching the ammonia emission targets for different livestock farms near Natura 2000 sites in the Netherlands, Germany (Schleswig-Holstein), and Denmark. These countries have some of the highest NH<sub>3</sub> deposition rates in Europe, and Germany in particular will have to implement new measures to reach the NEC requirements for 2030. This will also benefit nature sites in Denmark as a large share of the ammonia emissions is dispersed over long distances. The general regulation includes implementation of BAT technologies and emission ceilings. The analysis looks at regulatory aspects, the emission requirements and the cost of implementing the technologies to reduce emissions further. The selected case farms are a finisher farm and a dairy farm, and the distance to a Natura 2000 site is 400 and 2000 m. In all three countries, relatively few livestock farms are situated near or inside Natura 2000 areas. The regulatory approach is very different in the three countries and key issues are: additional deposition from projects, neighbouring livestock farms (cumulation), the inclusion of background deposition and the use of the critical loads concept. The Dutch PAS system is interesting as projected reductions in emissions are distributed as additional "room for development" today. The costs for the case farm with finishers in Schleswig-Holstein are the highest as the Filter Decree requires the use of air scrubbers. The findings suggest that farms 400m from a Natura 2000 site in the Netherlands face lower and less costly constraints than in the other countries, whereas the opposite is the case for farms 2000m from Natura 2000 sites. The requirements near Natura 2000, where strict requirements apply, are so high that farms will expand at a different site instead.