



*The scrubber cleans the ammonia-charged air exiting the reactors to form ammonium sulphate which can be used as a fertilizer*

Ammonia combines with sulfuric acid to form ammonium sulfate. In this way the ammonia is immobilized and there are no emissions into the air that are harmful to the quality of the air and can form particulate.

### Results

The system implemented can remove excess nitrogen from slurry and digestate by transforming it into ammonium sulfate. The process is simple and requires limited maintenance and mapower. In this way it is possible to keep the nitrogen useful for crops in the slurry and transfer the excess in the form of ammonium sulfate to other areas or farms.



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**CONSERVA - Innovative plant for the Conservative Removal of Nitrogen from livestock slurries and digestate**



**PSR LOMBARDIA**  
 L'INNOVAZIONE METTE RADICI  
 2014 2020



European agricultural fund for rural development:  
 Europe support Rural Area

Rural development 2014-2020 for Operational Groups of Lombardy Region.

Coordinator: Università degli Studi di Milano- DISAA  
 Partners: Soc. Agr. Vertua s.s., Seralba s.r.l. Soc. Agr., Soc. Agr. Il Montizzolo di Merigo Donatello, Sassi Ivan e Maurizio Enzo Soc. Agr. S.S e Associazione Regionale Allevatori Lombardia.  
 Program managing authority: Regione Lombardia

# Activity of the Operational Group ConservA

## Aim of the project

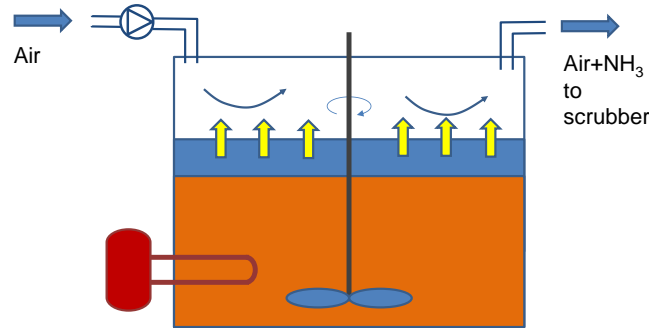
The project aims to develop an innovative technology for the removal of nitrogen from livestock manure and to create a pilot plant that can demonstrate the possibility of introducing the system in livestock farms.

## The concept of the process

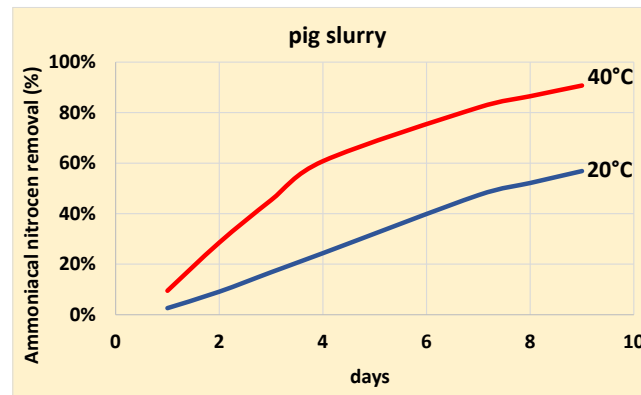
Nitrogen is removed in the form of gaseous ammonia which is removed in an air stream. The subsequent passage of the air in sulfuric acid allows to obtain ammonium sulfate which can be easily transported and used as a mineral fertilizer.

The process involves the permanence of slurry or digestate in a container in which the surface of the slurry is lapped by a flow of air which is charged with the ammonia that is released.

To facilitate the emission, the liquid is mixed continuously. In the case of digestate, the temperature of the sewage leaving the digester is maintained (40 ° C) in order to support the release of ammonia.



*Principle of the ammonia removal process from sewage in heated and mixed containers*



*Using pig slurry, 80% of ammonia nitrogen can be removed in 7 days. At room temperature the same removal can be obtained by doubling the treatment times*



*The slurry is first treated to remove coarse solids with a screw-press separator*



*The slurry after the separation of the solids is placed in containers that feed the reactors where the process takes place*