

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

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

Housekeeping and meeting networking tools
Maurizio Cocchi, ETA Florence

Nutrient R&D projects inventory
Lapo Braconi, ETA Florence

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 2021
Henning Lyngsø Foged, Organe & Kaj Granholm, Baltic Sea Action Group

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

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
TBA

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

Oscar Schoumans, Wageningen University & Research

➤ **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

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

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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, 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

Phos4You: Phosphorus recovery from municipal wastewater

Marie-Edith Ploteau,

EGLV - Emschergenossenschaft und Lippeverband

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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
TBA

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*

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➤ **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*

Gypsum Initiative: Improving the water quality of the Baltic Sea by gypsum treatment of agricultural fields

Petri Ekholm, Finnish Environment Institute

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

FertiCycle: New bio-based fertilisers from organic waste upcycling

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

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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

Other confirmed presenters:

Circular NP, Urbiofin.

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

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

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

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

Sessions Rapporteurs & Moderators

Close

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