

LIBRO DE RESÚMENES

XIII Workshop Remedia

Los sistemas agrícolas, ganaderos y forestales frente al reto climático

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Assessing ammonia emissions from pig slurry application across contrasting climatic conditions

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The reconnection between livestock and crop production by using animal manure as fertilizer is essential for promoting sustainable agriculture, promoting circular economy and reducing reliance on synthetic fertilizers. However, slurry application involves a high risk of ammonia volatilization, which has severe impacts on human health, climate change as indirect source of N₂O, and natural ecosystems. AGROSCENA-NEXT is a Spanish research project sustained on international collaboration that aims to evaluate and improve organic fertilization practices by implementing advanced measurement methods under contrasting climatic conditions. To assess the importance of measurement techniques and environmental conditions in determining ammonia emission factors, four field intercomparison campaigns will be conducted during winter and summer in Spain and Denmark, at the CITA facilities in Zaragoza (Spain) and at the Foulum campus of Aarhus University (Denmark). Ammonia emissions following pig slurry application will be measured using four methods: the semi-open chamber (SOC), the integrated horizontal flux (IHF), an inverse dispersion modelling approach based on PICARRO on-site concentration measurements, and dynamic chambers developed by Aarhus University. Slurry will be applied using two techniques, surface application and an abatement one (e.g. trailing hose and injection), allowing a robust comparison of emission dynamics across seasons, application methods, and climatic conditions. The first field experiment was conducted in November in Denmark, with ammonia emissions measured from 5 to 11 November 2025. The results of the first intercomparison campaign will be presented and discussed. A second field campaign is planned in Spain and will coincide with the REMEDIA workshop.

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