

# Minutes – ESPP Steering Committee 5<sup>th</sup> June 2014

9h30 – 15h30 EPE offices 216 avenue Tervuren Bruxelles (metro Montgomery, tram Leopold II).

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## Next meetings

### **Monday 7<sup>th</sup> July 2014, Rennes, define and launch France phosphorus platform**

Followed by the workshop “Regions at work for the Bioeconomy”, Rennes 7 (evening) - 9 July 2014, organised by the European Commission DG Enterprise and Brittany Region.

### **5-6 March 2015, Berlin, 2<sup>nd</sup> European Sustainable Phosphorus Conference (ESPC2)**

# Participants, previous minutes, meeting agenda

## Participants

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## Minutes & agenda

Arnoud Passenier, ESPP President, welcomed participants.  
Minutes of last meeting 10/12/2012 were approved:



Minutes ESPP  
10-12-13 v3.pdf

The agenda as follows was agreed:

- 9h30 – welcome and round table
- 9h45 summary ESPP actions & policy developments
- 10h00 – EU Consultation on Sustainable Phosphorus
- 10h30 – Regulatory work
- 10h45 - Platform organisation, decision making
- 12h50 - Proposed Platform actions for coming year
- 15h30 close

## **ESPP actions since launch in 2013**

Chris Thornton summarised rapidly ESPP actions over the last year and policy developments

Meetings organised by ESPP:

- London, 24/9/2013: regulatory issues for use of recycled nutrient products
- Members meetings hosted by EPE 15/4/2003 and by EU Commission DG Environment 10/12/2013
- Circular Economy and preparation ESPP2 (5-6 March 2015), Berlin 21/1/2014
- Telcon, 19/12/2013: REACH and recovered struvite
- Fertilisers Europe / ESPP meeting, Brussels, 6/2/2014 : EU Fertiliser Regulations recast
- Horizon 2020 R&D projects, Brussels, 6/2/2014

Outreach: conferences and meetings where ESPP has participated or presented

- Green Alliance Circular Economy, London, 4/2013; RBB9 (BioRefineries), Antwerp 6/2013
- RBB10, Spain, 6/2014; Fertilisers Europe phosphorus committee, Brussels, 6/2013
- P-REX, Pödebrady, 9/2013; Decadmiation (Fertilisers Europe), Brussels, 10/2013
- UNIFA (French fertiliser & soil amendment ass.), Paris, 11/2013
- IWW (Int. Water Week), Amsterdam 11/2013;
- DPP (German P Platform launch), 11/2013;
- Thames Water/Ostara plant launch, Slough, 11/2013
- ManuResource (manures), Brugge, 12/2013;
- AD (Anaerobic Digestion) Europe, Dublin, 2/2014;
- ARBOR, Brussels, 3/2014
- IFA (International Fertiliser Association), 3/2014
- Phosphates 2014 (CRU industry conference), Paris, 3/2014
- COPA-COGECA phosphorus in agriculture, Brussels, 3/2014
- WssTP water resource recovery Horizon 2020 input preparation, Brussels, 2/2014
- EU Commission Brussels Green Week, 6/2014, Toronto P-recycling seminar 18/6/2014

## Outreach:networking

- COPA-COGECA, European Compost Network/ Anaerobic Digestion, Projects: P-REX, ARBOR (nutrient recovery from digestate), LIFE PHORWater, Phosph'Or ..., SPIRE, SusAnA ...

## ESPP communications:

- **SCOPE Newsletter:** 58 000 emailing list (transferred from Cefic-PAPA), 10 issues since ESPC-1 Brussels March 2013, summaries of scientific publications, conferences, regulatory developments
- **SCOPE Newsletter special “sustainable phosphorus society vision”** underway, 80 contributions received
- **ESPP website** [www.phosphorusplatform.eu](http://www.phosphorusplatform.eu) : re-launched, content Cranfield University and FHNW Switzerland, news, opportunities/projects, business cases, P-REX e-market (underway), events listing
- **Twitter** [@phosphorusfacts](https://twitter.com/phosphorusfacts) : 300 tweets, 312 followers
- **ESPP 4-page flyer**
- **Stuart Ravenscroft, intern Brussels / Basel** (EPE/FHNW) June – August 2014: contacts with prospective Members, Baltic, Members' networking web conferences

## Policy developments:

- Phosphorus added to EU “Critical Materials” list
- Sweden : sustainable P policy consultation
- Denmark: recycling policy
- Baltic: nutrient recycling objectives
- Germany: P-recycling proposals, proposed sludge policy
- Switzerland: P-recycling regulatory consultation

ESPP has specifically made the following inputs to policy discussions

- Consultation on Sustainable Phosphorus
- European Economic and Social Committee Opinion on “Sustainable Use of Phosphorus” <http://www.eesc.europa.eu/?i=portal.en.nat-opinions.30554>
- UK Parliamentary Office of Science and Technology briefing on phosphate resources
- Horizon 2020 orientations – WssTP water Resource Recovery WG

ESPP is also closely involved in international developments:

- **US/Canada: NAPPs** (North America Phosphorus Partnership) proposal
  - following from P-RCN meetings
  - led by Arizona State University
  - launch Washington May 2015
  - ESPP involved in developing proposal and in close contact ensuring coordination and experience sharing
- **GPNM** (Global Partnership for Nutrient Management): decision May 2014 to consider defining an International Phosphorus Initiative or similar
  - leadership of the project is delegated to the Netherlands, so that Arnoud Passenier (ESPP President) will be directly involved

# EU Consultative Communication on the Sustainable Use of Phosphorus

Francesco Presicce, DG Environment, presented some preliminary conclusions of this consultation: see slides



F Presicce EU DG  
ENV slides ESPP 5-6-1

The consultation can be considered to be successful in mobilising significant response and in raising the issue and creating a debate with a wide range of stakeholders. A clear interest emerged on the sustainable use of phosphorus and further action is called.

Key conclusions of the consultation are as follows:

- The Commission's consultation paper presents a fairly accurate picture of the available information, but more knowledge is needed on phosphate reserves and supply, but also on the other phases of the phosphorus cycle. Research and Innovation are key in this regard.  
See document at [http://ec.europa.eu/environment/consultations/phosphorus\\_en.htm](http://ec.europa.eu/environment/consultations/phosphorus_en.htm)
- The consultation received a good response from industry and institutions, but few responses from the general public. Awareness raising is therefore necessary, as well as involvement of stakeholders and member states in the parts of Europe from which fewer replies were received (South, East)
- Security of supply is an issue for most respondents, as are soil contamination and management of phosphorus in areas of surplus. Efficiency of use and recycling can help address these issues.

Mr Presicce underlines that phosphorus is strongly integrated into the current Commission's priorities of resource efficiency and circular economy. The replies to the Consultation are very helpful in defining further action.

## Regulatory dossiers

Chris Thornton explained that ESPP is very active on a number of regulatory questions. Although these are technical, they are important for the development of phosphorus recycling as they strongly impact costs and administrative obstacles of placing on the market.

### Recast of the EU Fertiliser Regulation 2003/2003

Issues:

- How to include recovered materials, organics
- Contaminant levels
- Definition of "mineral" fertiliser
- End of Waste

ESPP actions: Information circulation, SCOPE Newsletter, website; participation and input EU Working Group, Platform stakeholder meeting Brussels 6/2/14

C. Thornton indicates that the current Commission proposals concerning different contaminant limits in mineral and organic fertiliser products have been published on the ESPP website (SCOPE article in print), with EU Commission agreement, see here:



Scope Fertiliser  
Regulation 4-2014 - C

At the last EU Fertiliser Working Group (2<sup>nd</sup> June) the Commission proposed to abolish the category of products 'organo mineral fertilisers'. It is discussed that this should not be a problem, if products containing both inorganic and organic content are treated as a mixture: with inorganic part subject to limits applicable to inorganic fertilisers, organic part subject to limits applicable to organic fertilisers

Chris Thornton notes that P-recycling from organic sources (wastewaters, biosolids) is likely to result in different new products which contain both organic and inorganic content. The exact nature of such products cannot readily be predicted today (will depend on invitation), therefore "positive list" approaches (lists of acceptable products) are not appropriate in the recast Fertiliser Regulation because they effectively preclude innovation.

He notes that the biggest obstacle to finalisation of the recast Fertiliser Regulations currently appears to be the interaction with End-of-Waste criteria (EoW). Member States failed to agree on the proposed EU EoW criteria for composts and digestates, and will certainly not accept the reintroduction of these "by the back door" in the Fertiliser Regulation. However, if EU EoW criteria are not in place, then a recycled P product produced from waste could be eligible for sale as a fertiliser across Europe (if contaminant criteria etc are respected) but be classified a waste in some countries (but not in others if national EoW criteria are in place) ... a regulatory quagmire.

### Nitrates Directive

The EU Nitrates Directive clause "manures ... even in a processed form" can strongly limit the market for all recycled P products produced from manures (e.g. struvite, digestates, pellets ...

ESPP has signed the ManuResources Declaration (SCOPE Newsletter 100), but suggests in the SCOPE Newsletter that modifying the Nitrates Directive would be undesirable, because it would open the risk of amendments which could denature the Directive and considerably reduce the level of environmental protection of surface waters.

### REACH (European Chemical Regulation):

- struvite - Platform member telcon 19/12/2003
- digestates – ESPP letter to EU Commission
- application of Art. 2(7)d for "recovered products" – ESPP letter to EU Commission

*C Thornton indicates that it is important that recycled products are fully studied to ensure consumer and environmental safety as required by REACH, but also that the administrative obligations of REACH do not make an obstacle to placing innovative recycled P products on the market.*

### ISO 275

Proposed standard for “Sludge Recovery, recycling, treatment and disposal” project starting, led by AFNOR France

### EU Organic Farming Regulation (EC 889/2008)

- Coordinate proposal to authorize recycled P products

### EU Ecolabel Soil Amendments

- See SCOPE Newsletter n° 99

### BAT BREF waste treatment

### EU Groundwater Directive

- phosphorus added to list of monitoring substances – see SCOPE Newsletter 102

## ESPP membership

Chris Thornton underlines the importance of the national nutrient / phosphorus Platforms

- ESPP members:
  - **Netherlands** Nutrient Platform
  - **Flanders** Nutrient Platform
  - **UK** (DEFRA / Environment Agency) confirmed membership June 2014: stakeholder meeting 24/9/2013, informal network, actions underway
- Established Platform not yet ESPP member: Germany
- Contacts underway:
  - France: launch meeting 7th July 2014, Rennes
  - Scandinavia / Baltic – proposed actions

ESPP members to date are as below:

It is agreed the need to widen membership to other sectors : P-mining, animal feed sector, organic fertilisers, food and beverages, water industry in other countries, rest of Europe: South and East Europe, Baltic



## Approval of knowledge centre members

The membership of the following knowledge institutes was approved, in exchange for the in-kind or payment contributions specified below:

FHNW Switzerland	Paid membership fee + hosting intern
Science Campus Rostock	Paid membership fee
PAPA (Cefic)	Transfer of SCOPE emailing list.
BioRefine Cluster	Paid SCOPE article + covering RBB conference costs
KWB Berlin	Providing P-recycling e-market section for website. Contribution to organisation of ESPC2.
WETSUS Netherlands	Students to write SCOPE content on P-recycling
Rothamsted Research North Wyke UK	ESPP included as dissemination partner in H2020 Pillar3 project submitted (initial phase)
Stockholm Environment Institute	SEI Adobe Connect system for webinars. Help editing SCOPE Newsletter. Dissemination in SuSanA platform
Lancaster University UK	Student (Kirsty Ross) to write SCOPE content agriculture
WssTP	ESPP member of WssTP Resources Recovery WG

NOTE: OVAM (government institute) membership fee paid as part of Flemish Platform fee

## ESPP budget and accounts

The ESPP accounts 2013 and budget 2014 were presented and approved after discussion

ESPP accounts June 2013 – end 2013	
<b>Income member commitments 2013</b>	<b>70 000 €</b>
C Thornton fees (June – December 2013)	35 000 €
C Thornton travel costs	7 692 €
Meeting organisation costs	2 458 €
Rachel Green ReFaC REACH expertise	1 389 €
Website, email hosting	13 000 €
SCOPE emailing system	2 762 €
EPE hosting	5 000 €
EPE accountants setting up VAT number	1 974 €
<b>Total spent to June 2014</b>	<b>59 126 €</b>

ESPP budget June 2014 –end 2014	
<b>Committed 2014 members fees</b>	<b>30 000 €</b>
<b>New membership fees to end 2014</b>	<b>40 000 €</b>
C Thornton fees (Jan – December 2014)	35 000 €
C Thornton costs	5 000 €
Meeting costs	2 000 €
Emailing system, domains	2 100 €
Website	8 000 €
EPE hosting and accounting	10 000 €
Intern Stuart Ravenscroft	1 550 €
<b>Total expenditure to end 2014</b>	<b>63 650€</b>



## Discussion of accounts and budget and membership fees

C. Thornton's fees as indicated for 2014 are same level for 12 months 2014 as for 6 months in 2013 and are not economic at this level (temporary solution based on budgeted level of fees for 2014)

Membership fees paid in 2013 were paid at various times through to late Autumn. **It is proposed that 2013 membership fees can be considered to cover through to end 2014**, in order to get ESPP back to a January-December accounting year. 2013 members should plan to renew membership fees in January 2015. Certain members however are providing support by also paying in 2014.

No change to the current levels of membership fees is proposed.

- Member States, Nutrient Platforms = 10 000 €. Regional / local authorities = 4 000 €
- Companies = 6 000 €. SMEs = 2 000 €
- Knowledge institutes, NGOs = 2 000 € with possibility for payment via projects or in kind

### **Possible new members to contact:**

- Phosphate mining: OCP (contact underway), Yara (contacts established) but also phosphate mining companies in other countries neighbouring Europe (Tunisia, Algeria ...)
- Prayon, Belgium -> via ICL

## **ESPP organisation and decision making**

### ESPP Steering Committee

It is agreed to establish a '**Steering Committee**' to take day-to-day decisions on ESPP organisation, budget and actions. This committee will function mainly by email, with webinar/telcon if necessary. In case of important or politically delicate questions, either all ESPP members or concerned members will be consulted, either individually, by email or by inviting to relevant webinar/telcon. This Steering committee will consist of:

- ESPP President Arnaud Passenier
- Representatives of National Platforms which are ESPP members
- FHNW (website)
- Arno Rosemarin (SEI, knowledge institute)
- Bengt Hansen (Kemira, industry)
- Laetitia Six (Fertilisers Europe, industry)
- Plus participation C Thornton, S Ravenscroft (ESPP staff)

### SCOPE Newsletter

An editorial committee will be established for SCOPE Newsletter:

- Arno Rosemarin (SEI)
- Annemiek Strijkers (Netherlands Platform)
- Leon Korving (Wetsus – P-recycling technology aspects)
- Lancaster University (agriculture and soil themes)

It is discussed to accept "advertising" or to make subscription to SCOPE Newsletter paying not free. It is decided to keep the Newsletter free, as part of ESPP's outreach and information circulation objectives, but to ensure better coverage of members' projects and actions, and to accept paying articles presenting non-members' actions.

## ESPC2: Berlin 5-6 March 2015

C Thornton reminds of the headlines proposed at the Berlin preparatory meeting 21/1/2014

1. Environmental perspective -P as pollutant and nutrient, eutrophication
2. Agriculture (end-user perspective), food industry, diet and food safety (quality)
3. International relationships and food security
4. P flow management
5. Achievements (since ESPC-1)

### He indicates the need to clarify the objectives and targets of ESPC2

Following pre-meeting yesterday with the national nutrient Platforms he proposes

Objectives

- Attract new people and convince them P sustainability is important
- Remobilise people who attended in 2013 or who are already interested, and motivate them to move forward

Targets:

- Decision makers in public organisations
- Strategic level management in industry
- Stakeholders in civil society
- Regional targets: South East Europe / Danube / Black Sea ; Baltic
- Sectors of food, agriculture
- Eutrophication concerned organisations

This leads to considerable discussion between some participants who see the conference as awareness raising for strategy-level decision makers (in industry, regulators, stakeholders) and others who consider it should be a practical meeting moving from awareness at ESPC1 to implementation at ESPC2 (“where supply meets demand”). Some participants consider the conference should do both, others consider the targets are different.

**A compromise proposal for the ESPC2 conference objectives seems to be to centre on high-level awareness and mobilisation, but with a strong emphasis on showcasing success stories and practical implementation examples, and including ‘world café’ or ‘speed-dating’ type formats where operators can meet one another.**

Slogans and overall themes are discussed. R. Scholz proposes “Planetary boundaries”. This will depend on the target audience and objectives. Once these are defined, professionals should be contracted to develop messages and communications.

It is agreed that presenting success stories and actions which have been realised is a priority. The following are proposed as success story examples to showcase (**to be completed, please send ideas**)

- Thames Water/Ostara
- NuReSys
- Berlin Wasser (if member of ESPP)
- UK sludge index (UK water cies)
- France digestate
- Spain anaerobic digestion
- Lake rehabilitation (Belaton ? Finland ? Lake Geneva F/CH ?
- Marine rehabilitation : Adriatic ?
- Danube Delta / biodiversity
- WWF/Baltic Farmers Prize

This ESPC2 conference is a key event for ESPP. Organisation is responsibility of the German Phosphorus Platform (DPP). **However, participants present express concern that this conference currently seems to lack clear definition of person responsible for leadership and structuring of resources necessary to ensure success.**

For ESPC2 Berlin, participants unanimously propose:

- Establish a **small operational conference committee**, chaired by DPP, involving ESPP, national platforms, conference funding partners
- **Christian Kabbe** is recognised to be the de facto leader of this project and should have a clear mandate to lead the conference (content, speakers, organisation), with a corresponding contract,
- Urgent to also contract with communications experts to design and sell the conference. The Netherlands Water Partnership managed communications for ESPP1, with production contracted to **LaVerbe**. Participants recommend to use these organisations again because their success with ESPP1 is widely recognised.
- Ask C. Kabbe to **finalise programme, high-level invitations, budget, contract with communications agency**.

