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AMMONIA AND GREENHOUSE GAS EMISSIONS FROM SLURRY STORES

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Proposed as oral presentation

Topics: Measurement, modelling and control of gaseous emissions, strategies for organic waste management in agriculture, processing and handling of wastes, environmental impacts

INTRODUCTION

It is agreed that considerable amounts of ammonia, methane and nitrous oxide may be emitted from slurry stores. However, little is known on the quantity of emissions and on the influence of slurry treatment on ammonia and greenhouse gas emissions. Our measurements aimed at

- quantifying NH₃, N₂O and CH₄ emissions from slurry stores under field conditions
- quantifying the influence of slurry treatment on NH₃, N₂O and CH₄ emissions
- proposing cost effective mitigation measures for NH₃, N₂O and CH₄ emissions from slurry stores

MATERIALS AND METHODS

Five slurry tanks, 10 m³ each, were filled with slurry. In the first year emissions from dairy cow slurry were followed under winter and summer conditions. In the second year pig slurry was investigated.

The following treatments were included in the investigations:

- no treatment
- anaerobically digested slurry
- mechanical separation of solids
- slurry aeration
- cover of slurry store by chopped straw
- two commercial slurry additives

Emissions were collected by a large open dynamic chamber that covered the whole slurry tank. Each variant was measured twice a week for 12 to 24 hours. Gas concentrations were analysed by high resolution FTIR spectrometry. Information on slurry composition, slurry temperature and climate was collected as well.

The investigations will last until December 2001. The presentation will give results of the emission measurements.