



Italian Phosphorus
Platform



Inventory of 100++ nutrient related projects and research underway and summary of 1st (Berlin 2015) and 2nd (Basel 2017) European Nutrient R&D events

3rd EUROPEAN NUTRIENT EVENT @ ECOMONDO 2018

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8 - 9 November 2018, Rimini, Italy

www.smart-plant.eu/ENE3



EU Nutrient R&D event in Berlin in 2015

- First EU nutrient recycling projects and policy workshop, Berlin, 2015, linked to the ESPP European Sustainable Phosphorus Conference (ESPC2)

- Summary of the event in SCOPE Newsletter n° 111

www.phosphorusplatform.eu/SCOPE111

- Co-organised by ESPP, the European Commission and FP7 funded P-REX project

- The conclusions were published by the European Commission in the report “Circular approaches to phosphorus - From research to deployment”

<http://bookshop.europa.eu/en/circular-approaches-to-phosphorus-pbKI0115204/>



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This project has received funding
from the EU Horizon 2020
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agreement No. 690323

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Green & Circular Economy
6-9 Novembre 2018
Rimini Italy
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EU Nutrient R&D event in Berlin in 2015 – research needs

The workshop identified the following research and demonstration needs:

- phosphorus flow studies based on real monitoring data to identify points for P-recovery implementation
- social science (attitudes, acceptance, skills, choices) to accompany phosphorus recycling implementation
- actions covering the whole value-chain, from P-recovery to recycling
- detection, monitoring and risk assessment of organic contaminants in sewage sludge
- agronomy research into phosphorus use efficiency in farming practices and crop availability of recovered nutrient products
- support for the development of harmonised standards, regulations and product criteria
- full-scale demonstration in real environment
- frameworks for clustering of projects and networking



EU Nutrient R&D event in Basel in 2017 (1)

- Co-organized with FHNW School of Life Sciences, the Phos4You INTERREG North-west Europa project, BaselArea.swiss and the German Phosphorus Platform (DPP)
- Launch of the Swiss Phosphorus Network www.pxch.ch
- All presentations and outcomes can be found at www.phosphorusplatform.eu/R&D
- Panellists noted that technology is not today the obstacle to nutrient recovery and recycling but rather:
 - **Legal framework**
 - Need to engage stakeholders to ensure that recovered products are adapted to **farmers' requirements**
 - **Promote acceptance of use of recycled nutrients** by stakeholders such as the food industry, consumers



EU Nutrient R&D event in Basel in 2017 (2)

- Pilot scale demonstration of new technologies, full-scale demonstration of nutrient recovery is important, **integrated into resource and carbon efficient water and waste management.**
- Cost and technology assessment of these operating systems is important to provide information to industry and policy makers.
- Sewage biosolids management is a major operating cost for sewage works: **real data on cost impacts of nutrient recycling** is essential (based on full-scale operations, not pilots or estimates).



EU Nutrient R&D event in Basel - research needs

Proposals for future research needs were put forward:

- Maintaining acceptance and ensuring safety and soil quality in **sewage biosolids use** on crops
- Integrating nutrient recycling and **organic farming**
- **Digital tools** for nutrient management
- Rethinking the **food system** to integrate nutrient stewardship and return of organic carbon to soil
- Assess **emerging contaminants in biosolids and manure**, and how to reduce these upstream or in treatment systems
- Promote an **independent panel** and data base, for evaluation of nutrient recycling technologies, systems and costs
- Development of high-quality recycled nutrient products and their **use in precision farming**
- **Demonstration plants** in different regions, different types of waste / water, different treatment systems
- Developing the sewage works / waste system of tomorrow, designed as a **resource factory** rather than pollution abatement



EU Nutrient R&D event in Basel – joint actions

- Establish a **Mediterranean network on nutrient recycling**, maybe within ESPP, addressing the specific regional challenges such as water reuse, Mediterranean agricultural systems and crops
- Structure further cooperation between the different nutrient-related R&D projects present, such as **joint dissemination, back-to-back events at important industry trade fairs** (water and waste, food industry, bioeconomy ...)
- **Organise a further R&D projects meeting**, to follow on from this one, in 2018, to involve the newly funded EU projects (see above), projects not here, etc.



