

The ESPC5 conference will be moderated by: **Daniel Frank**

8:00 h – 9:00 h	Registration, coffee.
9:00 h – 10:45 h	Opening. Welcoming by Catalan Government and Lleida public administration.
	The Common Agricultural Policy. Special focus on the sustainable use of nutrients. Stephanos Kirkagalis (DG AGRI)
	Strategies and Action to shift towards sustainable agrifood systems in the Mediterranean Region. Marco Orlando (Partnership for Research and Innovation in the Mediterranean Area)
	Sustainable food systems – Med partnerships and joint agenda. Cristina Cardenete (Union for the Mediterranean)
	Current status of recycled phosphorus products in the organic sector. Frank Willem Oudshoorn (Innovation Centre for Organic Farming)
	Short talks by farmers associations. <ul style="list-style-type: none"> • Ramon Armengol (COPA-COGECA) • Eduard Cau (Unión de Uniones) • Àlex Bayo (Alcarràs Bioproductors)
10:45 h – 11:15 h	Break
11:15 h – 12:45 h	SEACURE project: Innovative solutions to prevent, reduce and remediate nutrient pollution along the land–river–sea system in the Mediterranean basin. Lorenzo Proia (BETA Technological Center)
	<ul style="list-style-type: none"> • Nutrients and salinity management in Axios River Delta. Vasileios Takavakoglou and Vassilis Aschonitis (ELGO-DIMITRA, Soil and Water Resources Institute) • Origin and dynamics of phosphorus loads in the Po district and management perspectives. Alessandro Scibona (Po river management authority) • The role of aquatic macrophytes in phosphorus retention along the land–river–sea continuum. Monia Magri (University of Parma, Italy)
	Crucial aspects for sustainable management of phosphorus in climate change resilient agrosystem in the Mediterranean context. Antonio Delgado (University of Sevilla)
	Pitches from ESPP members:
	<ul style="list-style-type: none"> • Proman Consulting – Ludwig Hermann • Prayon – Hubert Halleux • Pyreg – Helmut Gerber • Easymining – Yariv Cohen • Wien Energie – Felix Bein
12:45 h – 14:00 h	Networking lunch + Poster session
14:00 h – 16:00 h	Parallel sessions (Only room 1 available online)
	<ul style="list-style-type: none"> • Room 1 – Climate change. Soils. Mediterranean • Room 2 – Phosphorus fertilisation • Room 3 – Transversal
16:00 h – 16:30 h	Break
16:30 h – 18:00 h	How EU–funded research can support implementation of EU nutrient management policies. Bertrand Vallet (DG RTD)
	United Nations policies on nutrient management, implications for governments, industry and research. Ning Liu (UNEP)
	The importance of P recycling to feed the world. Pär Larsshans (Ragn-Sells)
	Innovation, sustainability and resource stewardship. Leonardus Vergütz (OCP Group)
	Green Perspectives for Phosphorus Management in Europe: Vision of the European Environment Bureau. Sara Johansson (European Environmental Bureau)
	The EU fertilisers industry vision for phosphorus sustainability and recycling. Antoine Hoxha (Fertilizers Europe)
18:00 h – 19:00 h	Poster session and networking drinks
20:00 h	NETWORKING DINNER (Additional option)
	<ul style="list-style-type: none"> • ESPP’s 10 year birthday: a short anecdotal history of how it all started and what has been achieved over our first decade ... and where next ? Ludwig Hermann, Antoine Hoxha, Chris Thornton, Robert Van Spingelen, Kimo Van Dijk • After dinner – Live music with Halldór & Toni

