

# Reducing nitrogen loss from livestock production by promoting the use of slurry acidification techniques in the Baltic Sea Region

→ *Livestock manure is the main source of ammonia nitrogen emissions in the Baltic Sea Region (BSR). Ammonia emissions not only threaten the status of the Baltic Sea, but also directly threaten human health. This project will promote the use of slurry acidification technologies throughout the BSR to reduce airborne eutrophication and create a more competitive and sustainable farming sector.*

Priority area	Natural resources
Specific objective	Clear waters
Project acronym	Baltic Slurry Acidification
Lead Partner	JTI - Swedish Institute of Agricultural and Environmental Engineering, Sweden
Project partners	3 LT, 3 LV, 2 DE, 2 PL, 2 SE, 1 DK, 1 EE
Project budget*	Total EUR 5,4 MM
*preliminary figures before contract signature	



## Summary

Livestock manure is the main source of ammonia nitrogen emissions in the Baltic Sea Region (BSR), which through atmospheric deposition results in airborne eutrophication and accounts for a major portion of the nitrogen entering the Baltic Sea. Ammonia emissions not only threaten the status of the Baltic Sea, but also directly threaten human health through the formation of secondary particulate matter, which is among the pollutants with the highest estimated impact on human health. The combined societal health and ecosystem related costs from ammonia emissions are estimated at 14 €/kg N (European Nitrogen Assessment, 2011), not including the fact that ammonia emissions from livestock manure also represents the direct economic loss of a valuable agricultural resource. The revised HELCOM Baltic Sea Action Plan (2013) set targets for reducing 118,000 tonnes of nitrogen entering the Baltic Sea, divided among all BSR countries.

Ammonia loss from livestock manure occurs in livestock houses, manure stores and from the field during application of manure. Livestock operations apply various Best Available Techniques to reduce emissions, such as air cleaning from the livestock houses, covers on slurry stores, and injection of liquid manure when spreading. Recently, slurry acidification technologies (SATs) have been developed in Denmark and are approved by the Danish Environmental Protection Agency as BATs that Danish farms can utilize to reduce ammonia loss by up to 70%. SATs have in Denmark proven to bring real farm level economic benefits in the form of reduced mineral fertiliser consumption and improved crop yields, and are not only expenses for investments and operation, but also benefits. Previous projects recognized SATs as an innovative technology that could decrease nitrogen loss from agriculture in the BSR. However, the commercial use of SATs has not spread outside Denmark.

Core project activities focus on establishing pilot installations in all BSR countries around which field trials and demonstrations will help to build end user confidence in these technologies. The project further aims to systematically enhance the capacity of both public authorities and private farmers by conducting technical feasibility studies and detailed environmental and economic analyses of SATs implementation. Using these results, together with market and national legislation analyses, the project will formulate policy recommendations for integration of the technology in existing legislation and agricultural support schemes. Expected impacts to the BSR include reduced airborne eutrophication and a more competitive and sustainable farming sector.