

EMILI 2026

PROGRAMME

23–25 September 2026 • Aarhus, Denmark

WEDNESDAY 23 SEPTEMBER

08:00 – 09:00 **REGISTRATION AND MORNING COFFEE**
Poster setup in Stakladen

09:00 – 09:30 **OPENING OF THE CONFERENCE**
Room: Stakladen

09:30 – 10:15 **KEYNOTE SPEAKER: TAVS NYORD**
Session chair: Anders Feilberg
Room: Stakladen

Tavs Nyord, Chief Specialist, SEGES Innovation: “The climate tax on animal husbandry in Denmark (2030)”

In 2030, Denmark will introduce a climate tax on cattle and pig production. This presentation outlines the policy rationale, tax design, and state initiatives promoting greenhouse-gas-reducing measures. It also covers cooperation on inclusion of mitigation actions in national inventories, collecting activity data, and coordinating with tax authorities.

10:15 – 10:45 **COFFEE**
Room: Preben Hornung Stuen

10:45 – 12:15 **PARALLEL SESSIONS 1-3**

Session 1: Mitigation Strategies and Technologies
Session chair: Thomas Kupper
Room: Stakladen

Speakers:

Marcel Bühler, Aarhus University, Denmark: “Laboratory assessment of methane reduction potential by in-house slurry acidification in dairy cattle barns”

Lorenzo Benedetti, Department of Animal Science, Food and Nutrition (DiANA), Faculty of Agriculture, Food and Environmental Sciences,

Università Cattolica del Sacro Cuore, Italy: “Field acidification with acetic vs. sulfuric acid: effects on NH₃ and N₂O emissions from cattle and pig slurry applied to grassland”

Chun Ma, Aarhus University, Denmark: “Low-dose acidification effectively suppresses methanogenesis during manure storage: Evidence from a two-year field study”

Simon Wilhelm Løvstrøm Granath, Danish Technological Institute, Denmark: “Documentation of methane mitigation efficiency in a flaring system of methane-rich gases collected from covered slurry tanks – preliminary results”

Herald Wilson Ambrose, Aarhus University, Denmark: “Effect of SDS treatment on methane emissions from manure storage in pig and cattle barns”

Elio Dinuccio, University of Turin, Italy: “Effect of Manure Additives on Ammonia and Nitrogen Oxides Emissions during Storage”

Session 2: Inventories and Emission Factors

Session chair: David Janke

Room: Richard Mortensen Stuen

Speakers:

Sandrine Espagnol, IFIP, France: “Establishment of methane conversion factors for different pig slurry management in buildings”

Sang-Ryong Lee, Dongguk University, Republic of Korea: “Assessing Ammonia (NH₃) Emissions, Precursor Gas (SO₂, NO_x) Concentrations, and Source Contributions to Atmospheric PM_{2.5} from a Commercial Manure Composting Facility”

Inge De Bo, Ghent University, Belgium: “Estimation of gaseous emissions from manure treatment facilities”

Emil Jakobsen, SEGES Innovation, Denmark: “A data-driven approach to new chemical odor emission factors”

Aditya Rawat, Leibniz Institute for Agricultural Engineering and Bioeconomy, Germany: “Temporal Variability of Methane Conversion Factors in Liquid Manure Storage and Implications for Future Refinements”

Nanna Schrøder Baggesen, SEGES Innovation P/S, Denmark: “The emission factor paradox: N₂O emissions from organic fertilizer exceed those from synthetic N fertilizers on Danish agricultural soils”

Session 3: Measurement Methods and Data Management

Session chair: Li Rong

Room: Mogens Zieler Stuen

Speakers:

Michael Kazda, Thünen Institute of Agricultural Technology, Germany: “Field Exposure Effects on the Dynamic Response of Low-Cost NH₃

Sensors Used for Emission Measurements in Naturally Ventilated Barns”

Alessandra Apostolico, Department of Agricultural Sciences, University of Naples Federico II, Piazza Carlo di Borbone 1, Italy: “Applicability of the CO₂ balance method for ventilation rate estimation in a naturally ventilated buffalo barn”