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9:00 h – 10:30 h	<p>Vision statements from industry sponsors of ESPC5. Nicolas Willaume (ICL group)</p> <p>New updates in the UWWTD. Michel Sponar (DG ENVI)</p> <p>Proposals for EU UWWTD phosphorus 'reuse & recycling targets' and for market pull policies. Veronica Santoro (European Sustainable Phosphorus Platform)</p> <p>Centralized and decentralized strategies for nutrients management in wastewater treatment systems: Italian case studies. Francesco Fatone (Polytechnic University de la Marche)</p> <p>P-recovery from wastewater in water resource recovery facilities: Where, how and to what extent? Juan Baeza (Autonomous University of Barcelona)</p> <p>Pitches from ESPP members:</p> <ul style="list-style-type: none"> • Kemira – Jean-Christophe Ades • SNB – Slibverwerking Noord-Brabant – Silvester Bombeeck and Marissa de Boer • TTBS – Takhim for Technology and Business Services – Mohamed Takhim • Veolia – Elena Rojo • Biomasa Peninsular – Juliette Cassart
10:30 h – 11:00 h	Break
11:00 h – 12:45 h	<p>Parallel sessions (Only room 1 available online)</p> <ul style="list-style-type: none"> • Room 1 – Nutrient recycling 1 • Room 2 – Nutrient recycling 2 • Room 3 – Nutrient recycling 3
12:45 h – 14:00 h	Networking lunch
14:00 h – 15:15 h	<p>Biogas European Context and potential of digestate valorisation. Lucile Sever (European Biogas Association)</p> <p>The Catalan biogas plan and the Catalan digestate plan. The importance of Biogas biorefineries as a key to bridge the gap between husbandry and agricultural systems. (Catalan Department of Agriculture, Livestock, Fisheries, and Food)</p> <p>Pitches from ESPP members:</p> <ul style="list-style-type: none"> • Wageningen Environmental Research (WENR) – Kimo Van Dijk • University of Bologna – Dario Frascari • University College Dublin – Rajan Choudhary • Record; University of Florence – Andrea Salimbeni • University of Southern Denmark – Kasper Reitzel • NuReSys – Manan Sawhney
15:15 h – 15:45 h	Break
15:45 h – 16:45 h	<p>Perspectives and prospectives in Europe and worldwide.</p> <p>Ten years since ESPP was launched at ESPC1, 2013. Chris Thornton (European Sustainable Phosphorus Platform)</p> <ul style="list-style-type: none"> • Achievements over a decade in The Netherlands and perspectives. Jorn Baan Hofman (Netherlands Nutrient Platform) • Update on P-recovery implementation in Germany. Tabea Knickel (DPP German Phosphorus Platform) • Swedish Nutrient Platform. Elin Kusoffsky (Research Institutes of Sweden) • Presentation of the "Catalan Nutrient Platform". Laia Llenas Argelaguet (BETA Technological Center) • Phosphorus Sustainability in North America and STEPS (Science and Technologies for Phosphorus Sustainability). Matt Scholz (Sustainable Phosphorus Alliance) • Key directions for nutrients in Europe today. Robert Van Spingelen (President of ESPP)
16:45 h – 17:00 h	Final remarks and official closure by the Catalan Government .
18:00 h – 20:00 h	Optional Tourist visit to know the city of Lleida.

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FIELD VISITS IN RELEVANT PLANTS OF THE LLEIDA REGION

8:30 h

Departure point: La Llotja (conference venue)

“Fertilizantes del Ebro” visit

Fertiebro is a fertilizer production factory with three lines: liquid fertilizers, deficiency correctors and blending of solid fertilizers.

The visit consists in understanding the operation of a liquid fertilizer and correctors plant, as well as seeing one of the largest blending facilities in Spain. The main characteristics are the automatization of processes and the use of raw materials of circular origin.

Fertiebro also has a research laboratory specialized in optimizing industrial processes in order to manufacture from changing raw materials, and analyzes to offer a high quality final product for our customers.



“Bioenergia de Almenar, S.L.” visit

Bioenergia de Almenar, S.L. is a company that, from an anaerobic digestion process, transforms organic matter into green energy and obtains, on the one hand, a biogas that is valorised for different energy applications, and on the other hand, a solid fertiliser, osmotised water and a liquid concentrate with high fertilising capacities.



15:30 h

Arrival point: La Llotja (conference venue)

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CLIMATE CHANGE. SOILS. MEDITERRANEAN.