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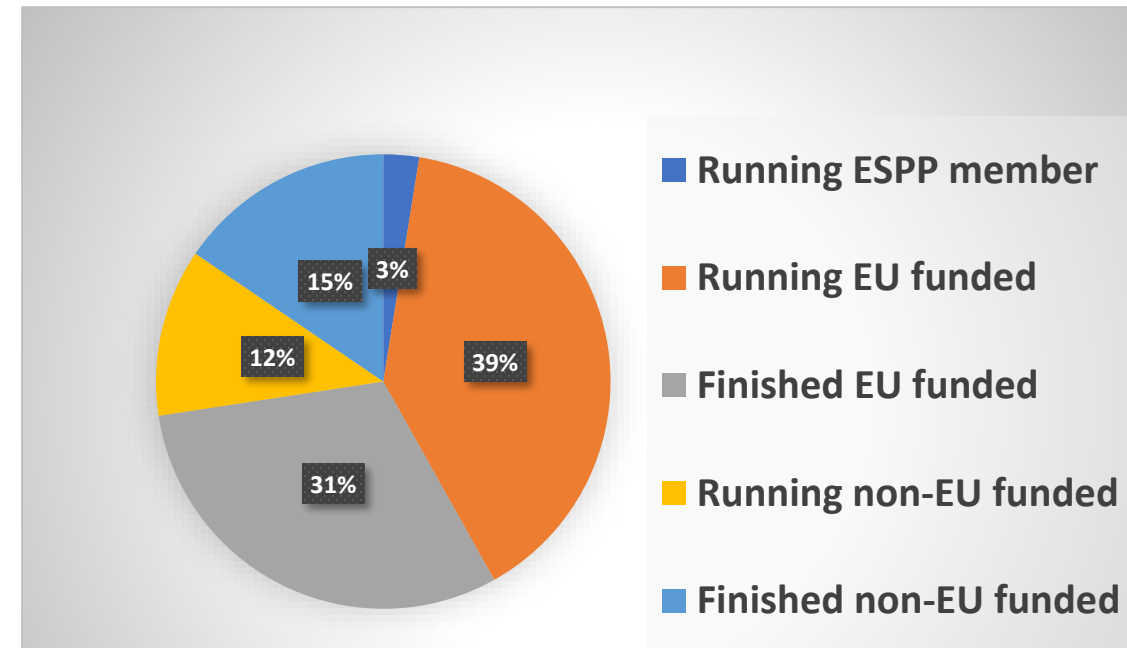


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ESPP catalogue of research projects on nutrient recycling and stewardship

- The full ESPP R&D project catalogue and more information can be found at the ESPP R&D activities page: www.phosphorusplatform.eu/R&D
- Running and finished projects, including: name, summary, funding sources, start and end date, website, contact person and contact details
- **Number of projects on the list, in total about 394**
 - 10 Running project being ESPP member
 - 155 Running EU funded projects
 - 121 Finished EU funded projects
 - 47 Running non-EU funded projects
 - 61 Finished non-EU funded projects
- Please correct and add projects, send your questions and input to: Kimo van Dijk kimovandijk@phosphorusplatform.eu





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ESPP catalogue of research projects - EU funding sources