Anthony Auzeais, INRAE, France: “Reduction in gaseous emissions from livestock buildings: A carbon and water mass balance approach to enhance accuracy”

Carsten Schep, WLR, Netherlands: “Evaluation of models for prediction of CO₂ production rates from dairy cows in practice”

Harsh Sahu, Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB), Germany: “How Precise is the CO₂-Balance Method for Livestock Emission Estimates?: Quantifying Analytical Uncertainty by a Round-Robin Campaign”

Arnout Declerck, ILVO, Belgium: “Comparing gaseous emissions of naturally ventilated dairy barns determined with a direct and indirect emission measuring method”

12:15 – 13:30

LUNCH

Room: Preben Hornung Stuen

13:30 – 14:15

KEYNOTE SPEAKER: JAN NØRGAARD

Session chair: Sabine Schrade

Room: Stakladen

Jan Nørgaard, Professor, Department of Animal and Veterinary Sciences, Aarhus University: “Inside-Out sustainability: Nutritional strategies to reduce methane and nutrient emissions in pig production”

Sustainable pig production begins inside the animal. By optimizing nutrition, we can significantly reduce enteric methane emissions as well as nitrogen and phosphorus excretion. Our research shows that targeted feeding strategies - such as lowering crude protein, improving amino acid supply, and using novel feed ingredients and additives - enhance nutrient utilization while reducing emissions. Nutrition and feed ingredient choices also interact with animal productivity, health, and welfare.

Diets based on low carbon-footprint ingredients often contain high fiber levels, which can increase methane emissions from pigs and slurry. By focusing on the pig’s nutritional requirements as the starting point, we can influence the entire emission chain - from gut processes to manure storage - and contribute to climate-smart pig production.

14:15 – 14:45

FLASH TALKS

Session chair: Herald Wilson Ambrose
Room: Stakladen

Presenters:

Zenebe Amele Sahile, Arba Minch University, Ethiopia: "Bio-Slurry as a Sustainable Fertilizer: Impacts on Forage Production and Greenhouse Gas Mitigation Compared with Synthetic Fertilizers and Farmyard Manure"

Tongshuai Liu, Henan University of Animal Husbandry and Economy, China: "Characterizing the volatile compound fingerprints and removal efficiency of a dual-stage scrubbing process in multi-floor swine buildings via GC-IMS"

Svend Lehmann Bager, Ambient Carbon, Denmark: "Scaling a Methane Eradication Photochemical System for Agricultural Applications"

Esther Vega, BETA Technological Center, Spain: "Integrated assessment of best available techniques for mitigating ammonia emissions from pig manure storage under Mediterranean climatic conditions"

Mads Skjærbæk, SEGES Innovation P/S, Denmark: "Reducing methane emissions from finishing pig houses through daily slurry acidification: Results from four commercial farms"

Neus Bonet-Garcia, Institute of Agricultural Sciences, Nestlé Research, Switzerland: "Dual-phase additive application for reducing GHG and ammonia emissions in dairy manure management"

Nico Peiren, ILVO (Flanders Research Institute for Agriculture, Fisheries and Food), Belgium: "Evaluating nitrogen emissions in fattening pigs using open circuit chambers and manure containers"

Morten Toft, BioCover, Denmark: "Use of Alfam2 model as online monitoring of ammonia emission during slurry spreading"

14:45 – 16:00

POSTER SESSION

Room: Stakladen

Coffee in Preben Hornung Stuen

16:00 – 17:00

PARALLEL SESSIONS 4-5 & WORKSHOP

(16:00 – 18:00)

Session 4: Modeling and Emission Processes

Session chair: Cecile de Klein

Room: Richard Mortensen Stuen

Speakers:

Thomas Kupper, Bern University of Applied Sciences, School of Agricultural, Forest and Food Sciences, Switzerland: "Slurry temperature in different types of storage tanks"

Tariq Mehmood, Leibniz Institute for Agricultural Engineering and Bioeconomy, Germany: “Interpretable Machine Learning for Estimating Ammonia Concentrations in Naturally Ventilated Dairy Barns”

Shutong Dong, Emissions & Manure Valorisation Department, Wageningen Livestock Research, Netherlands: “Modelling CO₂ Production of Fast- and Slow-growing Broilers and Quantifying Litter Contribution”