## Discussions of other ESPP actions 2014 – 2015

### Relations with members

- Organise webinar meetings with members on technical or thematic questions, with expert participation, enabling members to collect information, make contacts: e.g. regulatory questions, developments in specific technologies, regional
- Develop presentation of members' competence and products (planned for website)
- Facilitate networking (see below)
- Organise site visits in parallel to future ESPP meetings

### Website

General dissatisfaction with status of website today. Many aspects of website are still not technically operational, lots of simple tidying up as well as general improvement of layout are not done. Site as transferred from Netherlands Platform is considered attractive, but needs technical adaptation and some new functions. Cranfield University appears to not offer necessary competence and familiarity with Joomla, the platform used for the site. Proposal received via Cranfield to transfer to proprietary software not accepted, as Joomla is a very widely used system, familiar to many webmasters, with wide knowledge base available online.

Decision is therefore taken by meeting to transfer website to a Joomla-competent service provider. Stuart Ravenscroft and Arno Rosemarin to provide proposals.

Satisfaction with FHNW's work, providing and inputting content, but this has been and still is largely blocked by many operational difficulties unresolved with the site and the fact that templates and menus for agreed new pages are not yet available online.

An important aspect of the website will be the "Opportunities" section, which will should enable stakeholders and companies to search for partners, products, experts ...

## Vision for a sustainable future for phosphorus

SCOPE Newsletter editorial committee (above) to assist in reviewing the 80 contributions received for the SCOPE Newsletter special on this theme. Idea is to select but edit only minimally, to publish contributions received not rewrite. Objective: publish by Phosphorus Summit, end August.

C Thornton to define a proposal for organising a “phosphorus vision” thinking group, to involve strategic decision makers in industry, governments, NGOs, agriculture. To be a follow-up for the SCOPE special

## Stakeholder meeting P-recycling and contaminants

Objectives: involve regulators and a range of stakeholders in Scandinavia and elsewhere in Europe: farmers, food safety (consumers associations, food industry), P-recycling industry water industry.

Difficult to organise this in Sweden, as the Environment Agency is still awaiting conclusions of end 2013 public consultation on P-recycling, and elections in 2013.

**Decision: organise in Denmark (struvite recovery plant operation at Aarhus, policy developments in 2013) or Finland.**

## Stakeholder meeting on farm nutrient use in Danube/Black Sea catchments

Objectives: outreach to South East Europe (regulators, farmers, NGOs ...), on themes more relevant here than P-recycling: improving nutrient use in farming, limiting eutrophication.

Timing: end 2014 or early 2015. Objective 80-100 participants.

Outline proposal for discussion:



Discussion document  
- SE Europe fertiliser I

Fertilisers Europe are interested in the idea, but level of involvement to be defined.  
Other contacts: Dirk Halet, manure products sold in Hungary, REFERTIL – Hungary, Outotech, Borealis (Kees Langeveld), P-REX workshop planned in Czech Republic.

**Decision: move forward with support from OCP but also other fertiliser companies and companies.**

## R&D - Horizon 2020

**List of ongoing R&D projects related to phosphorus.** See minutes of last meeting 10/12/2013. To be completed and updated on ESPP website once this is operational.

ESPP organised a meeting to enable stakeholders to present projects in Brussels 6/2/2014 and has communicated list of open calls identified as potentially relevant to P stewardship (see SCOPE Newsletter n° 102)

Raymond Van Ermen presents the **EPE / ACR+ “Covenant for a Circular Economy”**. The commitment is accepted by the EU Commission <http://ec.europa.eu/eip/raw-materials/en/call-commitments> ESPP will be designated to establish a “*database of best practices*” and “*Sectorial Guidelines ... on how to address value chain management in a circular economy*” for phosphorus. Funding for this action remains to be clarified.

Two participants indicate that a public consultation is currently open on content of Horizon 2020 calls 2016-2017 relating to water (deadline 16th June) <http://ec.europa.eu/programmes/horizon2020/en/news/consultation-stakeholders-horizon-2020-societal-challenge-5> ESPP is already inputting via the WssTP Resource Recovery WG (document underway, with a general introduction, and pages on different sectors, including phosphorus). ESPP and ESPP members should also input directly to the EU open consultation.

## **Members expectations and networking**

Participants consider that central roles of ESPP for members are to collect and collate information and to enable networking, and more specifically to put companies or stakeholders in contact with experts or knowledge they are looking for. Companies can already contact the ESPP secretariat with such questions.

### **As a priority for ESPP: actions to improve networking and access to expertise:**

- Members' webinars (see above)
- LinkedIn : Arno Rosemarin to provide short outline of what and how
- Data-base of competences – sort and code existing Outlook lists – find appropriate tool, combine with “inventory” document (France), Commitments, web members pages ...
- Feed system to circulate targeted information
- Ensure coherence of different tools (Twitter, Newsletter, LinkedIn)
- Offer “sanity check” on projects (has it already been done, contacts with expertise)

## Green Week meeting

For information, below , slides of talks by C Thornton, S Bouteligier, R Sakrabani at the Green Week meeting 'Phosphorus in a circular economy', with thanks to EU Commission DG Environment for organising this. NOTE: speakers notes are in PDF comments (choose display on/off)

Video should soon be online at:

[http://webcast.ec.europa.eu/eutv/portal/env/\\_v\\_fl\\_300\\_fr/player/index\\_player.html?id=22596](http://webcast.ec.europa.eu/eutv/portal/env/_v_fl_300_fr/player/index_player.html?id=22596)



Chris Thornton -  
Green Week 2014 - p



Sakrabani Green  
Week slides 5-6-2014



Bouteligier Green  
Week slides 5-6-14. p

## List of actions

	Action	Who ?	When	Status
1	Possible new members contacts: - Prayon : ChTh - via ICL - CGT Tunisia ?????? Algeria:	ChTh via ICL ChTh	6/14	
2	Organise members' technical/thematic seminars	Propose themes: ChTh Technical Platform: Arno	7/14	
3	Site visits for ESPP network	ChTh + members	10/14	
4	Transfer website from Cranfield to technical supplier competent in Joomla	ChTh to provide outline of work needed Arno, SR to provide proposals. FHNW to provide proposal for content input.	6/2014	
5	SCOPE vision special	ChTh collate contributions and circulate to editorial committee	6/2014	
6	P vision high-level group	ChTh 1-page proposal	7/14	
7	Establish SCOPE editorial committee	ChTh	7/14	
8	Widen ESPP steering committee	ChTh	6/2014	
9	Organise contaminants P recycling meeting Denmark or Finland	ChTh, SR Contacts: Bengt Hansen		
10	Nutrient conference Danube/Black Sea	ChTh See contacts indicated	9/2014	
11	Input H2020 consultation (water R&D) - ESPP - members	ChTh (refer FP slides) members	16/6/14	
12	LinkedIn – what and how	Arno Rosemarin, SR	7/2014	
13	Database of expertise, coherent with members pages, inventory ...	ChTh, FHNW + ?	7/2014	
14	Coordinate IT tools	SR	7/2014	
15	Feed system for targeted information	FHNW, SR	7/2014	
16	Project “sanity check” offer	ChTh + W Schipper	7/2014	
17	Collect success stories for ESPC2 (and also website)	All, ChTh, FHNW	6/2014	
18	Establish conference committee ESPC2	DPP, ChTh	6/2014	
19	Contract Christian Kabbe for leadership of ESPC2	DPP	6/2014	
20	Contract communications agency for ESPC2	C Kabbe, DPP	6/2014	
21	Finalise programme ESPC2, budget, invite high-level speakers	C. Kabbe, DPP	6/2014	



## **Minutes - Steering Committee 10<sup>th</sup> December 2013**

14h00 Room 00/027 European Commission, Avenue du Beaulieu 29, 1060 Bruxelles.

### **Next meetings**

The following dates are fixed (for more details please email ESPP secretariat)

Thursday **19<sup>th</sup> December** 2013 telcon

- ESPP technical meeting **REACH implementation for recovered phosphates**

Tuesday **21<sup>st</sup> January** 2014, Berlin 10h00 – 14h30

- Preparation of second European Sustainable Phosphorus Conference 2015  
Plus Berlin Green Week /DPP phosphorus event 15h00.

Thursday **6<sup>th</sup> February** 2014, Brussels 14h00 – 16h30

- stakeholder meeting: integration of recycled phosphorus products in **EU Fertiliser Regulation revision.**

Friday **7<sup>th</sup> February** 2014, Brussels 9h00 – 12h30

- working group **R&D funding calls, in particular Horizon 2020 and circular economy.** Opportunities for P-stewardship in upcoming programmes. How to input call preparation, identify and monitor call opportunities, facilitate consortium building and project preparation.

To be defined:

- **ESPP stakeholder meeting on contaminants in recycled phosphates and ensuring food chain safety.** Probably Spring 2014. Sweden, Denmark or Finland ?

### **Meeting participants:**

In Brussels: Antoine Hoxha, Fertilisers Europe - Raymond Van Ermen, EPE (European Partners for the Environment) - Christian Kabbe, P-REX and DPP (German Nutrient Platform) - Minh Son Le, United Utilities - Laetitia Six, Fertilisers Europe - Ludwig Herman, Outotec - Leon Korving, WETSUS - Edward Someus, Biochar - Christopher Thornton, ESPP - Arnoud Passenier, ESPP and Netherlands Ministry for Industry, Environment and Agriculture - Dirk Halet, Flanders Nutrient Platform - Anders Nätörp, P-REX and FHNW Switzerland - Arno Rosemarin, Stockholm Environment Institute and representing Sweden Government - Roland Scholz, Global TraPs - Susanna Litmanen, Euro Biogas Ass - Erik Meers, Gent University, BioRefine - Agata Przadka, Euro Biogas Ass - Pieter de Jong, WssTP WG Resource Recovery - Carl Dewaele, NuReSys - Peter Leinweber, University Rostock - Francesco Presicce, European Commission - Vittoria Paramithiotti, European Investment Bank - Juan Antonio Jimenez, European Investment Bank - Rob de Ruiter, Ecophos

By telephone: Nour Amrani, Novozymes - Rosanna Kleemann, Thames Water UK - Kees Langeveld ICL, ICL Fertilisers - Murray Hart, DEFRA UK - Stephan Walker, Scottish Water - Stephen Hinton, TSSEF.SE - Tim Evans, Consultant

Apologies: Ana Soares, Cranfield University - Ludovic Renoux, VeoliaWater - Javier Branas Lasala, Fertiberia - Rob de Ruiter, Ecophos - Neil Duijster, DSM - Tina Neset, Linköping University



## Opening:

Arnoud Passenier, ESPP (European Sustainable Phosphorus Platform) President opens the meeting and thanks DG Environment for hosting it in their building and telcon system. He thanks all participants for their participation, and underlines that the Platform exists for and by its participants.

Participants present and on the phone present themselves briefly.

Chris Thornton, ESPP Secretariat indicates that the meeting content will follow the slides already circulated (where relevant these are inserted below). The slides were circulated to stimulate participant input and contributions.

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European Sustainable Phosphorus Platform

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### Agenda



**14h00 – 18h00**  
Introduction, round the table, apologies

1. Status of Platform membership, networks working with the Platform
2. Evaluation of activities since the Brussels ESPC Conference
3. Communications
4. What activities should the Platform develop in 2014?
5. Budget & Organisation of Platform in 2014



## Platform membership and corresponding networks

The Platform partners whose logos appear on the slides today are those who have formalised partnership already: this is not closed, others are already underway and more are welcome. The objective is to ensure partners' visibility.

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### 14 Platform members to date

- Water industry: Thames, Severn Trent, United Utilities
- Fertiliser industry: Fertilisers Europe, ICL
- Technology suppliers: Ostara, NuReSys, Outotec, EcoPhos
- Public bodies: Canton Zurich, Netherland Nutrient Platform, Flanders Nutrient Platform, German Phosphorus Platform
- Knowledge : FHNW Switzerland, Science Campus Rostock
- .... plus a number more underway ....



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### National nutrient Platforms

- National Nutrient Platforms:
  - Netherlands 2010 <http://www.nutrientplatform.org/>
  - Flanders 2012 <http://www.vlakwa.be/nutrientenplatform/>
  - Germany 2013 [www.deutsche-phosphor-plattform.de](http://www.deutsche-phosphor-plattform.de)



Participants present emphasise the potential of networks to involve further stakeholders to close the phosphorus cycle and to develop business opportunities and contacts.

## **Networks with which the Platform is working or could work:**

- Industry associations and similar:
  - national nutrient / P platforms (see above)
  - Fertilisers Europe <http://fertilizereurope.com/>
  - European Compost Network [www.compostnetwork.info](http://www.compostnetwork.info)
  - IWA (International Water Association) – nutrient removal and recovery group <http://www.iwahq.org/84/networks/specialist-groups/list-of-groups/nutrient-removal-and-recovery.html>
  - SPIRE (industry resource efficiency) [www.spire2030.eu](http://www.spire2030.eu)
  - farmers' associations
    - FP7 projects:
      - Fertiplus (recycling organic waste as compost and biochar) [www.fertiplus.eu](http://www.fertiplus.eu)
      - INEMAD (Improved Nutrient and Energy management through Anaerobic Digestion) [www.inemad.eu](http://www.inemad.eu)
      - Recophos [www.recophos.org](http://www.recophos.org) P-recovery from sewage sludge and ashes by Thermo - Reductive process  
(note: not to be confused with the German project [www.recophos.de](http://www.recophos.de) – not EU funded, which some participants consider not serious)
  - REFERTIL (biochar) [www.refertil.info](http://www.refertil.info)
  - FP7: ManureEcoMine <http://www.labmet.ugent.be/content/manureecomine>
  - P-REX (demonstration and evaluation of P-recovery from wastewaters) [www.p-rex.eu](http://www.p-rex.eu)
  - ReUseWaste Marie-Curie Initial Training Network [www.reusewaste.eu](http://www.reusewaste.eu)
- Interreg projects :
  - Aquavlan (aquaculture) <http://www.wageningenur.nl/nl/Onderzoek-Resultaten/Projecten/AquaVlan/Projectbeschrijving.htm>
  - ARBOR (nutrient recovery from digestate) <http://tudor.lu/en/projects/arbtor>
  - Biochar <http://www.biochar-interreg4b.eu/>
  - Bio-refine [www.biorefine.eu](http://www.biorefine.eu)
- Other funding
  - Nutricycle <http://www.dlv-innovision.be/dlvinnovision/en/mip-icon-2011-nutricycle>
  - LIFE PHORWater (struvite recovery from wastewater) <http://www.dam-aguas.es/en/noticias.php?id=121>
  - Phosph'Or (struvite from manure) <https://phosphor.cemagref.fr/>
- Cluster of projects, technology platforms
  - Biorefine cluster <http://www.biorefine.eu/cluster/projects>
  - WssTP (European Water Platform) <http://wsstp.eu/>
- Other networks and projects
  - Global TraPs [www.globaltraps.ch](http://www.globaltraps.ch)
  - Global Phosphorus Summit <http://sps2014.cirad.fr/>

## Widening Platform partnership:

Current Platform partner companies are in the water industry, technology suppliers, fertiliser industry.

It is agreed the need to widen partnership to companies involved in the agricultural sector, food industry, waste management industry.

The Platform also needs to extend partnership to other regions of Europe.

## Partnership of knowledge institutes

The initial effort at the Platform's launch has been to bring in companies. Partnership of knowledge institutes also needs to be now developed. The Platform has defined four ways in which knowledge institutes and NGOs can formalise their partnership:

- cash payment (2 000 Euros for knowledge institutes and NGOs)
- in kind services provided to the Platform, subject to specific services which effectively save the Platform external costs
- payment through project funding (including the Platform for e.g. dissemination or networking services in a project proposal)
- bring in a paying partner

Comments:

- It would be useful to search all running FP7 projects for relevant ones [http://cordis.europa.eu/guidance/welcome\\_en.html](http://cordis.europa.eu/guidance/welcome_en.html)
- P-stewardship covers the whole food chain, in particular food industry is an important stakeholder. A. Romarin indicates the need to take into account questions raised concerning health impacts of phosphorus levels in diet.
- important to involve farmers' organisations: EU level representation (COPA-COGECA) and national organisations which are specifically interested. P. de Jong indicates that WssTP are in the same building as a number of farmers' organisations and proposes to organise a meeting with ESPP. Contacts already established in Finland, Flanders, UK ... **Action CT, P de J:**
- involve 'EcoSanitation' movement (decentralised sanitation). Possibilities with Gates Foundation ? **Action AR**
- enlarge involvement to Eastern and Southern Europe. Possibilities for experience transfer from frontrunner countries. Opportunities for synergy with investments in water treatment, manure treatment, eutrophication management. INEMAD and other projects/networks have partners in these regions. Ecophos indicate that they have a plant operating in Bulgaria.
- Council of the Baltic Sea States (CBSS), Turku June 2014 <http://www.cbss.org/cbss-finnish-presidency-2013-2014/> Eutrophication abatement will be a key subject.
- Interest of development of national nutrient/phosphorus platforms. Netherlands, Flanders and now Germany launched 15<sup>th</sup> November 2013. Interest already expressed in Sweden, Denmark, UK (in Biorefine).

## EU consultation on sustainable phosphorus

Closed on 1<sup>st</sup> December. F. Pressice summarises, indicating that figures are not final as sorting between duplicates etc. is still underway. Over 120 replies, mostly from organisations: a few Governments, local authorities, significant number from private sector (water industry, chemicals, energy sector), agricultural sector, organisations and NGOs. Very few responses from individuals showing that phosphorus is not yet a 'public' concern today. Responses will be published on EU website in early 2014.

### Comments:

- ESPP made its own submission and contributed to submissions by other organisations: ESPP members, P-REX, chemical industry, EESC (European Economic and Social Committee)
- **Action CT:** collate list of Governments and of other organisations which have responded to the consultation, as potential ESPP partners.

