Policy brief

Baltic Slurry Acidification

Slurry acidification has wide benefits

Livestock manure is the main source of ammonia-nitrogen emissions in the Baltic Sea Region (BSR), which through atmospheric deposition accounts for a major portion of the nitrogen entering the Baltic Sea. Acidification is a well-known technique to reduce ammonia loss from livestock manure[i]. Slurry acidification technologies (SATs) have been developed in Denmark and are approved by the Danish Environmental Protection Agency as Best Available Techniques (BAT) that Danish farms can utilise to reduce ammonia loss by up to 70%[ii].

Baltic Slurry Acidification is a Flagship project for the priority area Bioeconomy in the EU Strategy for the BSR and the main project objective is to promote the use of SATs throughout the BSR due to proven advantages:

Perspective	Advantages of slurry acidification technologies
Society, politicians, policy makers	Agriculture is the source of 93% of all ammonia emissions in the EU[iii] and BSR countries are committed to improving air quality with strict targets for reducing ammonia emissions[iv, v, vi]. SATs can reduce ammonia emissions from 40 to 70% from livestock houses, slurry storage tanks and from field application of slurry depending on which SAT is used [ii]. SATs can decrease greenhouse gas emissions from livestock production by: 1) reducing methane emissions from slurry storages by 65%[vii] since sulfuric acid inhibits methanogenic bacteria, and 2) reducing nitrous oxide emissions that are indirectly related to ammonia emissions[viii]. Due to documented benefits, SATs appear in chapter 5 of the current draft Reference Document for the Intensive Rearing of Poultry or Pigs (BREF)[ix]. This means that SATs will soon be compulsory BAT in all EU Member States.
Farmers	Farmers benefit directly from reducing ammonia emissions by saving nitrogen in their slurry which reduces the need to purchase mineral nitrogen fertiliser or gives increased crop yields without changed fertiliser application. Further benefits arise from using sulfuric acid which acts as a sulfur fertilizer and thus saves the cost of mineral sulfur fertilizers. Via legislation, Danish farmers have been given an additional advantage that they do not need to inject slurry on bare soils or grass fields when using acidified slurry. Also, they save investment costs for storage tank covers in case they use in-house acidification.
Biogas plants	Research indicates that including 10-20% acidified slurry, of the total slurry substrate volume, can stimulate the methane yield during anaerobic digestion by almost 20%. Larger portions of acidified slurry negatively affect biogas production. When mixing separated manure solids with slurry for digestion, replacing 30% of the solids with acidified solids can increase gas yields by 50% compared to only utilizing slurry[x].

Project activities focus on establishing demonstration SAT installations to build local stakeholder confidence and to enhance capacity of both authorities and private actors by developing implementation strategies, funding schemes and policy recommendations.

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