

4th Phosphorus in Europe Research Meeting (PERM)

9h00 – 15h30 CEST, June 2nd 2021 | Online

EU GREEN WEEK 2021 PARTNER EVENT

9h00 - 10h15 : Phosphorus recycling research & technology update

Housekeeping and meeting networking tools
Maurizio Cocchi, ETA Florence

Welcome. Outcomes of PERMs 1-3. Meeting objectives and outputs
Biorefine & Ludwig Hermann, President, ESPP

Nutrients in the Horizon Europe 'Soil Health and Food' Mission
Alfred Grand, Organic farmer and composter, member of the Mission Board, Austria

Thematic networks initiatives on nutrients (ITN-Re-source, ESNI)
Ana Robles Aguilar, Ghent University

Questions and discussion I

From project recommendations to policy implementation and user uptake, SuMaNu Gap
Analysis Report 2020
Henning Lyngsø Foged, Organe Institute ApS

Nutrient recovery thematic network: from project development to farmer implementation
Erik Meers, Ghent University, Nutriman WP2 Leader

LIFE projects on wastewater: from R&D to pilot testing and implementation
*Federico De Filippi, European Commission CINEA (European Climate, Infrastructure and
Environment Executive Agency)*

Questions and discussion II

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10h45 – 12h00 : Parallel breakout sessions

Discussions on research needs and cooperation.

➤ **Manure nutrient recycling**

Moderator: Laia Llenas Argelaguet, Universitat de Vic - Universitat Central de Catalunya

Rapporteur: Marina Ettl, Yara International ASA

From Farm to Market: Upcycling manure to improved fertilizing products

Evan Marks, FERTIMANURE, Universitat de Vic - Universitat Central de Catalunya

Sustainable manure and nutrient management for reduction of nutrient loss in the Baltic Sea Region

Minna Sarvi, SuMaNu, Natural Resources Institute Finland (LUKE)

Sustainable Biogas Project

Anna Saarentaus, John Nurminen Foundation

Circular Agronomics: Efficient Carbon, Nitrogen and Phosphorus cycling in the European Agri-food System and related up- and down-stream processes to mitigate emissions

Victor Riau, Institut de Recerca i Tecnologia Agroalimentàries (IRTA)

Pegasus - Phosphorus efficiency in Gallus gallus and Sus scrofa: bridging the gaps in the phosphorus value chain

Arno Rosemarin, Stockholm Environment Institute

ALG-AD – creating value from waste nutrients using microalgae

Alla Silkina, Swansea University

P-Recycling in animal husbandry – Aquaculture production

Jonathan Schleyken, Universitat Rostock

Agriplus - Ecological nutrient recovery from agriculture in the Hohenlohe region

Jennifer Bilbao, Steinbeis Europa Zentrum

SYSTEMIC - Systemic large-scale eco-innovation to advance circular economy and mineral recovery from organic waste in Europe

Oscar Schoumans, Wageningen University & Research

Circular NP – Better recycling of animal manure

Erik Sindhøj, Research Institute of Sweden

➤ **Nutrient recovery from sewage & wastewater**

Moderator: Christian Kabbe, EasyMining Germany GmbH

Rapporteur: Bertrand Vallet, EurEau

EGESTABASE – mapping evidence on circular nutrient solutions

Robin Harder, End-of-wastewater, Swedish University of Agricultural Sciences

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LIFE ENRICH project: Nitrogen and Phosphorous recovery
and valorization from urban sewage sludge
Adriana Romero Lestido, Centro Tecnológico del Agua

SMART-Plant: Scale-up of low-carbon footprint material recovery techniques in existing
wastewater treatment plants
Francesco Fatone, Università Politecnica delle Marche

Recovery and valorisation of phosphate from dairy processing waste water
J.J. Leahy, REFLOW, University of Limerick

RecoPhos Scale-Up Project
Christoph Ponak, Montanuniversitat Leoben

HYDROUSA – Integration of nature-based solutions to promote sustainable recycling of
nutrients from wastewater and sewage sludge
Costas Noutsopoulos, National Technical University of Athens

A systematic comparison of commercially produced struvite in Europe:
Quantities, qualities and soil-maize phosphorus availability
Marc Spiller, SUSFERT, University of Antwerp

Resource-wise nutrient recovery from industrial wastewaters
Hanna Kyllonen, TYPKI, VTT Technical Research Centre of Finland

Segregated collection and decentralized treatment for resources recovery.
Run4Life project
Nicolas Morales Pereira, Aqualia S.A.