## Platform actions and developments in 2013



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### **National and EU initiatives**

- Sweden: P-recycling proposals  
- questions on contaminant limits in digestates from food wastes
- Denmark: P-recycling targets
- HELCOM: sustainable nutrient objectives
- Germany: Federal Council motion, Platform launch, coalition position ...
- EU public consultation (closed 1/12/2013)



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### **ESPP actions: administration**

- SCOPE Newsletter emailing list:  
- 60 000 emails transferred from Cefic-PAPA, cleaned  
- send-system set up (Sarbacane)
- Administration  
- hosting with EPE formalised  
- VAT number and invoicing established  
- Secretariat contracted to C. Thornton



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### **Conferences: ESPP was there**

- CCME (Canada), telcon, 3/2013
- Green Alliance Circular Economy, London, 4/2013
- RCN (US P research network), Washington, 5/2013
- RBB9 (BioRefineries), Antwerp 6/2013
- Global TraPs / Global Partnership for Nutrient Management, Beijing, 6/2013
- Fertilisers Europe P committee, Brussels, 6/2013
- P-REX, Poderbody, 9/2013
- Decadmiation (Fertilisers Europe), Brussels, 10/2013
- UNIFA (French fertiliser & soil amendment ass.), Paris, 11/2013
- IWW (Int. Water Week), Amsterdam 11/2013
- DPP (German P Platform launch), 11/2013
- Thames Water/Ostara plant launch, Slough, 11/2013
- ManuResource (manures), Brugge, 12/2013



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### **ESPP Stakeholder meetings**

- London, 24/9/2013:  
**regulatory issues for use of recycled nutrient products**
- Brussels, 6/2/2014 (with Fertilisers Europe):  
**recycled and organic substances in EU Fertiliser Regulations**
- Sweden/Baltic – to be defined  
**contaminants in recycled nutrients and food safety**



## Platform work on regulatory issues

This is confirmed as useful. Phosphate recycling cannot develop if regulatory obstacles act against production or placing of recovered products on the market. Participants underline the interest for Platform partners to develop joint positions and input to EU regulatory processes.

E. Prządka indicates that the European Biogas Association has just submitted a detailed paper to the EU Commission justifying the exemption of digestates from REACH, because similar to compost which is explicitly exempted.

Regarding the Fertiliser Regulation, it is not clear when the current revision will be concluded, probably not for some time. However, it seems certain that now is the right time to provide input to the EU Commission concerning recycled nutrient products.

**Action CT:** Contact also organic farming movements (e.g. Bioland, Soil Association) regarding revision of EU Organic Farming Regulation



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### ESPP actions: regulatory framework

#### EU Fertiliser Regulations

- Take in recycled phosphates
- Widening to cover organic fertilisers
- Coherence of requirements for organic vs. mineral fertilisers
- Questions around contaminants
- Plant availability of phosphorus



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### ESPP actions: regulatory framework

#### End of Waste criteria for compost and digestates

- EU or national EoW criteria ?
- Sewage biosolids ?
- Phosphorus content labelling ?
- Contaminants ?



#### BAT BREF waste treatment

- Revision underway



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### ESPP actions: regulatory framework

#### Nitrates Directive

- Vulnerable Zone Action Plans limit application of manure "even in processed form"
- Disadvantage for recycled nutrient products from manures ?
- Need to find solutions to
  - live with this text,
  - facilitate manure P recycling
  - maintain ecological protection of Nitrates Directive



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### ESPP actions: regulatory framework

#### EU Ecolabel for soil amendments

- Link to End-of-Waste criteria
- Manure products ?
- Sewage biosolids ?
- Requirement for % recycled for mineral phosphate ?
- Phosphorus content information ?



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### ESPP actions: regulatory framework

#### REACH (EU chemicals regulation)

- Compost exempt
- Digestate also ?
- Biochar not exempt (Registration required)
- Art. 2(7)d: "recovered substances" ... partial exemption, if substance already Registered ?
- EU regulation ... but Member State enforcement



### ESPP actions: regulatory framework

#### ManuResource Memorandum

Signed with EU Commission, requesting coherent regulatory framework for nutrient recycling

- Fertilisers Regulation, Nitrates Directive
- End-of-Waste, REACH
- Water Framework Directive, Common Agricultural Policy, Animal By-products, EU Ecolabels, Packaging and Labelling Regulation soil or sludge directives, IPPC and BAT ...

7E  
in



C. Thornton confirms that the Platform's objective is not to take position but to facilitate dialogue, identify issues and collect input, enable different points of view to be expressed. The Platform does not defend or promote any particular technology or solution, but aims to raise awareness and promote P-stewardship in general.

## Platform communications

Priority in 2013 was to establish the Platform (partners, administrative aspects) and to establish an effective communications system by transfer of the SCOPE emailing list from the chemical phosphates industry (PAPA – Cefic, who agreed to its transfer to ESPP as contribution in kind).

The ESPP website (established during the March ESPC Conference) and its content is now partly out of date. The website is currently in the process of transfer to Cranfield University UK, and will be maintained by Cranfield UK and FHNW Switzerland. The objective is to update the content, put information online, make the website reactive and link to networks etc, not to redesign the website layout.

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### Communications: SCOPE Newsletter

- 60 000 emailing list:
  - transferred from Cefic-PAPA, cleaned, send-system set up
- Summaries of publications, conferences, reports
- News and events
- Agenda




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### SCOPE NEWSLETTER

**Proposals:**

- Improve send email / subscribe / unsubscribe
- Extend emailing list: *send me your lists !*
- New/invited authors – but ensure editorial coherence
- Widen content to agriculture, food & feed P issues ...
- 'ideas' section: research proposals, offers, opportunities ...
- Integrate with Twitter, website



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### Communications and networking

- Twitter
  - 250 followers
  - referencing ?
- Circulation of information
  - Platform contacts network
  - contacts with sectoral and international networks
- Other ?




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### Market showcase

**Inventory of initiatives**

- companies managing P streams
- competence and expertise
- services & technologies
- knowledge centres

→ first document underway in France

→ Publication ?

→ extend to other countries ?

→ translate ?






## Proposed SCOPE #100 special:

- Landmark publication: perspectives for P stewardship
- Invite authors: 1 page 'vision' articles
  - why ESPP: beyond Peak P
  - Perspectives for sewage and manure management
  - P efficiency in agriculture
  - Food security
  - Bioeconomy and bioresources
  - Eutrophication and WFD good water quality status
  - Innovation and business cases

## Website upgrade and re-launch

Transfer to Cranfield UK (hosting + content) + FHNW (content)  
Phase I (early 2014)

- Cranfield: updating web content, adding partners' logos
- FHNW: catalogue of initiatives and know-how, business case studies, list of calls/tenders/opportunities/offers, links, agenda

### Phase II

- Transfer and indexing SCOPE back issues, search function, bibliography, referencing, news section
- Publish SCOPE articles live (and Twitter) as well as in monthly PDFs
- Blog / ideas forum ?



## Comments:

- involve Platform partners in contributing to and moderating communications
- launch thematic discussion forums, discussion webinars, these should allow specialist exchange, but avoid becoming divided between disciplines (ensure cross-sector). Important to have secretariat/moderation
- videos explaining phosphorus challenge much appreciated. Stephen Hinton will include them in Humanitarian Water and Food Award website [www.wafaward.org](http://www.wafaward.org). C. Thornton to remove advert from end of videos. **Actions CT, AN:** Add other videos: P-REX, Thames/Ostara struvite.
- need for communications presenting business success case stories. Use a standardised form to collect information to ensure useable, pragmatic information. Group by theme. **Action AN**
- consider using Twitter (already done) and LinkedIn **Action : leader to be identified** to develop traffic to website
- A. Hoxha indicates that the Platform is organising with Fertilisers Europe a meeting on 6<sup>th</sup> February 2014 morning to explain and promote phosphate recycling and sustainability to the fertiliser industry.
- Need for 2-page "flyer" promoting the Platform towards future members **Action CT: prepare draft.**
- Enthusiasm to use "Scope n° 100" as a flagship document for the Platform **Action all:** please comment on proposed draft outline on following page:
- Comments and ideas proposed for SCOPE include:
  - maintain as at present the use of both names/logos ESPP and SCOPE, because SCOPE is recognised and well appreciated
  - any development or change should ensure not to risk losing current followers
  - payment for subscription or archives generally considered not desirable: too complicated, risk of losing public
  - maybe have sponsorship of given issues of the Newsletter (in addition to including logos of Platform Partners)
- Integrate into website access to other tools and sites (do not duplicate), e.g. P-REX e-market, NISP UK <http://www.nispnetwork.com/> and Flanders [http://www.fi-sch.be/nl/wp-content/uploads/SYMBIOSE\\_workshop1oktoberZwijnaarde\\_EventSummary.pdf](http://www.fi-sch.be/nl/wp-content/uploads/SYMBIOSE_workshop1oktoberZwijnaarde_EventSummary.pdf)

## Ideas for SCOPE / ESPP Newsletter n°100 special edition:

### Objective:

- *sustainable phosphorus futures*
- *produce a landmark publication presenting “perspectives” for P stewardship and nutrient recovery and recycling*

### Structure and method:

- *invite experts (or specialist network organisations) to submit articles of 1 page each, on different themes, in each case presenting an overview of perspectives and opportunities, see below*
- *review and editorial control of all articles by ESPP, then return to authors for agreement*
- *Newsletter in the usual layout, but consisting only of these ‘perspectives’ review articles total approx. 25-30 pages*

### Possibilities:

- *Propose collaboration with professional editors, eg. Green Futures*  
<http://www.forumforthefuture.org/greenfutures>

### Themes:

#### At this stage, a first set of some ideas, for comment

- *Edito: ESPP: Why worry about P (beyond Peak P) ?*
- *Perspectives for sewage nutrient treatment and removal (Anomox, integration of AD and EBPR to replace secondary treatment): the place for phosphorus management and recycling in ....)*
- *Anaerobic digestion, composting, biochar*
- *Perspectives for manure treatment*
- *Bioeconomy and bioresources production (cf. US NAS report on biofuels)*
- *Algal/ reebed/ other plant based nutrient removal & recycling processes*
- *P-recovery from waterways and agricultural drains (cf. Innocentive / TVA challenge)*
- *High tech P-recovery (struvite, ash ...)*
- *Biosolids reuse to land for nutrient recycling (issues and possible answers)*
- *Potential for P-recycling (figures for flows of P in manure, sewage, other wastes, compared to fertiliser and other uses)*
- *P “efficiency” in agriculture*
- *P losses from soil to surface waters and waterbasin management*
- *P in animal feeds*
- *P and food security (cf. Tim Benton ?)*
- *Summary of EU consultation responses (if possible)*
- *NGO vision of sustainable P in sustainable farming (Greenpeace, Soil Association, PAN)*
- *Outline development of a research and knowledge implementation and integration*
- *Multistakeholder action and interdisciplinarity (NL Platform)*
- *Innovation and business cases*
- *Industry uses of P (other than agricultural) – strategic implications (W. Schipper ?)*
- *Awareness raising and the public (Global P Summit ?)*



## Platform actions 2014



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### Conferences: ESPP will be there

- End-o-Sludge, Brussels, 12/2013 (*tomorrow*)
- RCN (US P research network), Phoenix, 1/2014
- BAM P-recovery from wastewater, Berlin, 1/2014
- AD2014 (Anaerobic Digestion), Dublin, 2/2014
- Phosph'Or, Rennes, 1/2014
- Phosphates 2014, Paris, 3/2014
- IFA (International Fertilisers Ass.), Amsterdam, 4/2014
- RBB10 (BioRefineries), Valladolid, 6/2014
- 4<sup>th</sup> P Summit, Montpellier, 9/2014
- 2<sup>nd</sup> ESPP (European Sustainable P Conference), **Berlin, 3-4 March 2015**



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### Possible new actions to develop in 2014

#### Business cases and market

- Presenting success stories
- Value-chain catalogue
- Making contacts for new markets
  - calcium phosphite waste: can it be used in fertiliser industry?
  - recycled glass filter material: can it be used to recycle P?
- Showcasing technologies and innovations



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### Possible new actions to develop in 2014

#### Tenders, calls and projects

- Identify funding opportunities
- Analyse criteria relevance for sustainable phosphorus
- Inform possible consortia partners
- Circulate requests and proposals received by Platform

#### Horizon 2020

- Food security, sustainable agriculture
- Raw materials, waste
- Industrial technologies, recovery, circular economy, biorefineries
- PPPs processing industries



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### Partnership ESPP - EPE

In addition to hosting, administrative management, accounting, EPE's role:

- Link to **EIP Raw Materials & EIP Water** (*European Innovation Partnership*)
- Link to **'EU Covenant Circular Economy 2022'** agenda (*Raw Materials Commitment in the framework of EIP Raw Materials*) and to **EU Covenant Leading Regions and Cities** (*ESPP would provide regions, cities and companies with guidelines for P value chain management*)
- **Intelligence gathering**: website search following key words.
- Contribute to preparing response to call for proposals and help ESPP members to apply collectively or individually
- Via EPE Members, develop P Platform contacts in Member States.

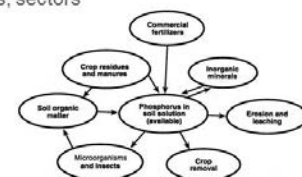


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### Possible new actions to develop in 2014

#### Research, integration and implementation agenda

- Identify knowledge gaps
- Needs for transfer between disciplines, sectors
- Demonstration and dissemination
- Stakeholder involvement
- Integration with knowledge agendas on food security, sustainable agriculture



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### Budget status – to December 2013

<b>14 members to date = income</b>		<b>70 000 €</b>
• Emailing system	2 762 €	
• Website Phase I	12 000 €	
• EPE hosting & accounting	5 000 €	
• Secretariat fees	35 000 €	
• London meeting (venue + R Green)	3 255 €	
• Travel & other costs	3 925 €	
<b>Total spent</b>		<b>61 942 €</b>



## R&D funding opportunities, R&D integration and implementation agenda, Horizon 2020

Several participants emphasise the need for reliable data to support policies, funding calls, business development, including both scientific data, demonstration plants and evaluation of these. Funding is also needed for implementation of new technologies full scale.

**A. Rosemarin to coordinate workgroup on an ESPP “knowledge agenda” project.** This has been discussed and the need identified in various for a, including Global TraPs, RCN USA, CCME Canada, but no progress has been made to date. In order to get started: **Action CT: organise telcon of interested parties.**

**A. Passenier to organise workgroup on funding of P-management investment.** **Action CT: identify interested participants: European Investment Bank (present), ISPT (Institute for Sustainable Technologies)** <http://ispt.eu/SME/New-call-for-Techno-projects/>

There is interest to organise a meeting of organisations doing / having experience in **pot/field trials of recycled P products**, to avoid duplication of research, identify possible knowledge gaps and to look for ways to address these.

**Action CT: propose to organise during agronomic P conference in Montpellier/with Sustainable P Summit.**

R. Van Ermen presents **EPE’s action on a ‘Covenant for circular economy’**, within Horizon 2020. First stage is an EIP ‘Commitment’ proposal currently being drawn up (submission to EU Commission end Jan. 2014) proposing to develop sectoral approaches to the Circular Economy with regions and local authorities, working with ACR (Association of Cities for Recycling), and with stakeholders and companies. This corresponds to the EIP Raw Materials objectives and to the Commission’s priority on re-industrialisation of Europe base on the Circular Economy. The proposal is to include phosphorus as a case study and example. First stage will be to elaborate guidelines for regions/cities as to what is a Circular Economy for P and how to move towards it. A. Passenier indicates that Berlin, Amsterdam and Gent are working to cooperate on local recycling of P in the value chain which fits into this. This will be presented in **Berlin 21<sup>st</sup> January 2014 15h00.**

R. Van Ermen underlines that there a number of opportunities in **Horizon 2020**, with calls in 2014 and 2015. First response deadlines are March and May 2014, including theme waste management. Need to identify possible opportunities, facilitate consortia and project preparation. Action decided: organise **meeting fixed to work on call and project opportunity identification and response** see page 1 - **Action CT, RvE**

### Comments

- EU Commission is looking for experts to participate in R&D project evaluation. **Action all: Platform contacts are incited to register in order to bring P-stewardship awareness into the evaluation process**  
<http://ec.europa.eu/research/participants/portal/desktop/en/experts/index.html>
- Horizon 2020 “SME instrument” can fund SME implementation projects up to 3-4 million Euros
- ERRIN-WssTP information day on Horizon 2020 funding opportunities for water-related SME’s, Brussels 24<sup>th</sup> January, see  
<https://www.dropbox.com/s/o4vcjgpb3br5cx/Draft%20Programme%20-%2024th%20January.pdf>

- Look for funding opportunities which can finance the Platform's outreach and communications activities, and bring in more partners
- Work with farming organisations on agri-innovation funding possibilities
- Add to website links to relevant R&D networks, innovation networks (eg. WssTP)  
**Action AN**
- Work with ERRIN network : 100+ European regions interested in water, bioeconomy R&D **Link: Dirk Halet**



v2 p 38



v2 p 39

## Budget – first half 2014

Carried over	8 000 €
5 new members contacts already	34 000 €
5-10 new members to find	50 000 €
• Website Phase II	20 000 €
• EPE hosting	5 000 €
• Secretariat fees	30 000 €
• Travel & other costs	4 000 €
• Knowledge implementation agenda	10 000 €
• Other ?	

## Organisation of Platform in 2014

- **Calendar for defining**
  - decision making structure
  - statutes (or not) ?
  - continue within EPE (need for ESPP internal rules) ?
  - Steering Committee 2014 / decision making structure
  - relations with national platforms, federations
- **Budget and funding:**
  - levels of partner fees for 2014-2015
  - other funding
- Preparation of ESPP2, Berlin, 3-4 March 2015
- **Next meeting – when, who ?**



## 2014 Platform actions and development

### Comments and actions

- Structure of Platform: participants emphasise the need to keep things simple, not spend time defining structures. General agreement to remain part of EPE, which enables to use the existing structure. R. van Ermen indicates the need to clarify internal operating rules for ESPP within EPE. Some participants suggest a “code of conduct” for partners could be appropriate: some elements of this are already included in the ESPC conference declaration from March 2013.

