Chris Thornton, European Sustainable Phosphorus Platform

European context - meeting objectives
ESPP: a coalition for action

• Sustainable phosphorus use & phosphorus recycling:
  - global food security
  - circular economy
  - environmental protection
  - healthy diet and food safety

• Member funded:
  - water & waste industries,
  - mineral and organic fertilisers, chemicals,
  - P-recycling technology suppliers,
  - national & regional governments,
  - knowledge institutes …

• Actions:
  - vision & awareness
  - stakeholders & networking
  - dissemination
  - policy and regulation dialogue
European policies driving nutrient recycling

Nutrient abatement policies

- Nitrates Directive 1991/676
- National Emissions Ceilings Directive
  2016 revision → 19% ammonia emissions reduction by 2030

Phosphorus is first cause of EU Water Framework Directive quality status failure (other than morphology)
55% of UK rivers and 74% of lakes exceed P level for good ecological status
European policies driving nutrient recycling

2014 EU Consultative Communication on Sustainable Use of Phosphorus
- Proposals include: increasing knowledge and research, P-recycling, risk of soil contamination by mineral or recycled fertilisers ....
  see www.phosphorusplatform.eu/scope107

2015: EU Circular Economy Package
- In responses to public consultation:
  - 30% of respondents identified bio-nutrients as “materials the EU should target first” (Q5, Q3)
  - Overall, 54% cited bio-nutrients or phosphorus (all questions)
  see www.phosphorusplatform.eu/scope118
European policies driving nutrient recycling

EU List of Critical Raw Materials
- 2014 Phosphate rock added to EU list of 20 CRMs

see https://ec.europa.eu/growth/sectors/raw-materials/specific-interest/critical_en
European policies driving nutrient recycling

2017 (ongoing) – Revision of EU Fertilisers Regulation

- Flagship initiative of Circular Economy Package
- Aims to open EU market for recycled nutrient products and also for nutrient recycling technologies
- Currently in Council - Parliament decision process
- Very many issues remaining

STRUBIAS (ongoing)

- Definition of criteria for EU Fertilisers Regulation for
  - struvite and phosphate salts
  - ashes used directly as fertilisers
  - ashes chemically processed to produce fertilisers
  - biochars and pyrolysis products

see www.phosphorusplatform.eu/regulatory

ESPP in action.
ESPP amendments adopted by IMCO
- accelerating inclusion of struvite, ash-based materials, biochars
- “low carbon” fertilisers category (with Fertilisers Europe, ECOFI)
- traceability
- widening input materials for food industry by-products, plant materials

http://ec.europa.eu/DocsRoom/documents/15949
European policies driving nutrient recycling

Standards work underway

- 2017: CEN/SABE position on standards needs to support P-recovery
- CEN/CLC/BT/JWG 11 standards needs for sustainable chemicals for the circular economy
- ISO 275 sludge recovery, recycling, treatment and disposal
- standards to accompany EU Fertiliser Regulation Revision

ESPP in action. 2017: CEN/SABE position on standards needs to support phosphorus recovery

online at www.phosphorusplatform.eu/regulatory
Success story:

**COOPERL / Brittany farmers’ cooperatives**

- 400 000 t/y manure processed to organic fertiliser product
  - 150 000 t composted poultry litter
  - 150 000 t dried poultry manure
  - 100 000 t pig manure (1 100 farms)
- Adapted to specific crops and exported to other regions of France
- Positive farmer acceptance
- TRAC Emeraude stabling system

*Supported by EU Investment Plan*

Success story: 

**Fibrophos UK**

- Bioenergy and fertiliser (ash) from chicken litter
- Since the 1990’s
- Phosphorus, potassium, sulphur, trace elements
- 800 000 t/y chicken litter processed annually
- P shows both immediate and durable crop effectiveness

http://www.fibrophos.co.uk/phosphate-in-fibrophos-fertiliser/
Success story:
SARIA UK – Kalfos

- P-fertiliser and soil conditioner from combustion of animal by-products (MBM)
- Authorised for arable and grazing land
- 12 000 tonnes/year

http://www.kalfos.co.uk/
Success story:  
Fertikal, Antwerp

- 180 000 t/y (wet weight) manure processed to organic fertilisers:  
- Solid/liquid separation  
  dried, pelletised  
- For agriculture, horticulture  
- Distributed  
  to 25 countries worldwide  
www.fertikal.be
Success story:

**Ostara Pearl® Chicago**

- Stickney Water Reclamation Plant, Cicero (Chicago), Illinois
- Gulf of Mexico eutrophication sensitive zone
- World’s largest struvite recovery facility
- Three Pearl® reactors
- Treating all digestate from 4,5 million inhabitants
- Nearly 10 000 tP/year recovered
- WASSTRIP installation underway/
  \( \rightarrow \) objective increase P recovery to 50% of wwtp inflow

www.ostara.com
Success story: REVAQ sewage treatment Certification

- > 50% Sweden’s sewage goes to REVAQ Certified sewage works
- Sludge digestate quality, monitoring, information transparency criteria
- 3000 t/year phosphorus recycled to agriculture

Linking R&D and policy

Organic contaminants in sewage biosolids

- Priority challenge for ESPP:
  → more than half of EU sewage sludge is today recycled to land
- Need for data, research and risk assessment to support policy making and food industry acceptance
- Fate in water treatment and nutrient recycling processes

ESPP in action.
Joint input to EU research FP9 programme definition by ESPP - European Environment Bureau – water industry – organic fertilisers and growing media industries

Joint position for the attention of Member State representatives on the R&D programming committee for the preparation of EU 9th Framework Programme:
- European Sustainable Phosphorus Platform
- Eureau – Europe’s drinking water and waste water service operators
- EBA – European Biogas Association
- ECN European Compost Network
- European Environment Bureau
- Growing Media Europe

The need for research into organic contaminants in sewage biosolids and in manure, to support the bio- and nutrient circular economy

Recycling of organic wastes (treated sewage biosolids, manures, non-avoidable food wastes, green wastes, food processing by-products ...) back to agricultural soil is under pressure because of real or perceived concerns about organic contaminants (chemicals, organic chemicals, ...) and their
Linking R&D and policy

Input to EU consultations

- CAP
- Pharmaceuticals strategy
- Microplastics
- …

Input to preparation of “FP9”
- R&D programme after H2020

ESPP in action. Proposed input to FP9 – identifying priorities and knowledge gaps for nutrient-related research
Draft circulated today for YOUR input and comment to info@phosphorusplatform.eu
Linking R&D and policy

EU project funding under

- Horizon 2020
  - in particular: calls on water, waste, circular economy
- BBI (Bio Based Industries)
- SME instrument
- FTI (Fast Track to Innovation)
- LIFE
- InterReg

Rural Development funding

EIP-AGRI Focus Group n° 19 on Recycled Nutrients, conclusions 2017:
The Focus Group’s two meetings identified the following seven areas as possible priorities where knowledge is currently lacking and research is needed.

- Life Cycle Analysis methodologies, risk assessments
- Environmental impacts: e.g. on nutrient leaching, soil carbon
- Organic contaminants: data, impacts, effects of processing
- Acceptance of organic fertilisers, by farmers, food industry, public consumers
- Precision farming application of recycled nutrient materials: remote sensing, translation to yield and crop N content, combination with other monitoring tools
- On-farm tools for nutrient content determination and soil carbon balance assessment
- Technologies to produce bespoke recycled nutrient products, tailored to specific local farmer / crop needs

ESPP in action.
In 2015, with 60 other organisations, ESPP proposed the theme of “recycled nutrients” to EIP-AGRI

From www.phosphorusplatform.eu/scope124
Linking R&D and policy

1st European Nutrient Recycling Projects workshop
Berlin 2015

- co-organised by P-REX (FP7 project), ESPP, DG RTD Eco-Innovation
- 28 nutrient recycling projects present
- conclusions published by the European Commission

“Circular approaches to phosphorus: from research to deployment”,
Meeting objectives

2nd European Nutrient Recycling Projects workshop

Phos4You
SYSTEMIC
ALGAECAN
INCOVER
Water2Return
Resource Container
ASHES
AgroCycle

QUB P from wastewater
Run4Life
DOP
Newfert
Phorwärts
Bonus Promise
DECISIVE
SABANA

SMART-Plant
3R2020+
ENRICH
RichWater
RAVITA
IMPROVE-P
Nurec4org
BioRefine Cluster
Meeting objectives

Get to know – each other, the projects
- one-slide project presentations 11h-12h30
- posters

Networking between projects
- thematic sessions 14h – 15h15

Discuss possible coordination
- exchange of knowledge and experience
- share literature reviews?
- avoid duplications?
- synergy of dissemination tools?
- timing of events or joint inter-project meetings?

Proposals for actions and for future research needs
- Panel 16h15-17h30
Some ideas to get started

**SCOPE Newsletter**
- 45 000 emailing list
- recognised reputation
- dissemination tool for projects?
- relaunch as forum for leading R&D centres in nutrient sustainability?

**Network of projects and researchers**
- avoid ‘stop and go’ – beyond 3 year project horizon
- what resources for coordination?

**Possible joint events**
- IFAT Munich May 2018?
- SFS Amsterdam June 2018?
- Finland June 2018?

... and now: over to you!
Chris Thornton, European Sustainable Phosphorus Platform

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