Paul Robin, National Institute of Agricultural Research (INRAE), France: “From manure to tailored fertilizers: A generic model to predict gaseous emissions during composting”

Session 5: Manure and Fertilizer Management

Session chair: Johanna Pedersen

Room: Mogens Zieler Stuen

Speakers:

Mette Kramer Langgaard, SEGES Innovation P/S, Denmark: “Emission-optimized slurry application techniques and strategies in spring barley”

Pablo García, Aarhus University, Denmark: “Simultaneous measurements of greenhouse gases and ammonia from cattle excreta under field conditions”

Marzieh Ghorbani, Aarhus University, Denmark: “Quantifying ammonia emissions from soil surfaces treated with organic fertilizers under controlled field-like conditions”

Azadeh Dabiri, Agri-Food and Biosciences Institute, United Kingdom: “Mitigation of Ammonia and Greenhouse Gas Emissions from Stored Cattle Slurry Using Floating Covers, Aeration, and Chemical Additive”

16:00 – 18:00

Workshop: Methods on Measuring Gas Emissions from Livestock Buildings

Room: Stakladen

Since several decades, research teams have been working on developing measurement methods specific to emission sources to improve understanding of emission processes and generate values for inventories and mitigation potential. Gradually, additional measurement targets have emerged, which has required adapting existing methods or even developing new ones.

The aim of this workshop is to provide a rapid overview of the relevant measurement methods and protocols currently available that can address the various measurement targets, and to discuss possible improvements to these methods as well as upcoming challenges. The workshop will primarily address housing emissions.

THURSDAY 24 SEPTEMBER

08:00 – 08:30 **REGISTRATION AND MORNING COFFEE**

08:30 – 09:15 **KEYNOTE SPEAKER: JOHANNES LAUBACH**

Session chair: Alex Valach

Room: Stakladen

Johannes Laubach, Senior Researcher, Bioeconomy Science Institute, Manaaki Whenua – Landcare Research

Group: *“Micrometeorological measurement methods and emission quantification from grazing livestock systems”*

This keynote will provide an overview of current methodologies used to quantify greenhouse gas emissions from grazing livestock systems. The presentation will include micrometeorological approaches highlighting the strengths, limitations, and applicability under field conditions. Emphasis will be on methane emissions from enteric fermentation and nitrous oxide emissions from excreta patches. The talk will discuss methodological challenges related to spatial variability, temporal dynamics, and upscaling from plot to farm and regional scales, and will outline implications for emission inventories and mitigation assessment.

09:15 – 09:45 **FLASH TALKS**

Session chair: Marcel Bühler

Room: Stakladen

Presenters:

Emma van Boxmeer, Wageningen University & Research, Netherlands: *“Effect of calcium cyanamide on greenhouse gas and ammonia emissions during manure storage”*

Sasha Hafner, Aarhus University, Denmark: *“ALFAM2 update and perspectives”*

Ester Scotto di Perta, University of Naples Federico II, Italy: *“Evaluating Ammonia Volatilization from Buffalo Digestate: A Methodological Comparison of Measurement Techniques”*

Marloes Miedema, WUR, Netherlands: *“Preliminary ammonia concentration measurements in a covered outdoor runs (wintergarten) of mechanically ventilated broiler houses”*

Chiara Rossi, Kassena srl, Italy: *“Effects of Agolin Naturu® on enteric methane emissions, milk yield and emission intensity in organic Brown Swiss cows”*

Emiel Willaert, Animal Sciences Unit, Flanders Research Institute for Agriculture, Fisheries and Food, Belgium: "Effects of 3-nitrooxypropanol on enteric methane production, feed intake and weight gain of Holstein Friesian heifers"

Karin Andersson, Swedish University of Agricultural Sciences, Sweden: "Effects of slurry digestion, acidification and plasma treatment on nitrous oxide and ammonia emissions"

Noah Weiss, Ambient Carbon, Denmark: "Methane mitigation via photo-Oxidation: Scaling up photo-chemical processes to barn scale, process optimization and challenges in minimizing resource use towards economical and climate positive solutions"