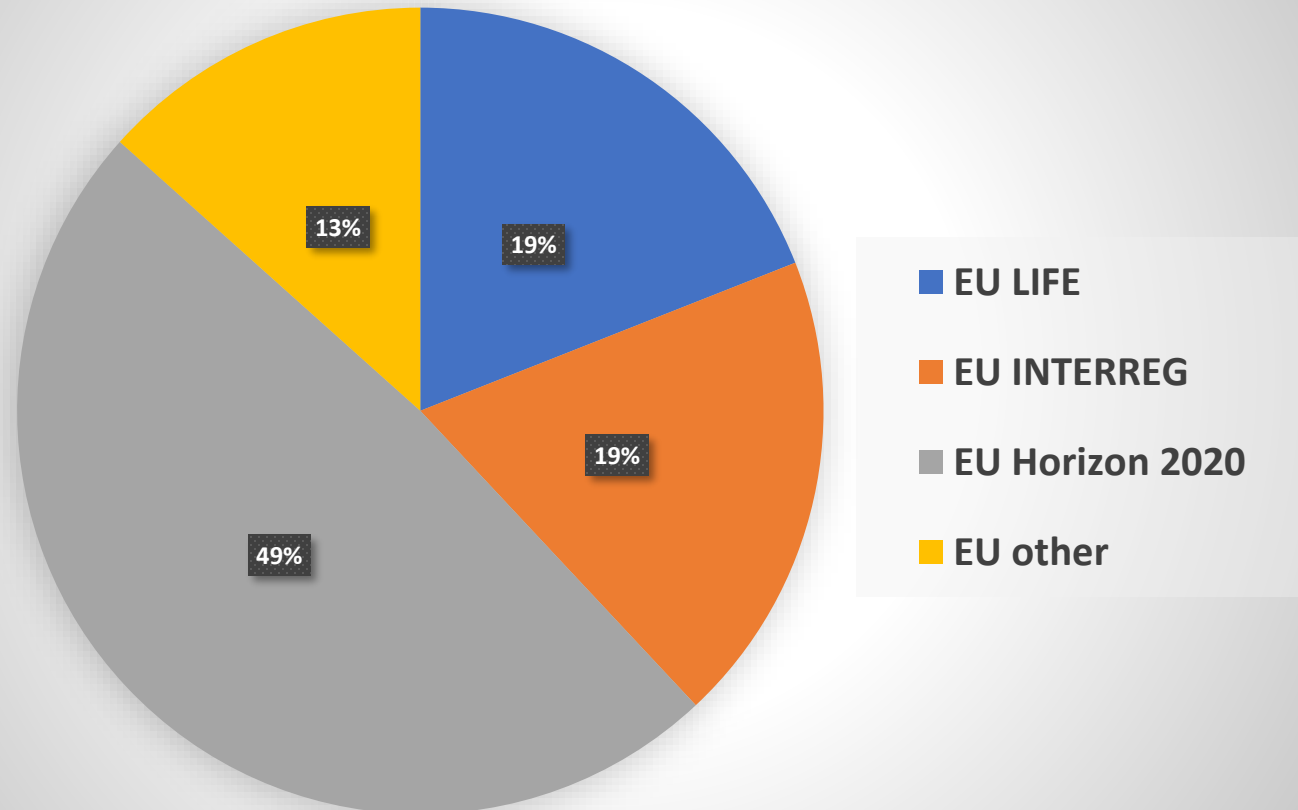
• Funding sources

• EU funded:

- EU H2020 (FP)
- LIFE
- INTERREG
- BBI
- Cost Action,
- EIP
- EIT
- ERDF
- Marie Curie

- National
- Industry / companies
- University

Funding sources for running EU funded projects





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Key words - EU funded - running R&D projects

agriculture aims animal applications approach areas assessment baltic based business chain
circular combined contribute cost current demonstrate develop different digestion
economic economy effective efficiency energy enhanced environment environmental eu europe
european farming fertilisers fertilizers food generated impact implementation improve including
increase industry innovative integrated life management manure market
materials measures metal model nitrogen nutrient objective operators organic phosphorus pilot
plan plants policy potential practices process produce production
project provide quality recovered recovery recycling reduce region research
resource results reuse scale sea sector sludge soil solutions sources strategies supply support
sustainable system technologies test treatment urban used value
waste wastewater water



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Key words - EU funded - finished R&D projects

achieve action activities **agriculture** aim application approach areas baltic based biogas biomass
 business carbon change cost crop **demonstrate** **development** different digestion
economic effect efficiency effluent **energy** environmental eu europe european
 evaluate farming feed **fertilisers** food generation impact implemented **improve** including increase
 industrial **innovative** integrated **management** manure market measures mineral model
 municipal nitrogen **nutrient** objective organic phosphate **phosphorus** plant policy
 potential practices **process** produce **production** **project** provide quality
recovery recycling reduce region removal research resource results scale sea sector
 sewage sludge soil solutions stakeholders strategies **sustainable** system
technology tested tools treated **treatment** urban used value **waste**
wastewater water work wp wwtp



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Key words - Non-EU funded - running R&D projects

acid added agriculture aims application ash assessment availability based biochar business carbon chemical city companies
 concept cost creating cycle **development** different effects efficiency energy environment
 environmental farming **fertiliser fertilizer** field flows food future global gypsum impact
 improve including **increase industry** innovation integrated large local management manure
 materials metal method mineral model national nitrogen **nutrient** opportunities organic
 phosphate phosphoric **phosphorus** planning plant possible potential
process produced products **project** provide quality
 recovered **recovery recycling** reduce regional research
resource results scale sediment **sewage sludge soil** soilfood solution strategy studied
 support sustainable **system technology** tested together **treatment** urine used value
 waste wastewater **water** years