Sustainable waste management and resources recovery from hydrothermal gasification
of sewage sludge
*Luca Loreggian, MoReCO, University of Applied Sciences and Arts Northwestern
Switzerland (FHNW)*

LIFE DRY4GAS: Towards the agricultural valorization of sewage sludge from solar dryer
and gasification processes
Felipe Bastida, CEBAS-CSIC

Valuewaste - A glimpse into P-recovery
Aiman Anwar, Nutrients Recovery Systems (NuReSys)

Resource-oriented solutions for industrial wastewater treatment: Water2REturn project
Pilar Zapata, Bioazul S.L.

ViviMag: Magnetic phosphorus and iron recovery as vivianite from sewage sludge
Leon Korving, Wetsus European Centre of Excellence for Sustainable Water Technology

WaterMining: Regenerative phosphate adsorption from sewage effluent to obtain
ultra-low phosphate discharge concentrations
*Leon Korving, Wetsus European Centre of Excellence
for Sustainable Water Technology*

Monitoring of water and sewage management in the
context of the implementation of the circular
economy assumptions
Marzena Smol, MonGOS, Polish Academy of Sciences

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Phos4You: Phosphorus recovery from municipal wastewater
Marie-Edith Ploteau, EGLV - Emschergenossenschaft und Lippeverband

Microalgae technology for nutrients removal and recovery
Tania Fernandes, Lotus HR, Netherlands Institute of Ecology (NIOO-KNAW)

FlashPhos - the complete thermochemical recycling of sewage sludge
Dominik Leverenz, ISWA - Universität Stuttgart

nextGen: Towards the next generation of water systems and services for the circular economy
Anders Nättorp, University of Applied Sciences and Arts Northwestern Switzerland (FHNW)

RAVITA: Innovative nutrient recovery from wastewater
Kati Blomberg, Helsinki Region Environmental Services HSY

Building-scale urine processing with freeze concentration
Bradley Kennedy, Rich Earth Institute

➤ **Contaminants, safety, LCA**

Moderator: Ludwig Hermann, President, ESPP

Rapporteur: Aurore Assaker, Ghent University & Biorefine Cluster Europe

Review of LCA studies on Bio-based Fertilisers
Julia Tanzer, Lex4Bio, Proman Consulting

Focus on the metal analyses realised with Phos4You project
Aleksandra Bogdan, Ghent University

LCA of P recovery processes from municipal wastewater: approaches in Phos4You
Sylvie Gros Lambert, University of Liege

LCA in Circular Agronomics – Goal and Scope
Florian Grassauer, AREC Raumberg-Gumpenstein

LCA & RA applied to the Water2REturn project
Leo Breedveld, 2B Srl

Phosphate-based materials for waste conversion, energy storage and environmental remediation
Nathalie Lyczko, RAPSODEE Research Centre – CNRS

Contaminants and safety issues in the Circular Flanders project
Floris Schoeters, Radius - Thomas More University of Applied Sciences

Run4Life decentralized wastewater treatment under the focus of Life Cycle Assessment
Maria Teresa Moreira, University of Santiago de Compostela

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Life cycle assessment of struvite recovery and a comparative assessment of wastewater sludge end-use

Rahul Ravi, Nutri2Cycle, Ghent University

➤ **Fertiliser properties and user uptake of recycled nutrient materials**

Moderator: Kari Ylivainio, Natural Resources Institute Finland (LUKE)

Rapporteur: Ana Robles Aguilar, Ghent University

B-Ferst: Bio-based fertilising products as the best practice for agricultural management sustainability

Maria Cinta Cazador Ruiz, FERTIBERIA S.A.

