ACCOUNTING FOR FARMYARD MANURE AND COMPOSTS IN AMMONIA VOLATILIZATION MODELS: THE CASE OF VOLT’AIR

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Context
The use of various residual organic products as fertilizer results in ammonia volatilization, which lessens the fertilizing value of the organic product, and leads to environmental impacts (eutrophication, PM formation).

Materials and methods
Volt’Air - process based model (Genermont et al, 1997)

Results: NH3 Flux Simulations
The initial fluxes were very high. The magnitude of error varied by year and product.

Conclusions and perspectives
Biggest issue: overestimation of emissions
Possibly due to:
A high dry matter content – no longer approaches ideal solution.
A adsorption not well represented (lack of an analytical solution to the equilibrium equations)

Perspectives:
Experiments in controlled conditions (laboratory):
- to build a statistical model of chemical equilibrium/adsorption instead of complex analytical solutions.
- Improve VanGenuchten parameter simulations.

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