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Key words - Non-EU funded - finished R&D projects

acid addition agriculture aim algae application ash assess based biogas capture chain concentrations contained contributes cost crop cycle **developed** different digestate dissolved effect efficiency energy evaluated extraction **fertiliser** **fertilizer** finland future help implemented improved including increase industrial integrated investigated lead management manure material metals method mineral model municipalities nitrogen norway **nutrient** operating optimize organic partners pellets **phosphate** phosphorous **phosphorus** pilot **plant** possible potential **process** produce **production** **project** provide recovered **recovery** recycling removal research resource results reuse scale selected **sewage** **sludge** small soil streams struvite study sugar sustainable system **technology** tested therefore tool **treatment** urban used value waste wastewater water



ESPP research & development (R&D) activities

- SCOPE 128 newsletter science special on phosphorus
- Defining “Nutrients Mission” proposal for FP9 Horizon Europe
- ESPP list of nutrient related EU research funding calls
- ESPP ideas for R&D needs to support nutrient stewardship in EU R&D funding FP9
- ESPP Joint position on the need for research into organic contaminants
- ESPP catalogue of nutrient recycling and stewardship projects and platforms

- Research projects and institutes can become ESPP member.

- Please have a look at our ESPP research activities page:
<http://www.phosphorusplatform.eu/R&D>



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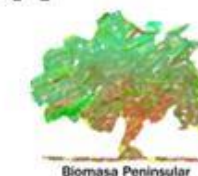
Website: www.phosphorusplatform.eu

News:  [@phosphorusfacts](https://twitter.com/phosphorusfacts)

www.phosphorusplatform.eu/members



Kanton Zürich
Baudirektion
Amt für Abfall, Wasser,
Energie und Luft



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Round tables - topics and table leaders

No.	Title	Leader	Project
1	Opportunities and challenges for scaling-up innovative technologies for large scale nutrient recovery?	Andrea Goglio	BiofuelcellAPP project
2	How to develop and implement a food chain circular economy model for nutrients?	Giuliana D'Imporzano	LIFE-DOP project
3	Growing sustainable business opportunities with bio-based fertilisers?	Barbara Anton	INCOVER project
4	Opportunities and challenges in the combination of water reuse, nutrient recycling and fertigation?	Aurora Seco	LIFE-MEMORY project
5	How to develop business cases for diffuse phosphorus and nitrogen source nutrient removal, recovery and reuse?	Pieter Van Aken	NuReDrain project
6	Opportunities and challenges of water reuse and nutrient recovery from domestic wastewater based on decentralized treatments and/or segregated streams	Nicolas Morales Pereira	Run4Life project
7	How can manure and digestate nutrient recovery routes and products fit better into market demand?	Inge Regelink	SYSTEMIC project
8	The role of iron in phosphate recovery: good or bad?	Leon Korving	ViviMag project
9	Opportunities and challenges in food industry and slaughter houses (wastewater) nutrient recycling?	Robert Reinhardt	Water2REturn project



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EU Fertilisers Regulation, a cornerstone to a Circular Economy, is “stuck” in Trilogue

Please sign our support letter or contact us for more details

Companies and organisations wishing to be added to the signatories list for this Joint Letter should send to info@phosphorusplatform.eu

by 16th November

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ESPP in a Nutshell

Nutrient Platforms Global

ESPP: a coalition for action

- **Wide objectives:**
phosphorus stewardship
 - *global food security*
 - *circular economy*
 - *environmental protection*
 - *healthy diet and food safety*
- **Bringing together:**
 - *water & waste industries,*
 - *mineral and organic fertilisers, chemicals,*
 - *P-recycling technology suppliers,*
 - *national & regional governments,*
 - *knowledge institutes ...*



- **Actions:** <http://www.phosphorusplatform.eu/members>
 - *vision & awareness*
 - *stakeholders & networking*
 - *dissemination*
 - *policy and regulation dialogue*

More information: www.phosphorusplatform.eu



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How ESPP operates

Legally established not-for-profit association

→ **important for transparency, clarity of decision making, representation**

- statutes are public <https://www.phosphorusplatform.eu/platform/about-espp>
- EU Transparency Register no. 260483415852-40 <http://ec.europa.eu/transparencyregister/>

100% membership funded

→ **key to credibility, independence**

- approx. 40 paying members to date: companies, R&D institutes or projects, cities / regions / governments

→ **balance between different interests and industries**

→ **in touch with reality (payment = commitment)**