### **Action CT, RvE**

- Importance of maintaining ESPP Secretariat to ensure coordination, contacts, implementation of actions
- Organisation of ESPC (2<sup>nd</sup> European Sustainable Phosphorus Conference, Berlin 3-4 March 2015): meeting fixed – see page 1
- Other actions as already identified above





# *Consultative Communication on the Sustainable Use of Phosphorus*

ESPP Meeting  
Brussels, 5 June 2014

Francesco Presicce  
European Commission  
DG ENV – agriculture,  
forests and soil



# The Consultative Communication on the Sustainable Use of Phosphorus

Published on 8 July 2013

Part of the overall drive to improve resource efficiency in the EU and worldwide. Based on a mandate in the 2011 Communication "Roadmap for a resource efficient Europe"

Purpose : draw attention to the sustainability of phosphorus use and to initiate a debate on the state of play and the actions that should be considered

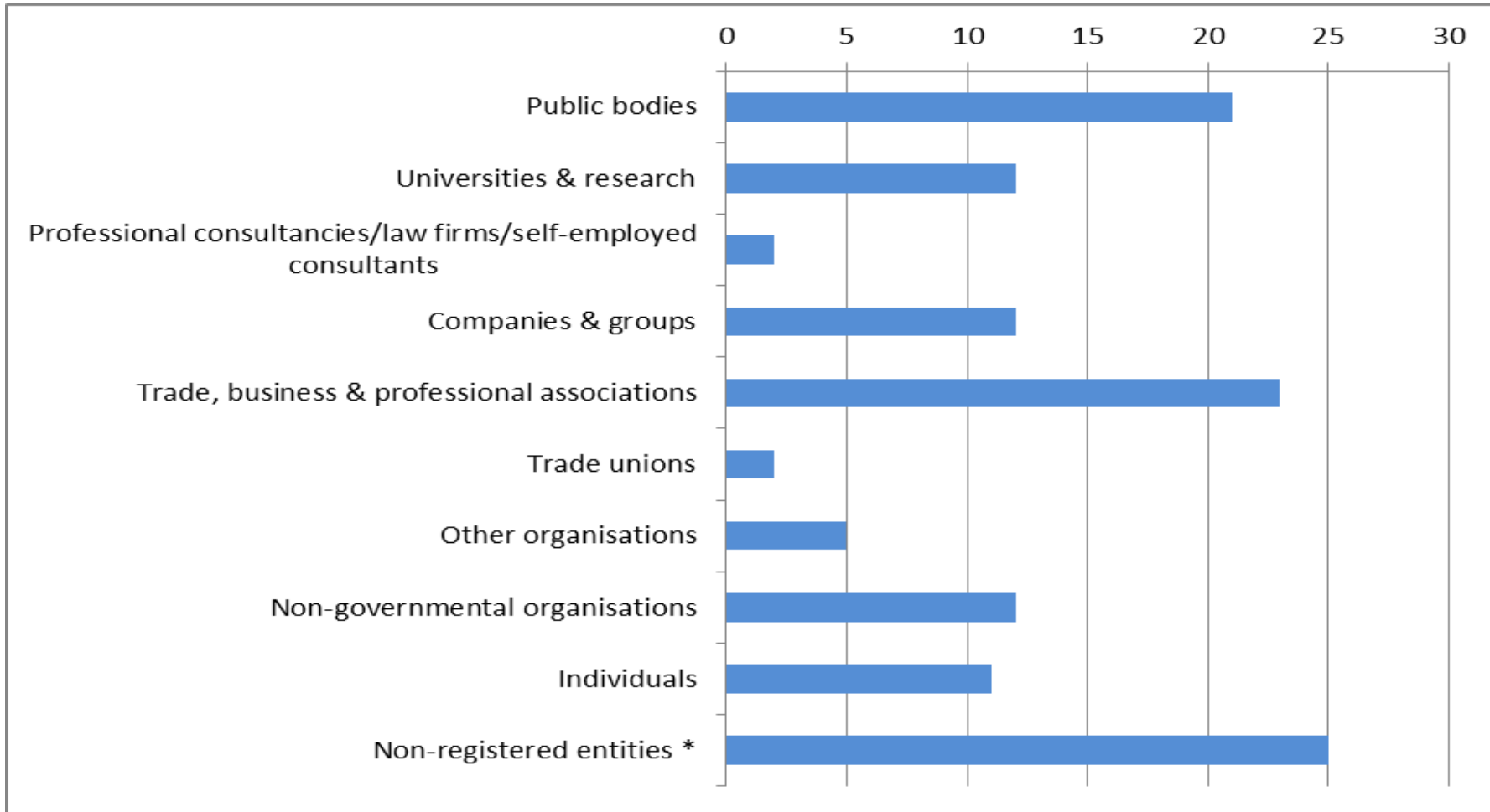
**11 questions** posed to stakeholders

Closed on 1/12/2013

## Results of the consultation

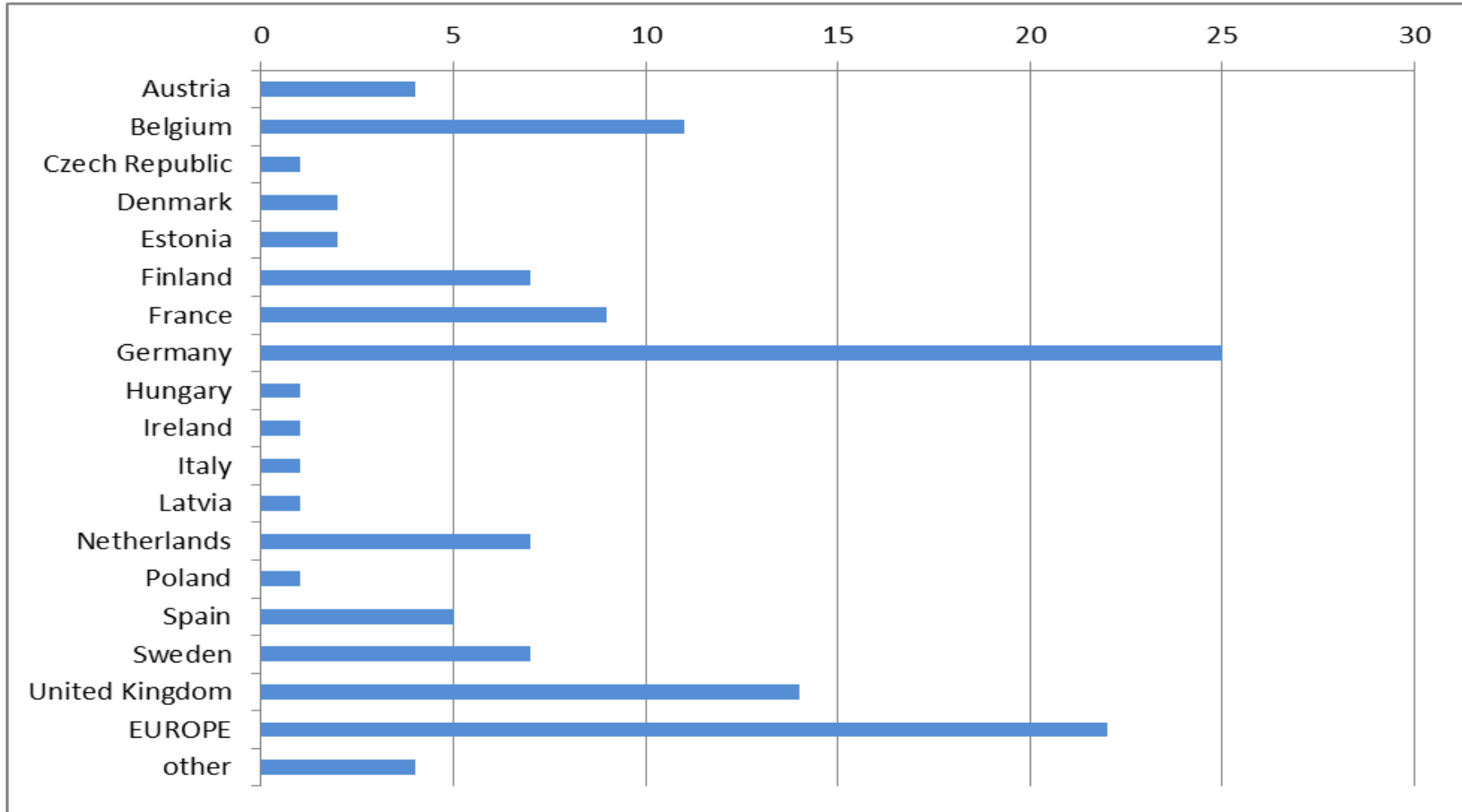
- **125** replies. Many of them addressed all 11 questions
- **Contributors:** national governments, governmental agencies, local authorities, NGOs, industry associations, research/academia, private sector, private individuals
- More replies from **organizations**, fewer from **private individuals**
- **Joint replies** from some organisations
- **Sectors:** phosphorus recycling, water, agriculture, food, fertilisers, other chemicals, energy, waste, other manufacturers, etc.

## Categories of stakeholders



\* Entities not registered in the EU Transparency Register

## Geographical distribution of replies





## Key messages from the replies

- **Security of supply** is an issue for most respondents.
  - Seek more independency regardless of debate on available resources
  - Work on cooperative agreements, transfer of technologies
  - Ensure access to high quality mineral
  
- Need to improve **knowledge base** on worldwide supply and demand and phosphorus use efficiency
  - The picture presented by the Commission is fairly accurate...
  - ...but more knowledge base is needed, from different sources, on more geographical areas
  - The information needs to be more transparent and reliable
  - Harmonizing definitions, adopt a common language

## Key messages from the replies (2)

- Most respondents agree on EU action to face the **risk of soil contamination**
  - Cadmium is the most addressed contaminant
  - Clarity of standards, based on scientific evidence
  - Recycled P avoids new Cadmium to enter the environment...
  - ...but attention should be paid to other contaminants
  
- Encourage **Research and Innovation**
  - Instruments: Horizon 2020, Innovation Partnerships
  - Topics: P use efficiency, P recovery and recycling, environmental impacts...
  
- Need to improve management in **areas of P surplus**
  - Monitor P flows
  - Balanced fertilisation
  - Manure processing
  - In areas of over-supply, pollution reduction at source is necessary (redistribution of livestock, decrease in livestock density, etc.)

## Key messages from the replies (3)

- Prevent and reduce P losses from **food waste** and other **bio-degradable waste**
  - Various P recovery opportunity exist
  - Prevention is also key
  - Drivers / Incentives are needed
  - Ensure quality of the recycled product (and consequent acceptance)
- **Encourage phosphorus recycling**
  - Mixed feelings on mandatory approaches, but recycling should be encouraged/supported
  - Some success stories exist (e.g. struvite production)
  - Suggestion to work on P recovery and stewardship standards
  - Environmental legislation is an important driver
  - Direct application of sludge on land vs. processing...
  - ...in any case, quality and information on what is applied on land is key

## Conclusions

- Good reaction to the consultative communication from a large number of different actors: **debate successfully launched**
- Next step: continue debate, with more involvement of the **wider public** and more **EU wide understanding** of the topic
- There is a strong potential towards a **circular economy** for phosphorus and further efforts in this direction are envisaged
- The results of the consultation will help the Commission shape **further work**



# Thanks for your attention

*More information available at:*

<http://ec.europa.eu/environment/natres/phosphorus.htm>

*Contact:*

[ENV-USE-OF-PHOSPHORUS@ec.europa.eu](mailto:ENV-USE-OF-PHOSPHORUS@ec.europa.eu)

## **EU Fertiliser Regulation revision**

### **European essential requirements for organic fertilisers and recovered nutrients**

*The revision of the EU Fertiliser Regulation, under discussion, will facilitate placing on the market of organic and recycled nutrient products whilst ensuring safety and quality.*

The revision of the EU Fertiliser Regulation 2003/2003, currently under discussion, will widen the scope of the Regulation to include inorganic, organo-mineral and organic fertilisers, organic soil improvers, liming products, growing media, plant bio-stimulant and agronomic fertiliser additives. This will considerably facilitate the placing on the market both of organic products containing recycled nutrients (e.g. processed biosolids, digestates, composts, biochars) and inorganic recovered phosphate products (e.g. struvite, phosphates recovered from sewage sludge, incineration ash). Fertilising materials which are certified to comply with the new essential requirements outlined in the EU Fertiliser Regulation (minimum nutrient content, quality and safety criteria) will be authorised to be placed on the Internal Market (transported and sold across the European Union), whereas as present such products registered as “fertilisers” in one Member State cannot be exported or require a new registration dossier for sale in another Member State (except in cases where there has been mutually recognised by the authorities of the importing Member State).

The European Sustainable Phosphorus Platform (ESPP) and Fertilisers Europe ([www.fertilizerseurope.com](http://www.fertilizerseurope.com)) organised a meeting with participation of the European Commission on 6<sup>th</sup> February 2014. Stakeholders welcomed the proposal to widen the EU Fertiliser Regulation, because it will enable innovation and flexibility, and facilitate the marketing of new types of products, important both for recycling and recovery of nutrients, and for developing new phosphorus fertilisers for improved crop efficiency or to reduce environmental losses. They underlined the importance of the Regulation to ensure Europe-wide, harmonised, accreditation of innovative recycled nutrient products, so enabling them to be put on the market and traded throughout Europe.

#### **Coherence with other regulations**

Stakeholders at this meeting considered important the harmonisation of the Fertiliser Regulation with other regulations.

It was noted that clarification is needed regarding the application of REACH (European chemical regulation) for substances leaving the waste status. Confirmation is needed that stable digestates are exempted from REACH (compost is already exempted) and clarification is needed regarding the application of the exemption of certain REACH requirements for “recovered products” (art. 2(7)d of REACH, see SCOPE Newsletter n° 98). The European Sustainable Phosphorus Platform has addressed questions to the European Commission on both of these points, supporting the European and German Biogas Associations’ positions concerning REACH exemption of digestates.

There is also a need for coherence with the Animal By-Products Directive and the Nitrates Directive. In particular, fertiliser products recovered from manures are currently penalised by the limitations for spreading “processed manure” as defined in the Nitrates Directive (see SCOPE Newsletter n° 100). This could be resolved if the criteria defining “mineral fertilisers” under the revised Fertilisers Directive were considered to also define a product as no longer being considered as “processed manure” under the Nitrates Directive.

#### **Accreditation**

The EU Commission suggested that a list of accredited organisations, entitled to deliver the “EC” conformity certificate (product conform to the revised EU Fertiliser Regulation criteria = can be sold throughout Europe) will be defined, based on Member State proposals for certification bodies working according to the accreditation principles. This will be particularly important for waste-derived products (recovered nutrient products) as they will be subject to such third-party certification before allowing their placing on the market. It is also important to improve circulation between Member States of information about non-conform products found on the market in order to ensure that they are withdrawn in a consistent way throughout Europe.

All products marketed under the revised Fertiliser Regulations would have to be identified in one of the different product sub-categories (inorganic fertilisers, organo-mineral and organic fertilisers, organic soil improvers, liming products, growing media and plant bio-stimulators) depending on their nature and characteristics. The choice will be made by the producer, who will have to demonstrate that their product fulfils the quality and safety essential requirements defined for this specified product sub-category.

## End-of-Waste

It currently looks likely that European End-of-Waste criteria for composts and digestates (see SCOPE Newsletter 99) will not be adopted by the European Commission, but that existing national End-of-Waste criteria would remain in place, and other Member States may develop such criteria.

It was noted that if there are no European End-of-Waste criteria in place, then wastes cannot cease to be waste (under the Waste Framework Directive 2008/98/EC) and will not cease to be waste simply because they respect (revised) Fertiliser Regulation essential requirements: wastes or products from processed waste would thus remain subject to traceability obligations and other relevant waste legislation unless they go through national End-of-Waste Criteria. However it seems that this situation might evolve during the inter-services consultation in view of the adoption of the proposal for a revised Fertilisers Regulation which highly depends on the adoption of this EU End-of-Waste criteria to avoid market fragmentation due to the co-existence of diverging national End-of-waste criteria.

## Quality and safety criteria

The EU Commission has circulated for comment (Fertilisers Working Group 17/3/2014) draft quality and safety criteria for the different categories of product to be covered under the recast Fertiliser Regulation. These include proposals for criteria for minimum phosphorus, nitrogen and potassium content, micronutrients, for organic matter and for maximum levels for contaminants (heavy metals, PAHs, pathogens, viable weed seeds, solids such as glass, metal or plastics). See below.

<b>Possible maximum contaminant levels (mg/kg dry matter) ***</b>						
<i>Contaminant</i>	<i>Inorganic fertilisers</i>	<i>Inorganic micronutrient fertilisers</i>	<i>Organic fertilisers</i>	<i>Liming materials</i>	<i>Growing media</i>	<i>Organic soil improver</i>
Cadmium	3 *	200	1.5	3	3	3 *
Cr VI	2		0.5	Pending	150 **	0.5
Hg	2	100	1	2	1	1
Ni	120	2000	50	90	90	50
Pb	150	600	120	200		120
As	60	1000		120	150	
Cu			200		230	200
Zn			600		500	600
PAHs			6			6
<i>Salmonella</i> spp			Zero in 25g			
<i>E. coli</i>			1000 CFU/g			
Viable weed seeds			2/litre			
Macroscopic impurities			0.5% > 2mm			
* Applicable for products < 5% P <sub>2</sub> O <sub>5</sub> For products > 5% P <sub>2</sub> O <sub>5</sub> = see above. ** = Cr total						
*** Circulated for comment to the EU Fertilisers Working Group meeting of 17/3/2014						

Product physical and handling quality specifications, such as water content and uptake, caking, density, physical resistance (adaptation to spreading equipment), granulometry, will not be defined by the Fertiliser Regulation, but will be left to the market. However, user safety information will be required just as is the case for any product (Classification & Labelling Regulation information about risks such as skin or eye irritation, respirable dust if relevant ...).