Maria Casademont, BETA Technological Center, Spain: "Design and development of innovative business models to foster sustainable management across the livestock manure value chain"

09:45 – 11:00

POSTER SESSION

Room: Stakladen

Coffee in Preben Hornung Stuen

11:00 – 12:30

PARALLEL SESSIONS 6-8

Session 6: Mitigation Strategies and Technologies

Session chair: Hendrik Jan van Dooren

Room: Stakladen

Speakers:

Stephane Godbout, IRDA, Canada: "Effects of under-slat slurry removal systems on air quality in pig production"

Jinrui Zhang, Agricultural Biosystems Engineering, Wageningen University and Research, Netherlands: "Simulation model for integrated floor cleaning strategy to reduce ammonia emissions in dairy houses"

Nadine Guingand, IFIP Institut du Porc, France: "Assessment of impacts of a vacuum robot on NH₃, CH₄, N₂O and odors emitted in pig finishing units"

Afsal Ayoob Khan, Rothamsted Research, United Kingdom: "Analysing the effect of early weaning and feed additive supplementation on enteric methane emissions in newborn beef calves"

Sabine Schrade, Agroscope, Switzerland: "Mitigation effects of tannin-rich diets on ammonia (NH₃) and methane (CH₄) emissions: measurements at housing level under naturally ventilated conditions"

Emily C. Teunissen, Wageningen Livestock Research, Wageningen University & Research, Netherlands: "Dietary characteristics affect enteric methane and odour formation in pigs: insights from colon digesta incubations and analysis of exhaled air"

Session 7: Livestock Facilities and Enteric Emission

Session chair: Christian Friis Børsting

Room: Richard Mortensen Stuen

Speakers:

Cristiane Romio, Aarhus University, Denmark: "Impacts of Starch, Fat, Nitrate, and 3-NOP Diet Supplementation on Methane Potential of Dairy Manure"

Peter Kai, Aarhus University, Denmark: "Methane emission from lactating sow and growing-finishing pig housing with daily slurry removal"

Long Chen, Leibniz Institute for Agricultural Engineering and Bioeconomy, Germany: "Optimizing Sensor Placement for Ventilation-Driven Emission Prediction in Naturally Ventilated Livestock Buildings"

Stine Munkholm Jespersen, Aarhus University, Denmark: "Effects of feeding triglycerides rich in C16:0 or C18:0 on enteric methane emissions and production in dairy cows"

Alex Valach, Bern University of Applied Science, Switzerland: "Farm-scale ammonia emissions from cattle housing and slurry storage in Switzerland"

Marcel Bühler, Aarhus University, Denmark: "Methane and ammonia emissions from two types of floor and manure systems of naturally ventilated dairy barns in Denmark"

Session 8: Measurement Methods and Data Management

Session chair: Charlotte Scheutz

Room: Mogens Zieler Stuen

Speakers:

Konstantinos Kissas, Technical University of Denmark, Department of Environment and Resource Engineering, Denmark: "Field evaluation of path-integrated laser system for CH₄ and NH₃ emission quantification from livestock manure storage"

Flaminia Fois, National Research Council of Italy, Institute of Atmospheric Pollution, Italy: "Satellite-Based Monitoring of Aerosol from Intensive Livestock Systems Using High-Resolution MAIAC AOD Retrievals"

Christoph Häni, Bern University of Applied Sciences, School of Agricultural, Forest and Food Sciences, Switzerland: "Intercomparison of two open-path NH₃ analyzers: Comparing measurements from the Airyx OPC-UV3-DL-301 with the miniDOAS instrument"

Eduardo Rosa, NEIKER, Spain: "Can high-frequency monitoring identify emission dynamics that are overlooked by conventional sampling strategies?"