ROOM 1:
LEANDRE CRISTOFOL
AUDITORIUM
(STREAMING)

- **Iris Zohar** (Tel-Hai College): *The effect of extreme heat events on phosphorus solubility in soils.*
- **Elise Van Eynde** (European Commission, Joint Research Centre, Ispra, VA, Italy): *Evaluating current soil P management strategies and its implications for soil health monitoring.*
- **Golnaz Ezzati** (Teagasc, Ireland): *Impact of climate change on P losses: Empirical modelling of historical data and far future projections in hydrologically diverse agricultural catchments.*
- **Abdallah Oukarroum** (University Mohammed VI): *Improving phosphorus use efficiency in Mediterranean agriculture through innovative agronomic practices and biochemical processes.*
- **Vitor Correia** (European Federation of Geologists (EFG) / FIC-Fighters project): *To Fair, Inclusive, Circular and Healthy cities: Transformation of Phosphogypsum (PG) into commercial products through sustainable and zero-waste processes.*
- **Beata Jurga** (State Research Institute, Poland): *Estimating risk of phosphorus losses from arable land via water erosion.*
- **Monia Magri** (Università di Parma): *Effect of climatic extremes and agricultural practices on annual P export in an agricultural watershed.*
- **Laura Diaz** (BETA Technological Centre): *NutriBudget, optimisation of nutrient budget in agriculture: the Mediterranean pilot.*

PHOSPHORUS FERTILISATION

ROOM 2:
MARIA RÚBIAS 1
(NOT AVAILABLE ONLINE)

- **Morten Kjærulff Sørensen** (NanoNord A/S and Aarhus University): *Mobile NMR Sensor Technology: Quantification of Phosphorus and Other Parameters in Animal Slurry, Feed, and Soil.*
- **Cristian Terrones** (ICL Growing Solutions): *Agronomy trials results of a recycled phosphate fertilizer from an organic waste stream.*
- **Francesca Degani** and **Alexia Crezé** (Arvalis): *Phosphorus Use Efficiency and Genetics of Bread Wheat.*
- **Nieves Nuñez** (Universidad de Sevilla): *Waste as a real alternative to mineral phosphate fertilization.*
- **Sophie Schönfeld** (Fraunhofer UMSICHT): *Enhancing Phosphorus Uptake and Soil Health: Innovative Biochar from Cattle Manure as a Sustainable Fertilizer Solution.*
- **Cinta Cazador** (Grupo Fertiberia): *B-FERST project: Bio-based fertilising products as the best practice for agricultural management sustainability.*
- **Berta Singla** (BETA Technological Centre): *Agronomic efficiency of phosphorous from BBFs derived from pig slurry in ryegrass cultivation of the FERTIMANURE Spanish on-farm pilot.*
- **Ana Robles** (BETA Technological Centre): *Agronomic evaluation of hydrochars derived from livestock manure in Catalonia.*

TRANSVERSAL

ROOM 3:
MARIA RÚBIAS 2
(NOT AVAILABLE ONLINE)

- **Darren Oatley-Radcliffe** (Swansea University): *Sustainable technologies for nutrient recycling, re-blending, and upscaling via microalgae.*
- **Sofia Högstrand** (Lund University): *Biological phosphorus removal in a Swedish context – effects of nationwide implementation.*
- **Priscila de Morais Lima** (RISE Research Institutes of Sweden): *Circular Nutrient Recycling in the Baltic Sea Region.*
- **Eugenio Marin** (FCC Aqualia S.A.): *Moving from wastewater treatment plants to biofactories: successes in nutrients recovery from urban wastewater.*
- **Sofía Jaray** (CEIT-Basque Research and Technology Alliance (BRTA)): *Model-Based Optimisation of Phosphorus Management and Recovery in WRRFs: A Plant-Wide Approach.*
- **Kimo van Dijk** (Team Sustainable Soil Management (SSM) – Wageningen Environmental Research (WENR) – Wageningen University & Research (WUR)): *Circular Fertilisers from Circular Sanitation, Communal Wastewater, and Agri-Food Industry Processwater.*
- **Julia Santolin** (University of Antwerp): *Adoption of nitrogen and phosphorus recovery technologies in a nutrient-intensive region: Understanding actors' choices in the food processing sector.*