As explained in SCOPE Newsletter 98, cadmium limits for inorganic fertiliser are proposed at 60 mgCd/kgP<sub>2</sub>O<sub>5</sub> (with the possibility for Member States to enact lower limits at 40 or 20 mg Cd where their local protection goals justify it). For other heavy metals, the proposed limits are as follows, with different limits (per kg dry matter) for different product categories because of the different application rates.

If producers of recycled or organic products consider that they would have difficulty meeting the above contaminant limits and that higher levels could be considered for certain products, whilst ensuring consumer safety as a function of product application levels, then they are invited to indicate such points.

## Raw sewage sludge

The EU Commission also suggests to exclude “raw sewage sludge” from the recast EU Fertiliser Regulation. Further work will therefore be necessary to define when a product is considered to be sufficiently processed to be certified under the recast Regulation (and not to be excluded): stabilised – dried – granulated sewage sludge? composted or anaerobically digested sewage sludge (digestate)?

It is further suggested to exclude raw manures, except where these are traded. This exclusion enables farmers to reuse their own manures or to maintain local reuse circuits, and should probably be defined to exclude manures where quantities traded (either for free or for payment) are below a certain threshold tonnage/year/producer or where the trade is between nearby farmers. As above, clear exclusion criteria need to be defined.

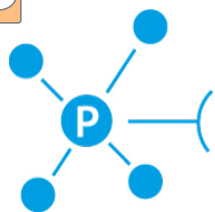
Further work is probably also necessary to address the question of trace organic contaminants, such as pharmaceuticals, hormones, plasticisers and other organic chemicals. Stakeholders at the meeting organised by ESPP suggested that products should be exempted from testing for such substances where the production process means that they should not be present (e.g. inorganic fertilisers produced from phosphate rock, recycled phosphates from thermal processes such as biosolids incineration) but that other products should be required to demonstrate that any traces of such contaminants do not pose risks for health or the environment through product use as a fertiliser, using a risk assessment based approach and a minimum of testing, in order to guarantee consumer and environmental safety.

It is noted that there are significant sampling challenges for products which may not be fully homogenous, e.g. manure or compost. Stakeholders emphasised that Fertiliser Regulations should ensure better safety levels than sludge spreading regulations, taking in all cases the most stringent existing regulations in Member States.

*NOTE: all information in the above article should be considered as “work in progress” in that the EU Fertiliser Regulation revision is currently in the discussion and preparation phase.*

EU Fertilisers Working Group [http://ec.europa.eu/enterprise/sectors/chemicals/specific-chemicals/fertilisers/index\\_en.htm](http://ec.europa.eu/enterprise/sectors/chemicals/specific-chemicals/fertilisers/index_en.htm)





European Sustainable Phosphorus Platform



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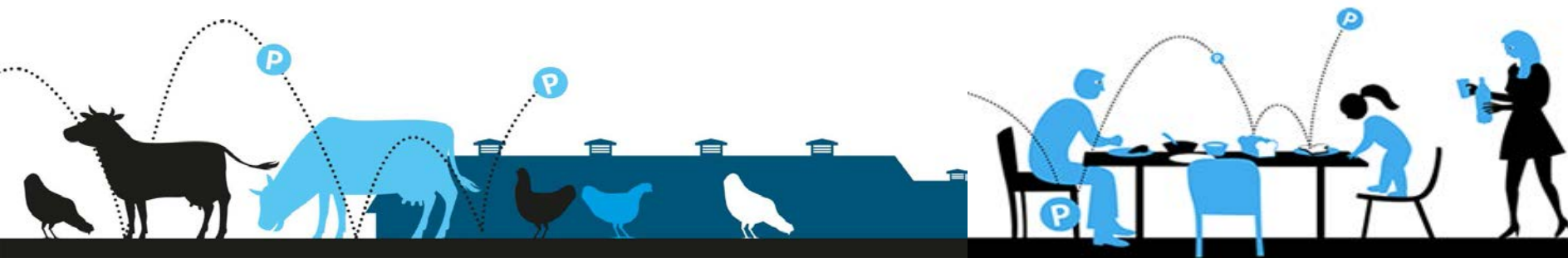
Green Week, Brussels > 3-5 June 2014

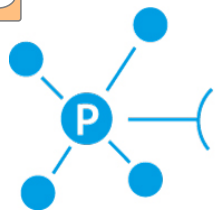


# European Sustainable Phosphorus Platform

Chris Thornton: [info@phosphorusplatform.eu](mailto:info@phosphorusplatform.eu)

[www.phosphorusplatform.eu](http://www.phosphorusplatform.eu)





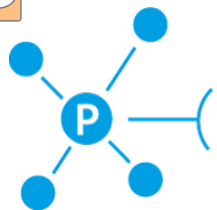
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# *The sustainable phosphorus challenge*



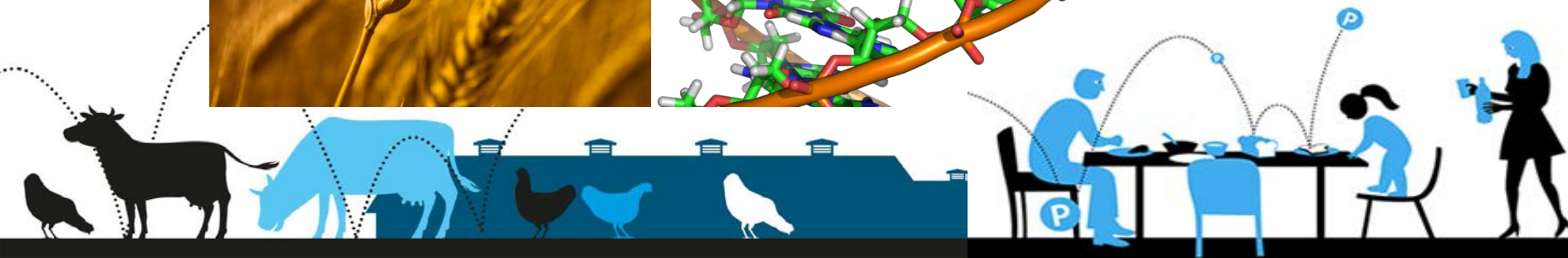
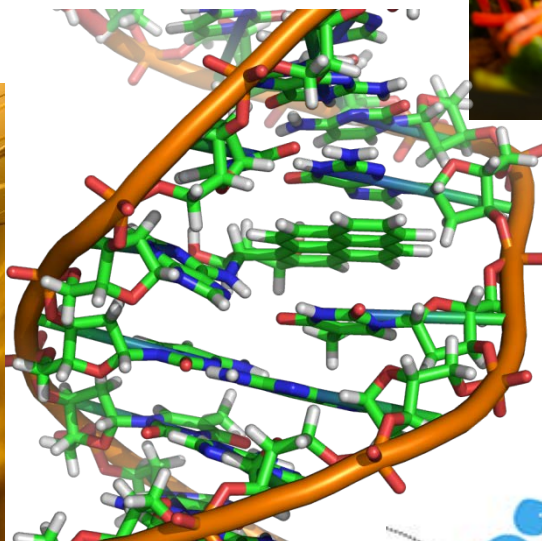


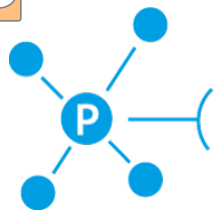
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***Phosphorus:  
essential,  
non substitutable,  
non renewable***





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# Phosphorus: feeding the world

**FERTILIZERS**

139 Mt rock

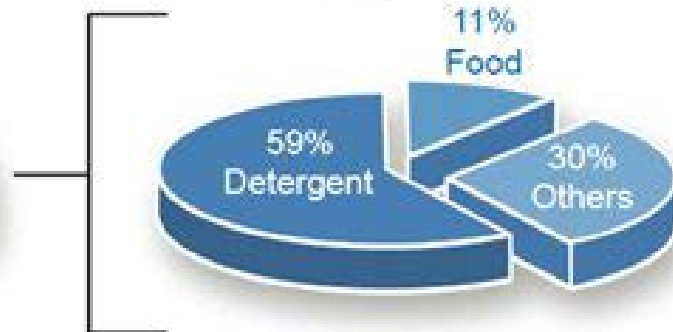
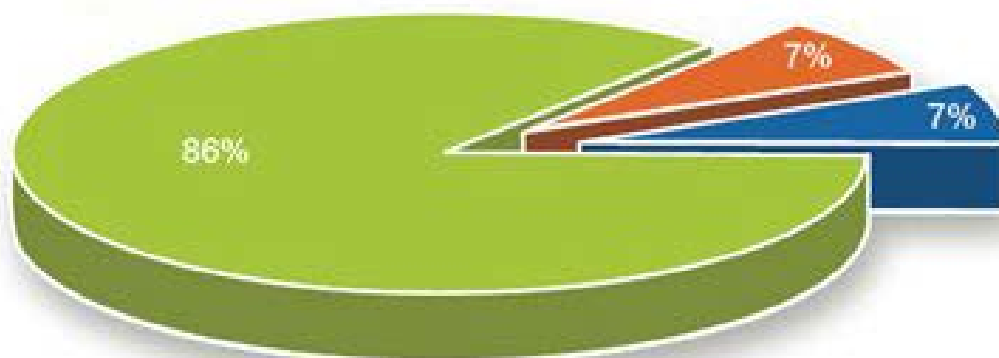
(70% to phosphoric acid production)

**ANIMAL NUTRITION**

11.4 Mt rock

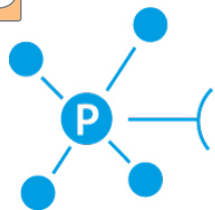
**INDUSTRY**

10.5 Mt rock



[www.aguiaresources.com.au](http://www.aguiaresources.com.au)





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# **Without rock phosphate rock: → sustainable EU population = 150 million ?**

Dawson et al., Food Policy 2011:

<http://www.sciencedirect.com/science/journal/03069192>

# **Sustainable livestock production: → 250g meat / person / week ?**

Greenpeace 2013:

<http://www.greenpeace.org/international/en/publications/Campaign-reports/Agriculture/Ecological-Livestock/>

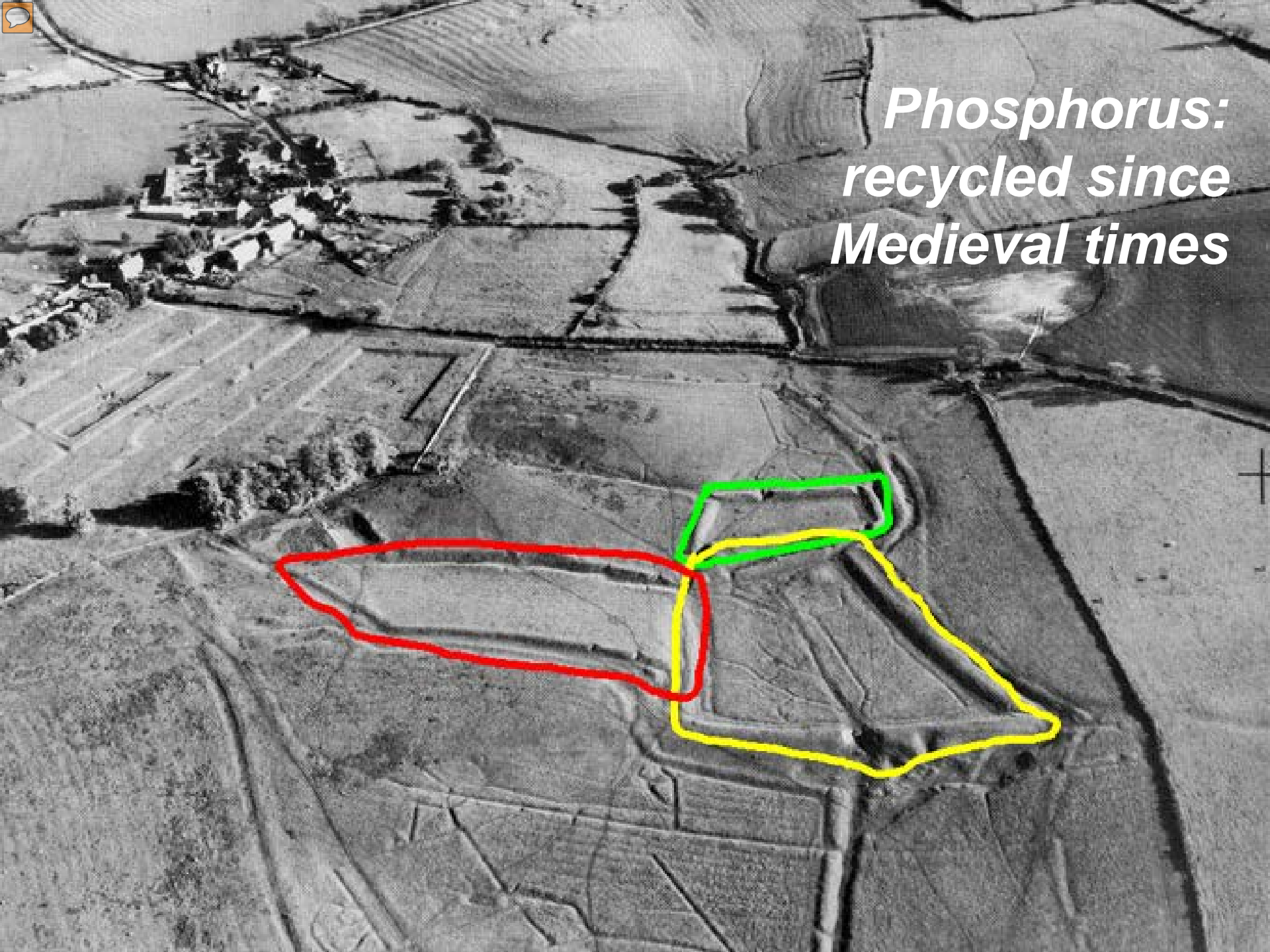


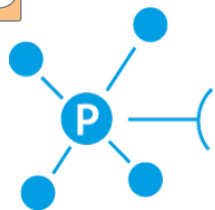


***Phosphorus:  
recycled since  
Medieval times***



*Phosphorus:  
recycled since  
Medieval times*





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# Phosphorus: → a critical resource

[http://europa.eu/rapid/press-release\\_MEMO-14-377\\_en.htm](http://europa.eu/rapid/press-release_MEMO-14-377_en.htm)



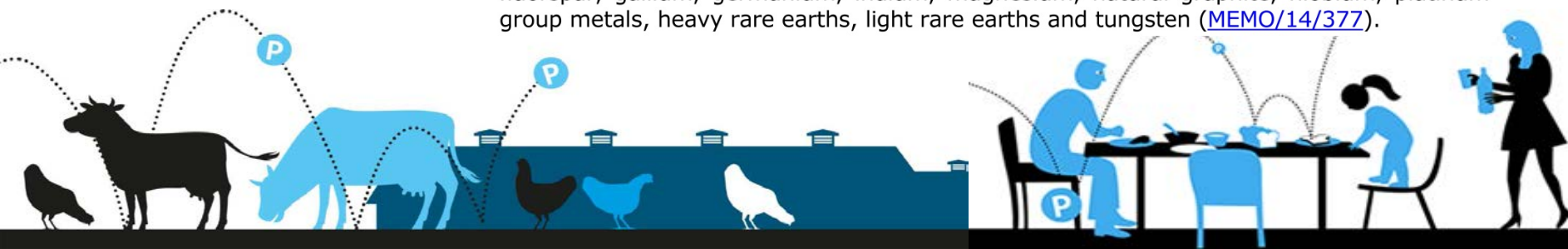
EUROPEAN COMMISSION

PRESS RELEASE

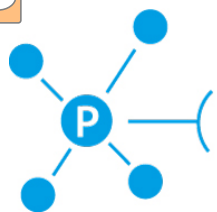
Brussels, 26 May 2014

## 20 critical raw materials - major challenge for EU industry

The European Commission presented today a revised list of Critical Raw Materials. The 2014 list includes 13 of the 14 materials identified in the previous list of 2011, with only tantalum moving out of the list (due to a lower supply risk). Six new materials appear on the list: borates, chromium, coking coal, magnesite, phosphate rock and silicon metal bringing the number up to 20 raw materials which are now considered critical by the European Commission. The other 14 raw materials are: antimony, beryllium, cobalt, fluorspar, gallium, germanium, indium, magnesium, natural graphite, niobium, platinum group metals, heavy rare earths, light rare earths and tungsten ([MEMO/14/377](#)).