Shutong Dong, Emissions & Manure Valorisation Department, Wageningen Livestock Research, Netherlands: "Quantifying Nitrogen Losses in Fast- and Slow-growing Broiler Production Systems"

	Loes Laanen, ILVO, Belgium: “Equivalence of two gas analyzers for ammonia compared to the reference method (wet chemical)”
12:30 – 13:45	LUNCH <i>Room: Preben Hornung Stuen</i>
13:45 – 14:30	KEYNOTE SPEAKER: DOMINIK WISSER <i>Session chair: Sasha Hafner</i> <i>Room: Stakladen</i> Dominik Wisser, Livestock Policy Officer at the Food and Agricultural Organization of the United Nations: “<i>Pathways to Sustainable Animal Protein: Can We Feed the World While Mitigating Climate Change?</i>” It is estimated that the demand for animal protein will increase by about 20 percent by 2050 globally, mostly driven by population growth in low- and middle-income countries. Under a business-as-usual scenario, this will lead to a further increase in greenhouse gas emissions from the livestock sector. The talk will explore pathways to lower emissions for the sector and explore possible interventions in different regions and contexts.
14:30 – 15:00	COFFEE <i>Room: Preben Hornung Stuen</i>
15:00 – 16:00	PARALLEL SESSIONS 9-10 & MMN MEETING Meeting in the Manure Management Network <i>Room: Stakladen</i> The Manure Management Network (MMN) is part of the Global Research Alliance – at this session the participants will discuss and priorities ideas for developing or disseminating technologies and management practices reducing GHG emission from agriculture. Session 9: Measurement Methods and Data Management <i>Session chair: Paul Robin</i> <i>Room: Richard Mortensen Stuen</i> Speakers: David Janke, Leibniz Institute for Agricultural Engineering and Bioeconomy (ATB), Germany: “How low can we go? Monitoring barn emissions with low- to mid-cost approaches” Julian Hartje, Thünen-Institut for Agricultural Technology, Germany: “SAMBa: A low-cost sensor system for directly measuring airflow rates in naturally ventilated barns and exercise yards”

Andrea Costantino, Institute of Animal Science and Technology, Universitat Politècnica de València, Spain: “IoT-Based Gas Monitoring and Emission Assessment in Monogastric Animal Farms: Insights from a Multi-Level Analysis”

Eva Brusselman, Instituut voor Landbouw-, Visserij- en Voedingsonderzoek, Belgium: “Evaluation of a High-end FTIR Analyser for Continuous Ammonia Monitoring in Livestock Barns”

Session 10: Mitigation Strategies and Technologies

Session chair: Sebastian Wulf

Room: Mogens Zieler Stuen

Speakers:

Matthew Johnson, Department of Chemistry, University of Copenhagen, Denmark: “Methane Mitigation Outside the Cow: Field Demonstration of Gas-Phase Abatement of CH₄, NH₃, PM, and Odor in Dairy Barn Ventilation Air”

Julie Maria Falk, Technical University of Denmark, Department of Environment and Resource Engineering, Denmark: “Mitigation of methane emission from covered manure tanks using a biofilter technology”

Charlotte Scheutz, Technical University of Denmark, Department of Environment and Resource Engineering, Denmark: “Removal of trace gases in biofilters designed for reducing methane emissions from manure tanks”

Aline Vits, Centre for Surface Chemistry and Catalysis: Characterization and Application Team (COK-KAT), KU Leuven, Belgium: “Ammonia recovery from ventilation air of livestock stables using in situ produced nitric acid generated by plasma technology: Results of a first pilot-scale set-up”

18:00 – 22:00

VISIT AND CONFERENCE DINNER AT ARoS

Location: ARoS, Aarhus Art Museum, Aros Allé 2, 8000 Aarhus

FRIDAY 25 SEPTEMBER

08:30 – 09:00

REGISTRATION AND MORNING COFFEE

09:00 – 09:45

KEYNOTE SPEAKER: FREDERIK RASK DALBY

Session chair: Paria Sefeedpari

Room: Stakladen

Frederik Rask Dalby, Assistant professor, Modelling and emission processes, Department of Biological and Chemical Engineering, Aarhus University: “Improving tools for modelling methane from manure”

Methane emissions from manure are not random losses—they are the outcome of dynamic microbial ecosystems operating under shifting environmental constraints. As mitigation strategies increasingly target microbial activity, our modelling tools must evolve accordingly. This keynote argues for a paradigm shift: from empirical emission factors to more process-informed models that explicitly represent microbial capacity and system dynamics across the manure management chain.