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NUTRIENT RECYCLING 1

ROOM 1:
LEANDRE CRISTOFOL
AUDITORIUM
(STREAMING)

- **Guozhu Ye** (Swerim AB): *A Novel Approach for Efficient Extraction of P from ashes generated from biowaste incineration.*
- **Rajan Choudhary** (University College Dublin): *Non-aqueous process for Soluble Inorganic Phosphate Fertiliser (SINFERT).*
- **Jesper Højer** (Clean Matter ApS): *Power to P; Innovative Phosphorus Recovery from Sewage Sludge Ash.*
- **Joachim Clemens** (SF-SoepenberGmbH): *Reductive P-Recovery from Excess Sludge in Wastewater Treatment Plants.*
- **Alberto Bouzas** (Universitat de València): *Boosting nutrient recovery from AnMBR effluents by means of electrodialysis technology.*
- **Samantha Gangapersad** and **Sidney Omelon** (McGill University): *Phosphorus Recovery by Elemental Sulphur Addition to Municipal Biosolids and Its Anaerobic Microbial Reduction to Sulphide.*
- **Alice Boarino** (University of Turin): *A circular approach to phosphorous recovery. Struvite precipitation from biomass waste.*
- **Kea Purwing** (Universität Hohenheim): *Optimization of phosphorus mobilization in biogas digestate.*

NUTRIENT RECYCLING 2

ROOM 2:
MARIA RÚBIAS 1
(NOT AVAILABLE ONLINE)

- **Eric Franke** (Institute of Energy Process Engineering and Chemical Engineering): *Investigations on the phosphorus release behavior from sewage sludge in inert and reducing conditions.*
- **Sido Altenburg** (EasyMining AB): *Aqua2®N – Innovative Technology to Remove and Recover Nitrogen from Wastewater.*
- **Federico Battista** (University of Verona): *Comparison of different combinations of sieving and pressure driven membranes technologies for nutrient recovery from agricultural digestate.*
- **Lobna Amin** (Aalto Univeristy): *Potential of phosphorus recovery in form of vivianite from wastewater treatment plants.*
- **Outi Grönfors** (Kemira Oyj): *Phosphorus recovery as vivianite from sludge by magnetic means.*
- **Patrik Eckert, Oliver von Arx** (FHNW) and **Simone Martinoli** (Erzo ARA): *Pushing the limits for phosphorus recovery from sewage sludge in Switzerland by acid leaching and ion exchange.*
- **Vishal Zende** (University of Limerick): *Phosphorus recovery from Category 1 Meat and Bone Meal ash on pilot scale.*

NUTRIENT RECYCLING 3

ROOM 3:
MARIA RÚBIAS 2
(NOT AVAILABLE ONLINE)

- **Lukas Pohl** (University of Stuttgart): *Evaluation of phosphorus recovery potentials from sewage sludge in Spain for the production of white phosphorus with the FlashPhos process.*
- **Andrea Kotze** (InsPyro): *Thermodynamic Modelling of Processes for Phosphorus Recovery from Sewage Sludge.*
- **Marzena Kwapinska** (University of Limerick): *Dairy processing sludge, a valuable source of phosphorus and other plant nutrients – can hydrothermal carbonization improve its management practices?*
- **Muhammad Rubel** (University of Coimbra): *Life Cycle Assessment of an Innovative Technology for Dairy Wastewater Treatment with the Production of Phosphorus-rich Fertilizer.*
- **Lidia Paredes** (BETA Technological Centre): *A novel technological approach for phosphorus recovery from cheese whey by combining anaerobic digestion with concentration technologies.*
- **Giuseppe Moscatelli** (Research Centre on Animal Production – CRPA): *Digestate treatment to reduce emissions and produce Struvite.*
- **Marc Sonveaux** (Prayon): *Prayon's Integrated Approach for Phosphate Recovery.*

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