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# Phosphorus: → a critical resource

[www.oecd.org/dataoecd/12/35/46084613.pdf](http://www.oecd.org/dataoecd/12/35/46084613.pdf)

<http://www.ctci.org.tw/public/Attachment/1112911352971.pdf>

## Rechargeable battery

LiFePO<sub>4</sub>



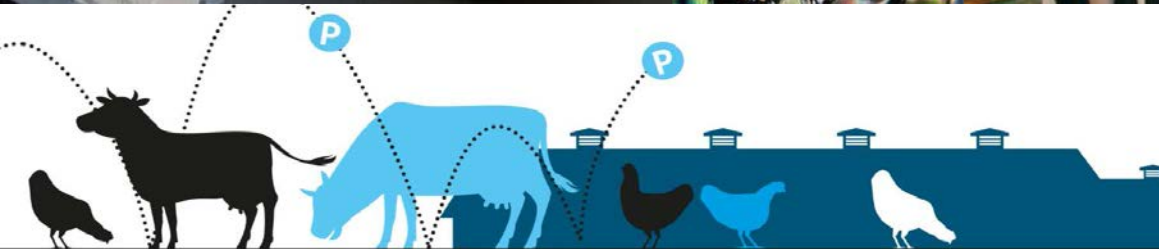
Surface treatment chemicals

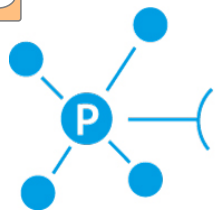


Etching agent



Flame-retardants



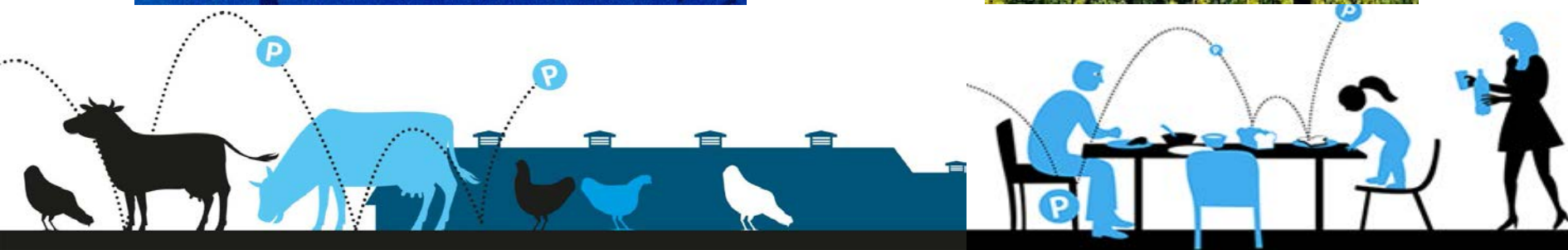
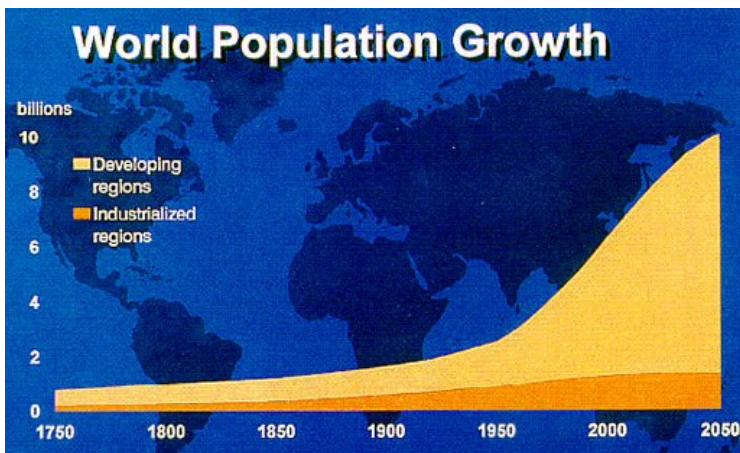
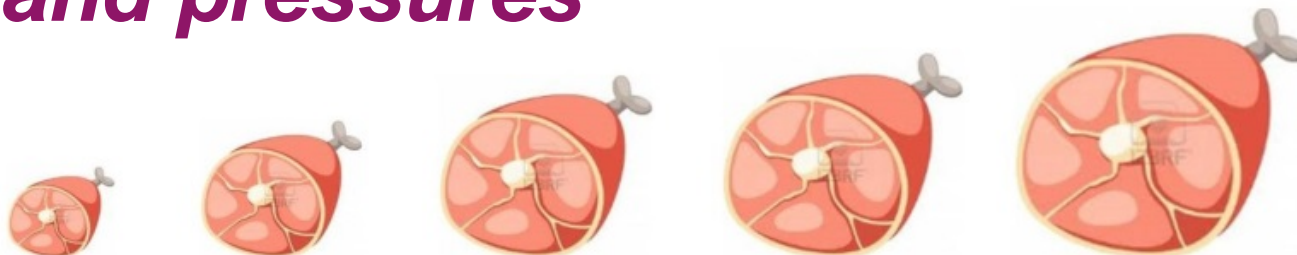


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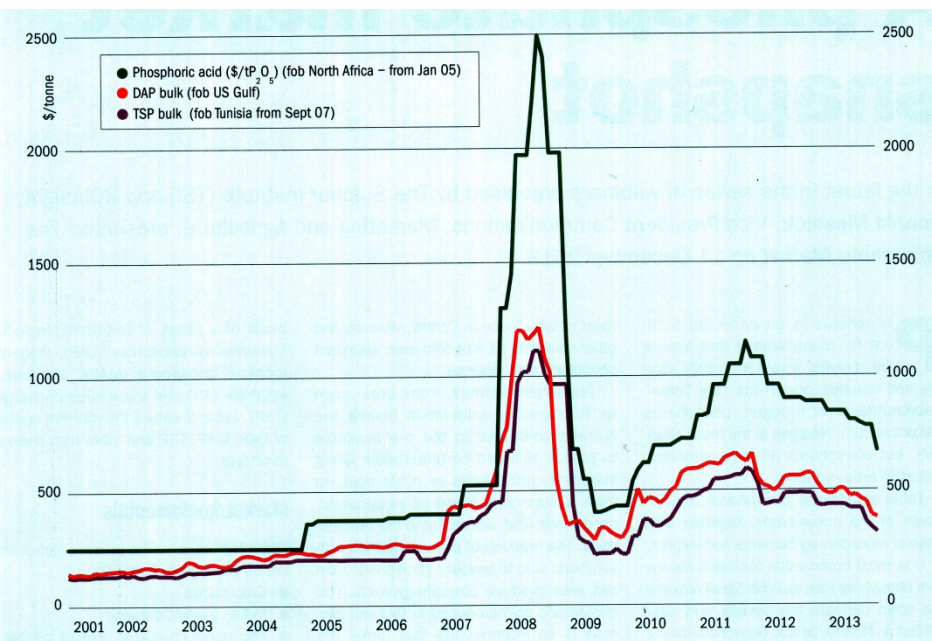
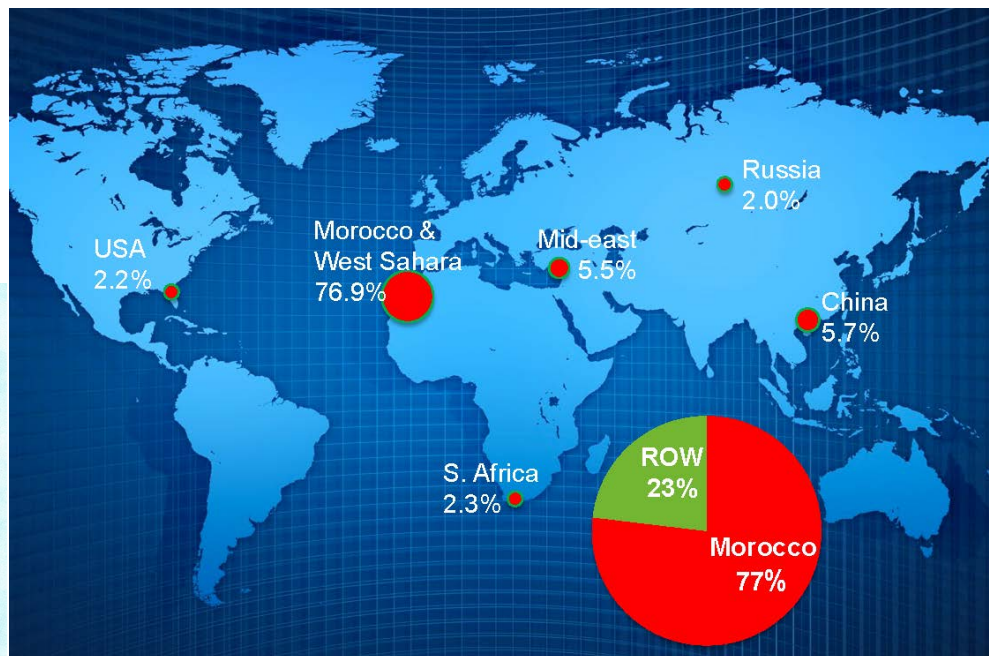
# Demand pressures





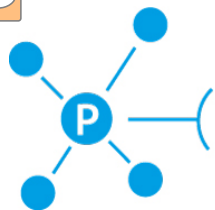
# Supply questions

- resource concentration
- price variability



Prices from Fertilizer International 459, March-April 2014  
[https://www.bcinsight.com/fertilizer\\_international.asp](https://www.bcinsight.com/fertilizer_international.asp)





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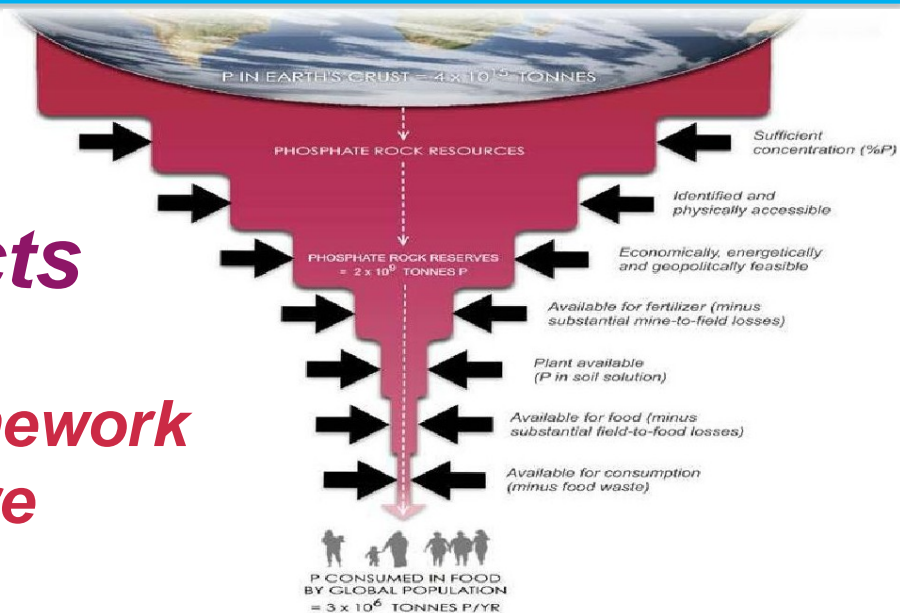
# Efficiency and environment impacts

losses → eutrophication

→ first cause of EU Water Framework

Directive quality failure

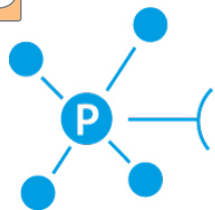
(other than morphology)



Efficiency graph: Sustainable use of phosphorus, Schröder et al, 2010,  
EU Tender ENV.B.1/ETU/2009/0025

[http://www.susana.org/docs\\_cbk/susana\\_download/2-1587-sustainableuseofphosphorusfinalsustpenvb120090025.pdf](http://www.susana.org/docs_cbk/susana_download/2-1587-sustainableuseofphosphorusfinalsustpenvb120090025.pdf)



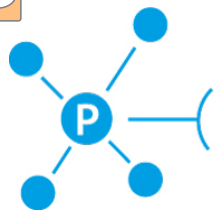


# Perspectives

- better use: applications, diet, health
- efficiency: from field to fork
- Reuse
- Recovery and recycling

Photo right: [www.kidney-support.org](http://www.kidney-support.org)

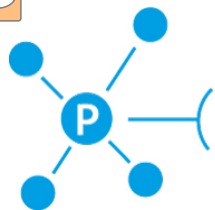




# Phosphorus reuse and recycling

- *Livestock manures*
- *Wastewater treatment*
- *Food wastes*
- *Agro-industry, industrial*

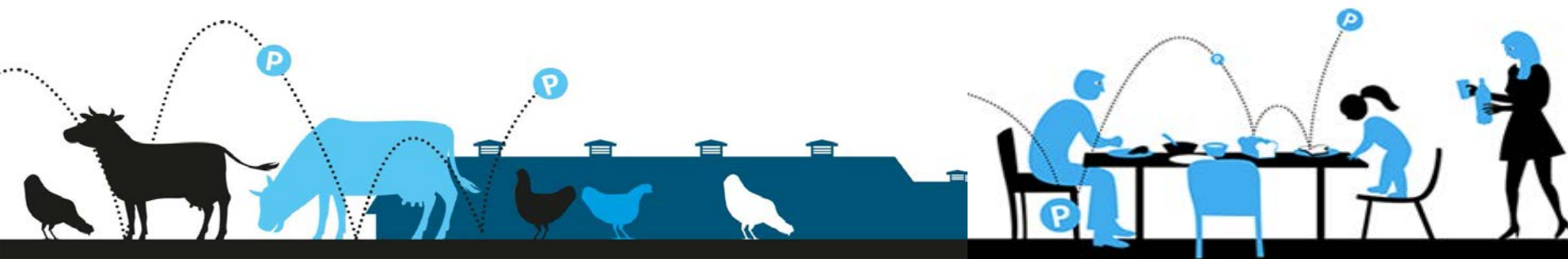


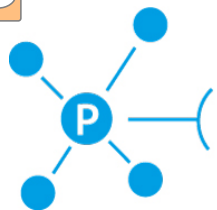


# P recycling potential in EU-27

[kton P/year]	Total	Recycled	Potential
Sewage sludge	297	115	182
Biodegradable solid waste	130	38	92
Meat & bone meal	128	6	122
<b>Total</b>	<b>427-555</b>	<b>153-160</b>	<b>274-396</b>
<b>Manure recycling =</b>		<b>1 996</b>	
<b>Mineral fertiliser use =</b>		<b>1 487</b>	

Van Dijk & Oenema "Overview of phosphorus flows in wastes in Europe", 2013, Fertilisers Europe seminar, 6 Feb. 2013.





European Sustainable Phosphorus Platform



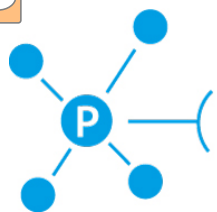
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# Phosphorus recycling synergies

- Improving sewage treatment
- Anaerobic digestion / biogas
- Composts and digestate
- Recycled fertiliser products

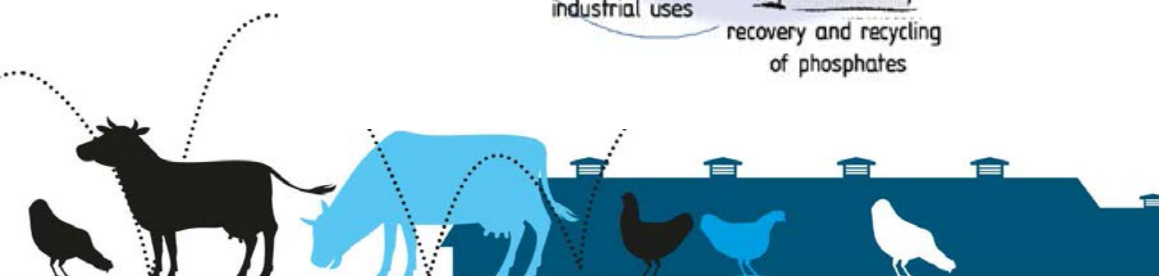
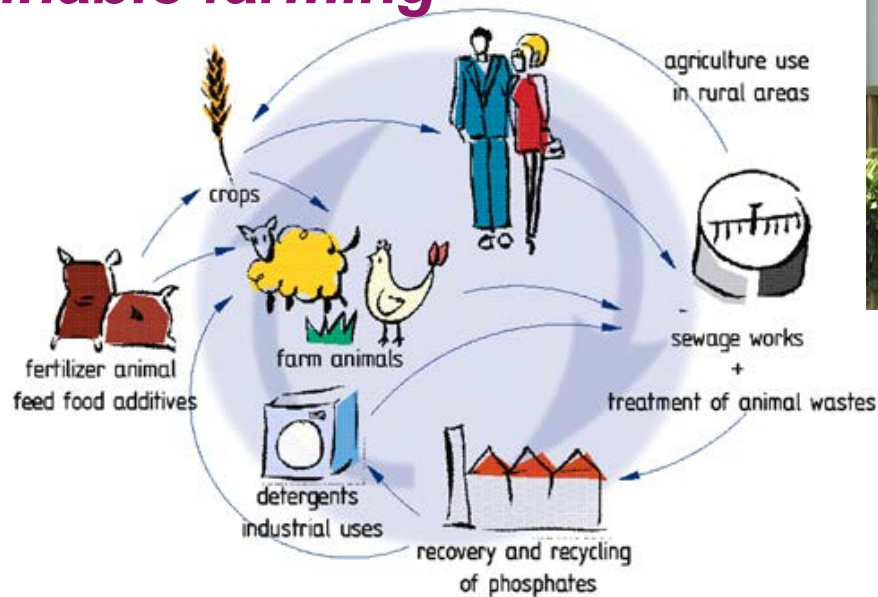


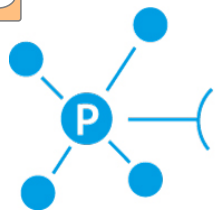




# Phosphorus in a circular economy

- Local value chains & jobs
- Public policies : waste, water ...
- Sustainable farming