Recycling P from residues of captured fish

Anne-Kristin Løes, RESTOR & Organic-PLUS, Norwegian Centre for Organic Agriculture

Sustainable Algae Biorefinery for Agriculture and Aquaculture (SABANA)

Francisco Gabriel Acien Fernandez, Universidad de Almería

Kretsløp SIS - Sustainable recycling of organic waste resources in the future bioeconomy

Eva Brod, Norwegian Institute of Bioeconomy Research

New bio-based fertilisers from organic waste upcycling (FertiCycle, a MSCA-ITN)

Lars Stoumann Jensen, Copenhagen University

Capturing P in tile-drained agricultural areas and convert it into marketable fertilisers

Thilo Behrends, P-TRAP, Universiteit Utrecht

WASTE2BIO project. Valorization of urban wastes to new generation of bioethanol

Marcos Latorre, Perseo Biotechnology S.L.

Black Soldier Fly larvae reared on feed mixed with recycled sewage sludge accumulate Ca and P and other minerals

Mohammad Moosavi, Leibniz Institute for Farm Animal Biology

Yara: a fertiliser company's focus on recycled nutrients

Dejene Eticha, Yara International ASA

P utilisation capacity of forage legumes from recycling products

Yue Hu, IPK Leibniz Institut

URBIOFIN: Demonstration of an integrated innovative Biorefinery for the transformation of M.S.W. into new Bio-Based products

Natalia Herrero, Biomasa Peninsular S.A.

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➤ **Nutrients stewardship**

Moderator: Chris Thornton, ESPP

Rapporteur: Kimo Van Dijk, Wageningen University & Research

JRC Water Framework Directive ECOSTAT Nutrient Work
Sandra Poikane, Joint Research Centre (JRC)

RecaP: Capture, recycling and societal management of phosphorus in the environment
Kasper Reitzel, University of Southern Denmark

RePhoKUs: The role of phosphorus in the resilience and sustainability of the UK food system
Shane Rothwell, Lancaster University

LEX4BIO: Optimizing Bio-based Fertilisers in Agriculture – Knowledgebase for New Policies
Else Bünemann, Research Institute of Organic Agriculture (FiBL)

RELACS: Improving nutrient inputs for organic agriculture
Else Bünemann, Research Institute of Organic Agriculture (FiBL)

Metabolic engineering of *Saccharomyces cerevisiae* for the production of long chain bio-polyphosphate
Jana Fees, MeY4bioPP, RWTH Aachen University

PROSUMER - An integrated industry-based methodology to unlock the full-scale implementation of Phosphorus recovery technology
Jessica Rossi, University of Bologna

Mapping N, P and protein flows in the region of Flanders
Joris De Backer, NutriFlow, University of Antwerp

Grass2Algae – Grass juice as a renewable nutrient source for microalgal cultivation
Marcella Fernandes De Souza, Ghent University

Gypsum Initiative: Improving the water quality of the Baltic Sea by gypsum treatment of agricultural fields
Petri Ekholm, Finnish Environment Institute

14h00 – 15h30 : Perspectives for research and market uptake

Nutrient R&D objectives under Horizon Europe.
Katja Klasinc, European Commission DG RTD.

Nutrient R&D Projects Inventory (see <http://www.phosphorusplatform.eu/R&D>)
Lapo Braconi, ETA Florence

Summaries of outcomes of each breakout sessions (research needs)
Sessions Rapporteurs

Questions and Discussion

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Key take-aways from the day identified by experts:

Francesco Fatone, Università Politecnica delle Marche

Antoine Hoxha, Fertilizers Europe asbl

Oscar Schoumans, Wageningen University & Research

Dries Huygens, European Commission JRC

Close

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