A model based on experiments studying degradation kinetics, emission dynamics, methanogenic activity, and mitigation technologies will be presented. It will be demonstrated how it can be used for farm-scale estimation, scaling of storage systems, integration with other models and emission inventories, and challenges related to model complexity.

10:00 – 11:00

PARALLEL SESSIONS 11-13

Session 11: Manure and Fertilizer Management

Session chair: Elio Dinnuccio

Room: Stakladen

Speakers:

Thomas Kupper, Bern University of Applied Sciences, School of Agricultural, Forest and Food Sciences, Switzerland: “Effects of acidified slurry application on soil organisms, soil chemical properties, botanical composition and yield of a natural meadow in Switzerland”

N.L. Mhlongo, Wageningen Livestock Research Institute, Netherlands: “Effect of adding calcium cyanamide (Eminex®) to dairy manure on the emission of methane and ammonia”

Chenglong Wang, Aarhus University, Denmark: “Effects of Manure Management Strategies on Methane and Ammonia Emissions: Field Tests in Pig Houses”

Anders Feilberg, Aarhus University, Denmark: “Design of a new slurry storage facility for obtaining emission and mitigation estimates representative of farm conditions”

Session 12: Mitigation Strategies and Technologies

Session chair: Lise Bonne Guldberg

Room: Richard Mortensen Stuen

Speakers:

Jin Mi Triolo, Department of Energy System Engineering, Gyeongsang National University, Denmark: “Methane Mitigation Potential of Activated Sludge Recirculation in Swine Houses: Operational Effects and Microbial Mechanisms”

Hendrik Jan van Dooren, Wageningen Livestock Research, Netherlands: "Effect of spraying Magnesium Chloride (MgCl₂) on concrete slatted floors on the ammonia emission from dairy housing"

Paria Sefeedpari, Wageningen Livestock Research, Wageningen University and Research, Netherlands: "Towards Climate- and Environment-Friendly Pig Housing: Results from Full-Scale Farm Measurements"

Michael Jørgen Hansen, Aarhus University, Department of Biological and Chemical Engineering, Denmark: "Combined effect of frequent discharge of slurry and slurry cooling on methane emissions from pig houses"

Session 13: Special Session – Emission-Ceiling Permits for Dutch Livestock: Policy, Sensors, and Practice

Session chair: Peter Kai

Room: Mogens Zieler Stuen

Speakers:

Chris van Naarden, Ministry of Agriculture, Fisheries, Food Security and Nature, Netherlands: "Environmental and Nature 2000 permits for livestock housing based on emission ceilings and emission monitoring: a novel policy to resolve a legal deadlock in the Netherlands"

Albert Winkel, Wageningen Livestock Research, Netherlands: "A new Dutch Belgian protocol for determination of gaseous and particulate emissions from livestock farms"

Jan Vonk, Wageningen Livestock Research, Netherlands: "Development, lab testing, and field validation of continuous sensor systems for emission monitoring in from livestock farms"

Roger Stoeltie, Tauw, Netherlands: "Continuous monitoring of ammonia emission in the first farms in the Netherlands with a novel emission ceiling permit"

11:00 – 11:30

COFFEE

Room: Preben Hornung Stuen

Removal of posters

11:30 – 12:50

PLENARY SESSION

Session chair: Mélynda Hassouna

Room: Stakladen

Speakers:

Charlotte Scheutz, Professor, Technical University of Denmark: "Quantification of methane emissions from farm-scale pig manure storage tanks"

Cecile de Klein, Principal Scientist, Bioeconomy Science Institute: "Research priorities to reduce nitrous oxide emissions from"

grazing ruminant urine patches to support the development of effective mitigation technologies – an international review"

Fei Xie, PhD Student, Wageningen University: *"Estimating Ammonia Emissions from the Floor in Pig Houses by Applying Computer Vision Techniques into Process-Based Modelling"*

Johanna Pedersen, PhD, Aarhus University: *"Soil type and application method interact to control NH₃ and N₂O emission following slurry application to grassland"*

12:50 – 13:00

CLOSING REMARKS

Room: Stakladen

Announcement of the Poster Prize Winner

13:00

LUNCH

Room: Preben Hornung Stuen

END OF CONFERENCE