European Sustainable Phosphorus Platform

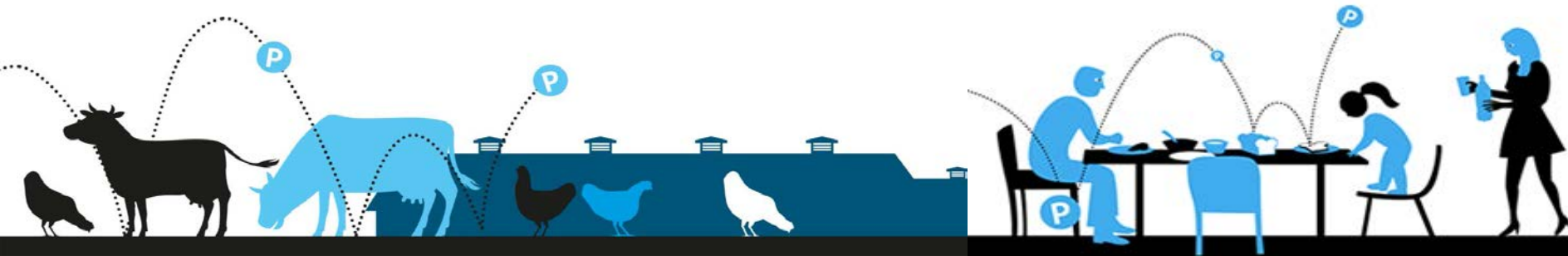
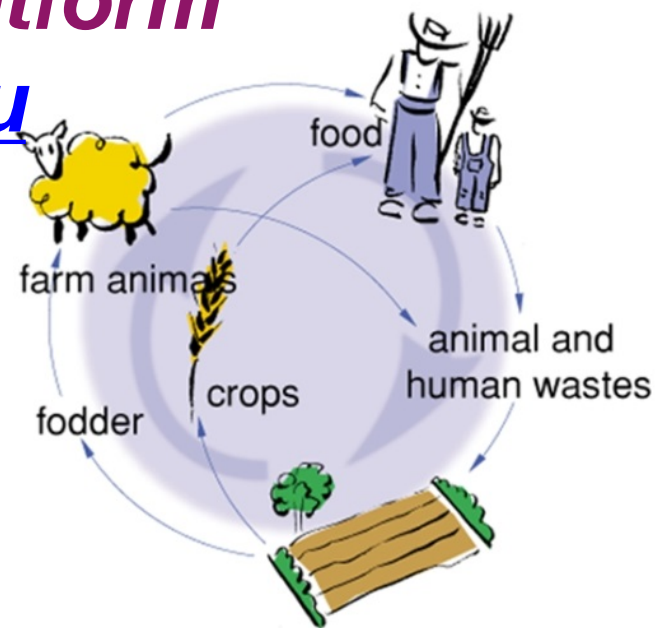


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# European Sustainable Phosphorus Platform

[www.phosphorusplatform.eu](http://www.phosphorusplatform.eu)

Chris Thornton  
[info@phosphorusplatform.eu](mailto:info@phosphorusplatform.eu)





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Closing the P cycle : Enhancing resource efficiency of P from application of organic waste for agriculture

Dr Ruben Sakrabani  
Cranfield University, UK  
[r.sakrabani@cranfield.ac.uk](mailto:r.sakrabani@cranfield.ac.uk)



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# Content

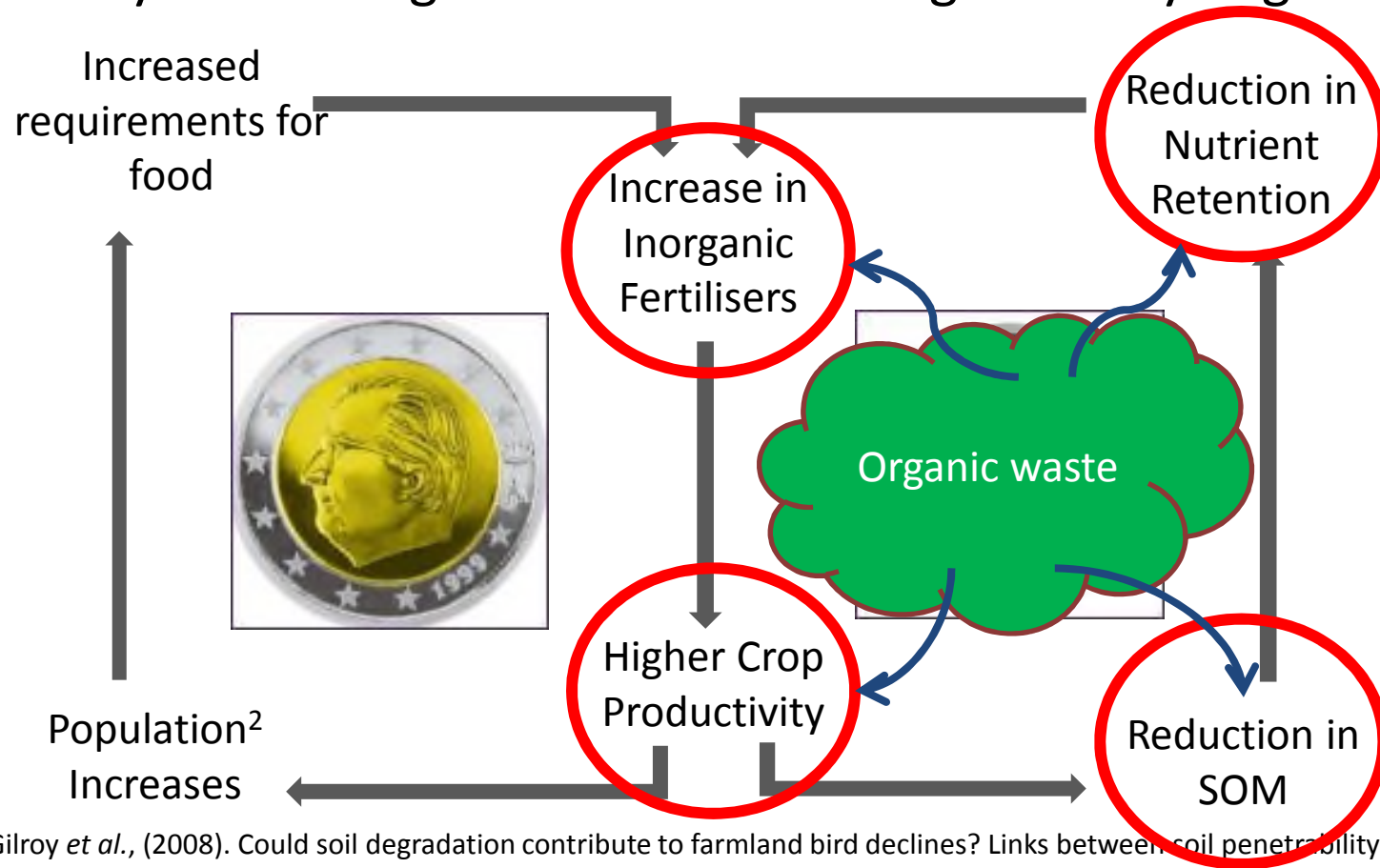
- Background to organic waste use in agriculture
- Soil phosphorus chemistry
- Overview of phosphorus balance in Europe
- Role of organic waste as source of P for crops
- Case study on sludge from an EU FP7 project
  - role and challenges
- Conclusions



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## Many modern agricultural soils are significantly degraded<sup>1</sup>



1. Gilroy *et al.*, (2008). Could soil degradation contribute to farmland bird declines? Links between soil penetrability and the abundance of yellow wagtails *Motacilla flava* in arable fields. *Biological Conservation* **141**, 3116-3126
2. UN (2004). World Population To 2300. Report by Department of Economic and Social Affairs

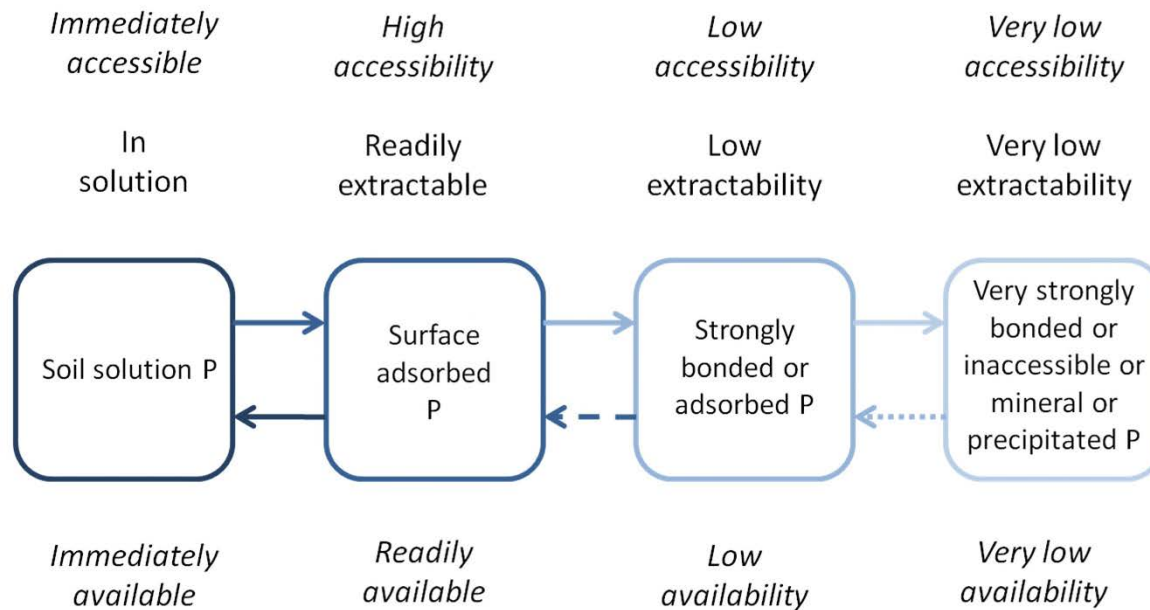
James Ulyett (2010)



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## P availability in soil



Syers , J.K., Johnston, A.E. and Curtin, D. (2008) Efficiency of soil and fertilizer phosphorus use. FAO Fertilizer and Plant Nutrition Bulletin 18. Food and Agriculture Organization of the United Nations, Rome. 108 pp.



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### Contribution of Agriculture to Environmental Problems in Selected European Countries<sup>a</sup>

Name of the country	Environmental impact	Contribution (%)
UK	N and P in water	89
The Netherlands	Eutrophication	80
Belgium	Enrichment of soil and water with N and P	66
Germany	P inputs to surface water	48
Denmark	Emission of P to the sea	26

<sup>a</sup>Adapted from [De Clerq et al. \(2001\)](#).



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# Total P in organic waste

Organic residue	Total P (g kg <sup>-1</sup> )	Reference
Beef manure	2.94	Iyamuremye et al. 1996a
	4.02	Griffin et al. 2003
Dairy manure	1.6	Garcia-Gil et al. 2000
	4.9 - 8.9	Ebeling et al. 2002
	4.35	Griffin et al. 2003
	4.1-18.3	He te al. 2004
	3.5 - 9.8	Sharpley et al. 2004
	11.00 (solid)	Hansen et al. 2004
	0.05-0.12 (lagoon)	Hansen et al. 2004
Poultry manure	26.21	Leinweber et al. 1997
	21	Mokolobate and Haynes, 2002
	23.60	Griffin et al. 2003
	25.2 - 27.8	Sharpley et al. 2004
Swine manure	16.22 (liquid)	Leinweber et al. 1997
	24.69	Griffin et al. 2003
	29.7	Sharpley et al. 2004
Municipal solid waste	5.0 (compost)	Garcia-Gil et al. 2000
	2.9-5.6	Mkhabela and Warman, 2005
CSUW	2.25-7.19	Frossard et al. 2002
CSUW and WW	2.09-3.43	Frossard et al. 2002
Anaerobic sewage sludge	38.3	Akhtar et al. 2002

CSUW: compost solid urban waste. WW: woody waste.





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# Typical total nutrients of livestock manures (fresh weight basis)

Manure Type	Dry matter (%)	Nitrogen (N)	Phosphate (P <sub>2</sub> O <sub>5</sub> )	Potash (K <sub>2</sub> O)	Sulphur (SO <sub>3</sub> )	Magnesium (MgO)
<b>Solid manures</b>						
			kg/t			
Cattle farmyard manure <sup>(1)</sup>	25	6.0	3.5	8.0	1.8	0.7
Pig farmyard manure <sup>(1)</sup>	25	7.0	7.0	5.0	1.8	0.7
Sheep farmyard manure <sup>(1)</sup>	25	6.0	2.0	3.0	ND	ND
Duck manure <sup>(1)</sup>	25	6.5	5.5	7.5	2.7	1.2
Layer manure	30	16	13	9	3.8	2.2
Broiler/turkey litter	60	30	25	18	8.3	4.2
<b>Slurries/liquids</b>						
			kg/m <sup>3</sup>			
Dairy	2	1.5	0.6	2.0	0.4	0.4
	6	3.0	1.2	3.5	0.8	0.7
	10	4.0	2.0	5.0	1.1	1.0
Beef	2	1.0	0.6	1.5	0.4	0.4
	6	2.3	1.2	2.7	0.8	0.7
	10	3.5	2.0	3.8	1.1	1.0
Pig	2	3.0	1.0	2.0	0.5	0.3
	4	4.0	2.0	2.5	0.7	0.4
	6	5.0	3.0	3.0	0.9	0.5
Dirty water	<1.0	0.3	Trace	0.3	ND	ND
<b>Separated cattle slurries (liquid portion)</b>						
			kg/m <sup>3</sup>			
Strainer box	1.5	1.5	0.3	2.2	ND	ND
Weeping wall	3.0	2.0	0.5	3.0	ND	ND
Mechanical separator	4.0	3.0	1.2	3.5	ND	ND

### Notes

1) Values of N and K<sub>2</sub>O will be lower for FYM stored for long periods in the open.

ND = No data.

Courtesy of ADAS & Defra



Farm manures are potentially worth

*£200 million*

*100 dairy cows £ 3,500 per year*

*1,000 finishing pigs £ 5,500 per year*

*50,000 laying hens £18,000 per year*

Courtesy of ADAS & Defra



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- Sludge production in the UK and EU is increasing :
  - Population growth
  - Increasing sewerage connection
  - Level of sewage treatment required
  - Driven by Urban Wastewater Treatment Directive
  - Water Framework Directive

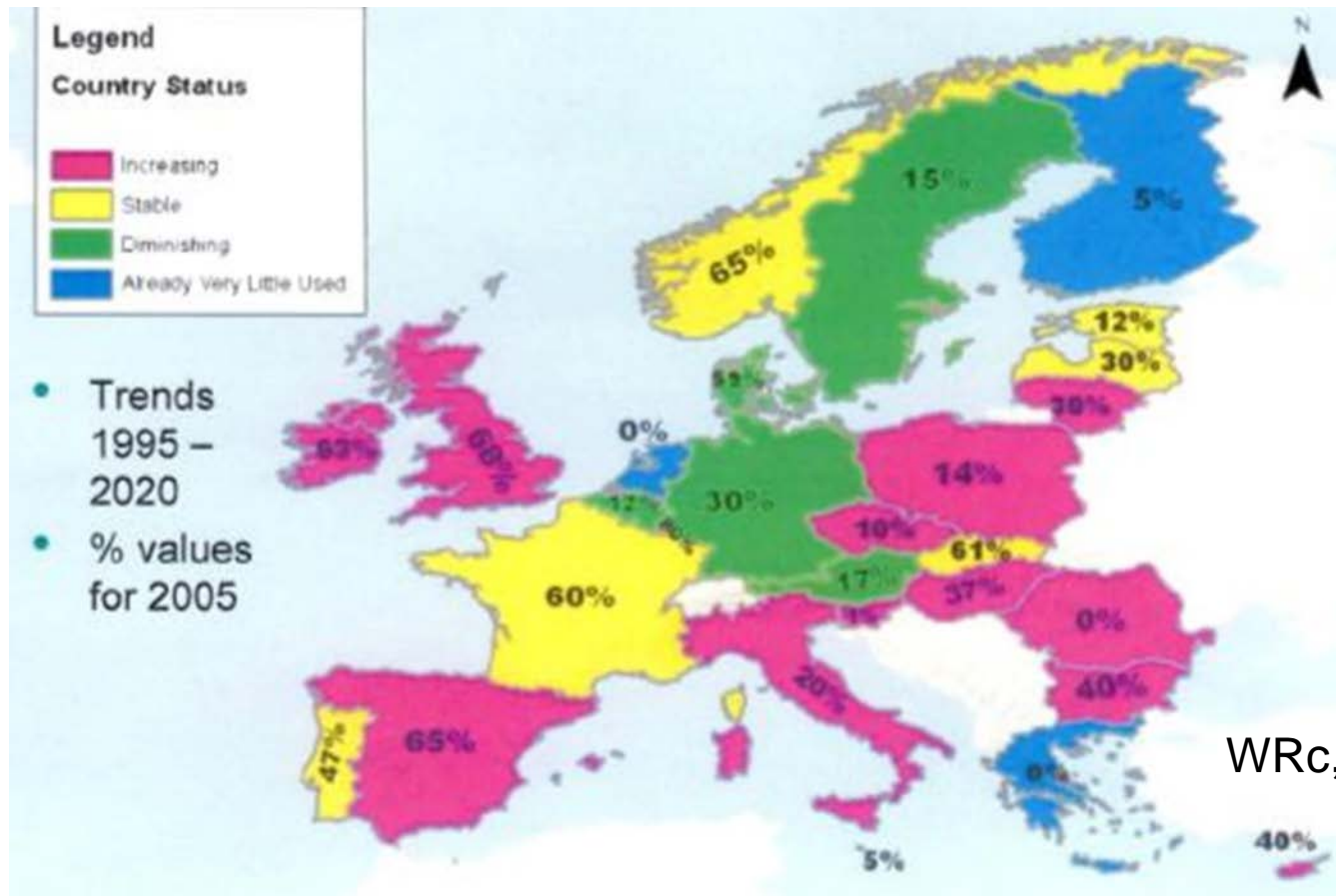


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## Sludge use on agricultural land



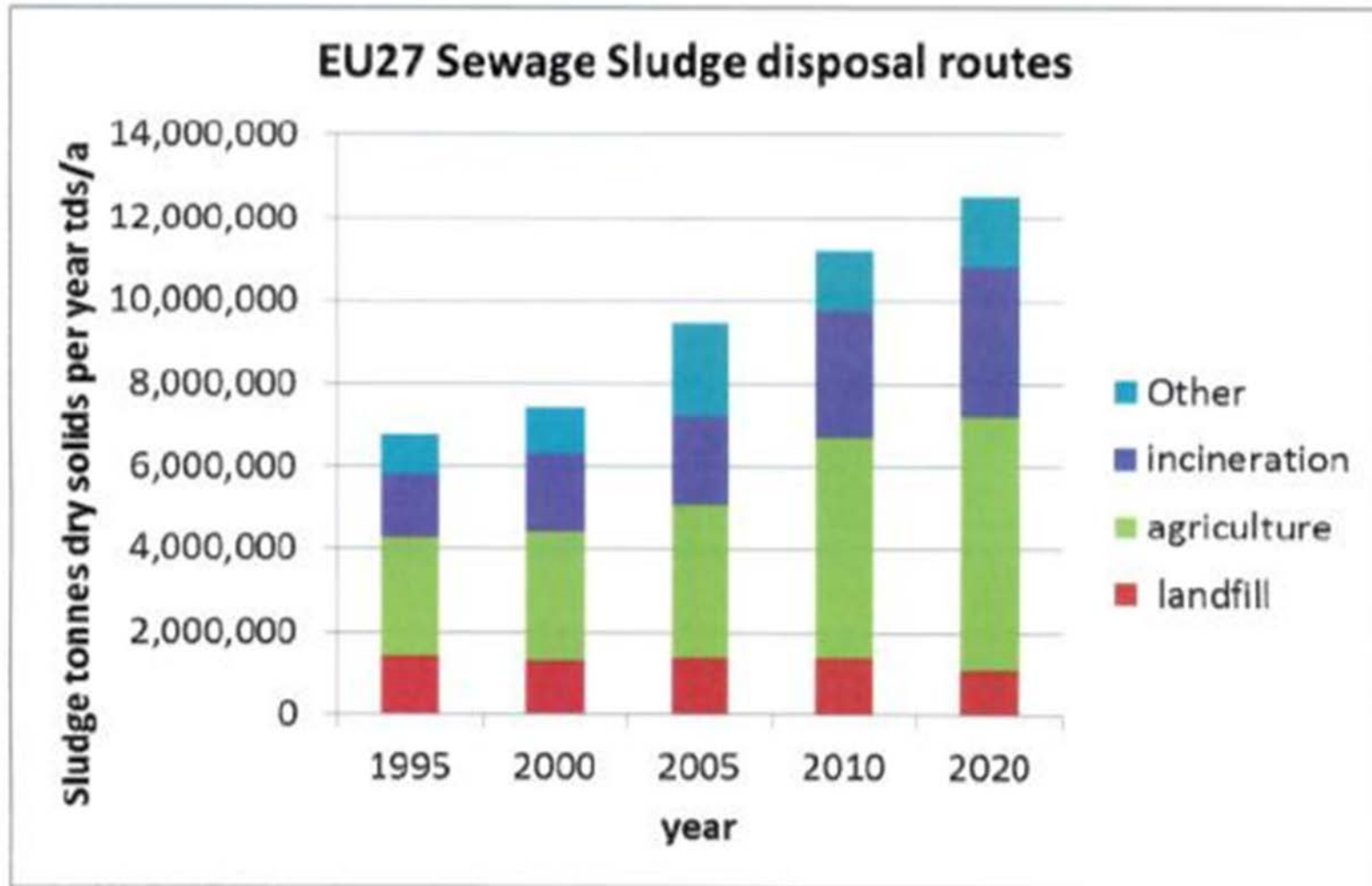
WRc, UK



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WRc, UK



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## EU FP7 End-o-Sludg

- **Aim:** to have marketable sludge derivatives from sustainable processing of wastewater in a highly integrated treatment plant
- **Objective:** To research, develop and demonstrate a toolkit of novel processes together with development the market and integration methodologies that can be applied for sustainable sludge management
- [www.end-o-sludg.eu](http://www.end-o-sludg.eu)



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Cranfield  
UNIVERSITY



AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY



WATERLEAU  
water · air · waste · newenergy

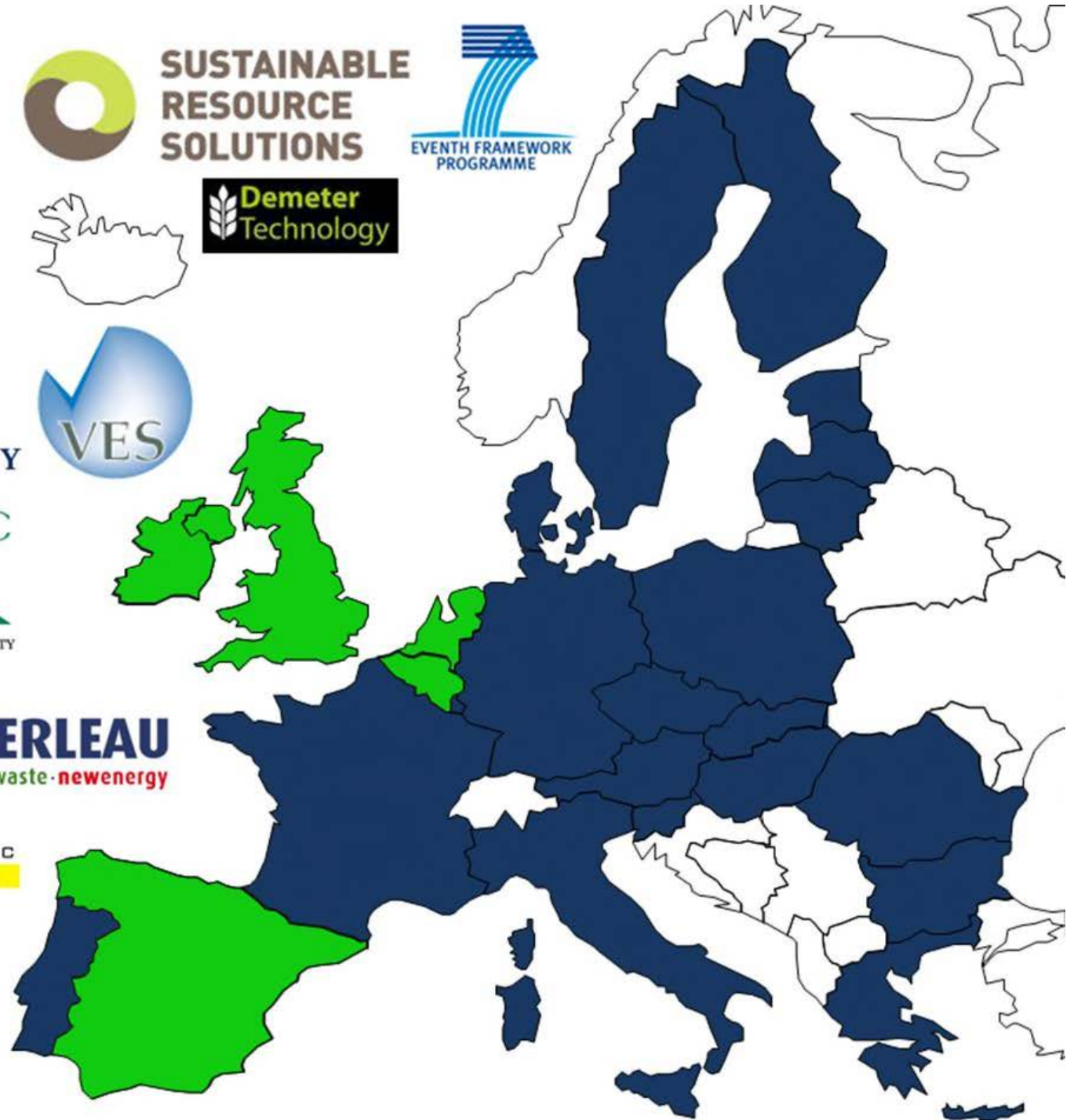
NIJHUIS  
WATER  
TECHNOLOGY



COGERSA



Universidad  
de Oviedo



- 9.4 million tonnes annually in the EU
- 40% applied to land
- In the UK ~ 80% recycled to land
- 2 formulations 10:4:4 (OMF<sub>10</sub>) & 15:4:4 (OMF<sub>15</sub>)
- Mesophilic Anaerobic Digestion







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Product requirement:

- ✓ Granular, free flowing, dust free
- ✓ 3-5mm size, >1.3 g/cc
- ✓ Guaranteed nutrient content

Issues:

- Energy – use of waste heat



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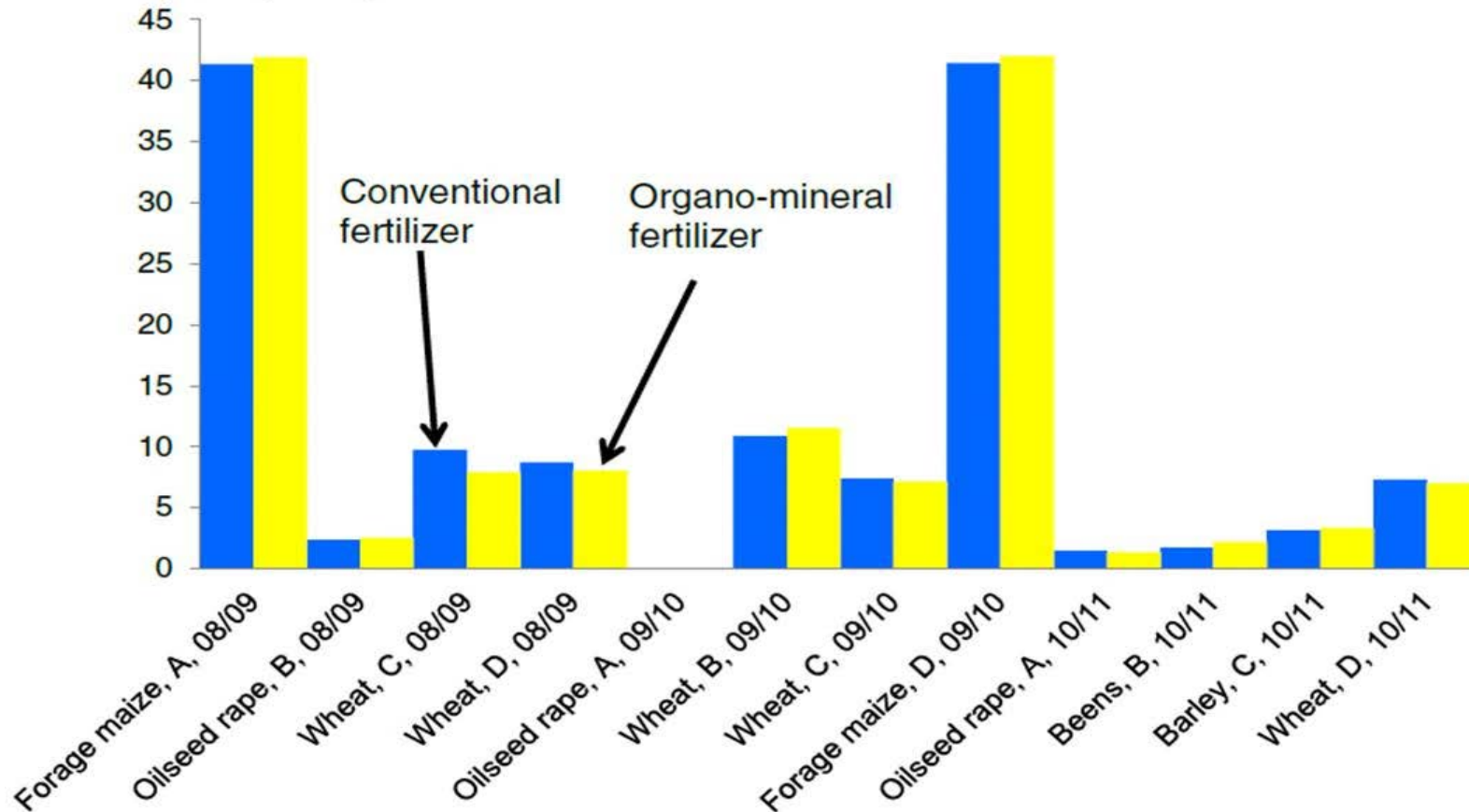


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Mean yield (t ha<sup>-1</sup>)



Deeks LK, Chaney K, Murray C, **Sakrabani** R, Gedara S, Le MS, Tyrrel S, Pawlett M, Read R, Smith GH (2013). Field evaluation of a sewage sludge derived novel organo-mineral fertilizer on combinable crops. *Agronomy for Sustainable Development*. 33(3), 539-549



**CIF** **END-O-SLUDGE**   
WASTEWATER TRANSFORMED FOR GOOD  
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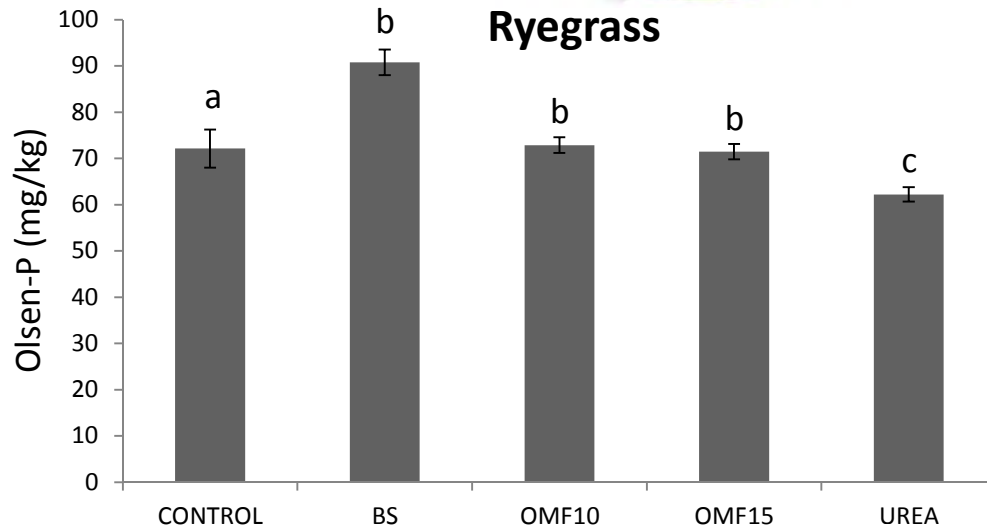




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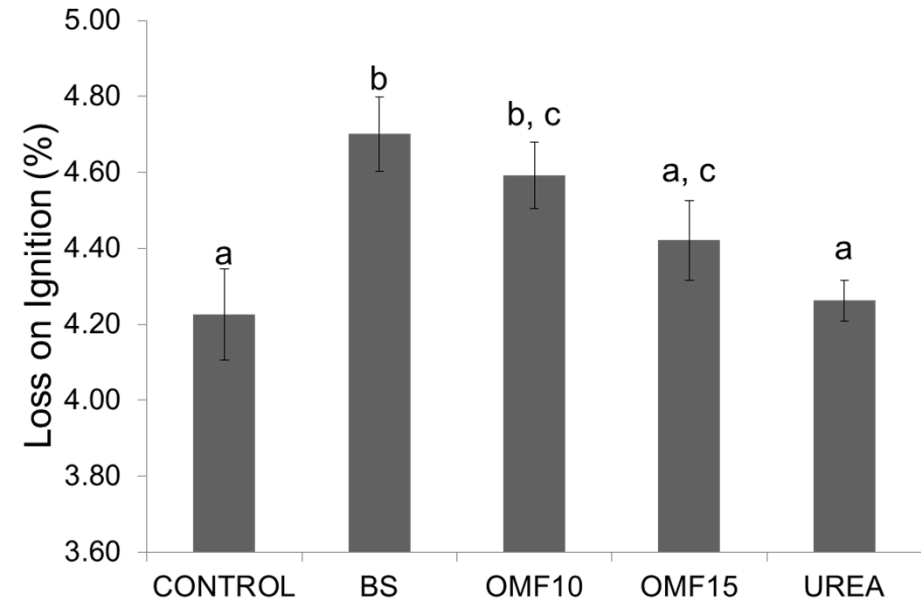
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BS and OMF had higher residual P post harvest

BS increased soil organic matter after 5 years





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## Conclusions :

- Large amount of organic waste arising in Europe
- P is rich in these organic waste stream
- Organic waste has potential to provide fertiliser to meet crop demands
- Sewage sludge is rich in P and can be used as a viable alternative source of P fertiliser in agriculture
- Sustainable management of organic waste stream – can meet fertiliser demand and reduce pollution



# **CIRCULAR ECONOMY**

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## **P in the circular economy: a European perspective**

**Sofie Bouteligier**

OVAM – Public Waste Agency of Flanders

[sbouteli@ovam.be](mailto:sbouteli@ovam.be)



## CIRCULAR ECONOMY

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# Introduction

- Sustainable use of phosphorus is a challenge – **closing phosphorus cycle** a solution
- Need for **partnerships** and an **integrated and coherent policy**

- in Flanders

Flanders' Materials

Programme [www.vlaamsmaterialenprogramma.be/documents/19/c3fb688b-77a1-4d9a-825d-f1aff24f5d67](http://www.vlaamsmaterialenprogramma.be/documents/19/c3fb688b-77a1-4d9a-825d-f1aff24f5d67)

Flanders' Nutrient Platform

[www.vlakwa.be/nutrientenplatform/](http://www.vlakwa.be/nutrientenplatform/)

- in Europe

Cross-border cooperation between regions and countries

An integrated and coherent European Policy Framework





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# Closing the P cycle: sustainable materials management

- (Unavoidable) **waste** becomes a **resource**
- Promote **secondary materials of high and constant quality** and use less virgin materials
- **Lower environmental stress** and **reduce** direct and indirect **risks** related to use of P by more efficient and sustainable use of P



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# Closing the P cycle: economic development and jobs

- **Industrial policy and smart specialization:** boost innovative industries  
-> Increasing number of P-recovery plants within EU

# P recovery from wastewater units in Europe (2014)





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# Closing the P cycle: economic development and jobs

- **Job creation:** 66 000 jobs non-delocalisable, permanent jobs (EC ECORYS 2012 study)
- **Resource efficiency:** e.g. changes in agricultural practices
- Develop and export **knowledge and skills**
- **Less import dependence** and safeguarding European fertilizer industry



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## Conclusion

- P & the circular economy: both environmental and economic benefits





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# Questions for discussion

- How to stimulate the **use** of secondary materials?
- What type of **knowledge and skills** are needed in a circular economy?