

Un update from Europe

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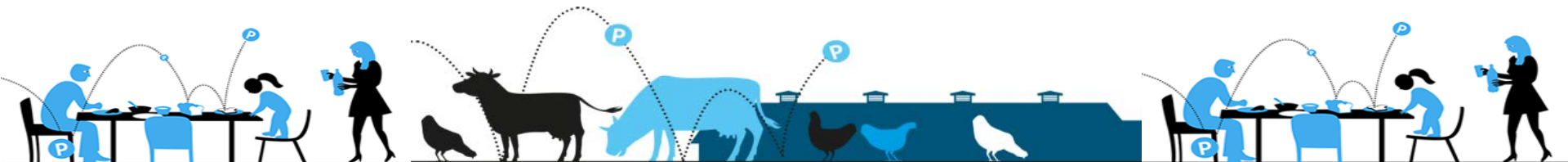
[@phosphorusfacts](https://twitter.com/phosphorusfacts)



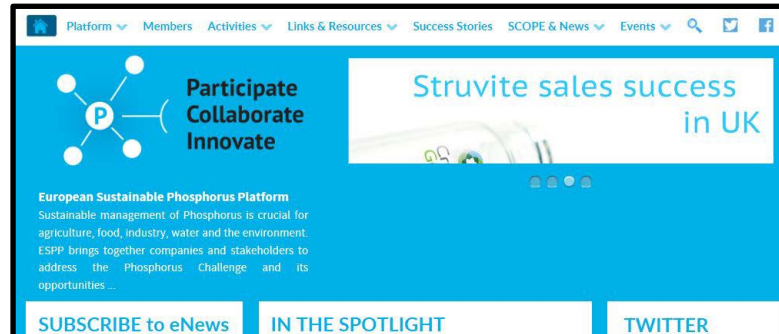
A collage of logos from various European organizations and companies in the phosphorus and water sectors. The logos include:

- Kanton Zürich Baudirektion Amt für Abfall, Wasser, Energie und Luft
- BSAG Baltic Sea Action Group
- ecophos
- Thames Water
- n|w University of Applied Sciences and Arts Northwestern Switzerland
- SCIENCE CAMPUS PHOSPHORUS RESEARCH ROSTOCK
- Hitz Hitachi Zosen
- OSTARA
- SYSTEMIC Circular solutions for biowaste
- Budenheim
- Outotec
- Hitachi Zosen SMART-Plant
- SEDE
- VEOLIA
- DIET 48 ER
- fertilizers europe
- BIOMASA PENINSULAR
- PRAYON
- DEUTSCHE PHOSPHOR PLATTFORM
- LIPPE VERBAND
- NUTRIENT PLATFORM NL
- DEIN WIEN
- CETAQUA WATER TECHNOLOGY CENTER
- CLARIANT
- SEVERN TRENT WATER
- Government of the Netherlands
- Interreg North-West Europe Phos4You
- QUEEN'S UNIVERSITY BELFAST
- Highlands and Islands Enterprise Iomairt na Gàidhealtachd 's nan Eilean
- AICL
- Fraunhofer IGB
- suez environnement
- Timac AGRO International
- PRO MAN
- RUN4 LIFE
- incopa
- ITALPOLLINA
- EasyMining

- 1) *European Sustainable Phosphorus Platform and other nutrient networks worldwide*
- 2) *Developments in Europe*
- 3) *Some success stories*



1) European Sustainable Phosphorus Platform




European Sustainable Phosphorus Platform

SCOPE NEWSLETTER

October 2017 n° 125

update your email address

Innovation

BIG P Conference, Old Trafford, Manchester
 Challenges of tightening phosphorus discharge limits for big and small sewage works: technologies, economic costs, environmental costs, biosolids.

SYMPHOS: Phosphorus industry & phosphorus use innovation
 Summary of the 4th International Symposium on Innovation and Technology in the Phosphate Industry.

US Phosphorus RCN
 US P-RCN (Research Coordination Network) final meeting shows many publications and some outstanding questions.

North America Phosphorus Forum
 The Sustainable Phosphorus Alliance (North America) second stakeholder Forum, Washington DC, looked at phosphorus management today and tomorrow.

Newtrent's manure management technology catalogue
 US dairy company Newtrent launches online selection tool for manure nutrient recycling technologies and suppliers.

Recycled fertilisers

IN THE SPOTLIGHT

Everglades Foundation George Barley Water Prize - Stage 2 US\$ 80 000 prize

Now open for submissions - deadline to request materials = 15th July 2017

THE GEORGE BARLEY WATER PRIZE

Stage 2 of the Everglades Foundation George Barley Water Prize is **currently open for applications** for teams capable of testing their solution for two consecutive weeks processing c. 24 litres/hour (see exact specifications in application materials). Applicants will submit daily inflow and outflow samples from their technology. A total of \$80,000 will be awarded in November of this year to the top 3 teams in Stage 2. You can apply to stage 2 whether or not you applied to stage 1. **The deadline to request Stage 2 application materials is 15th July 2017 and the deadline to submit applications is 31 August 2017.** Beyond Stage 2, the Pilot Stage, the third stage of the George Barley Water Prize, will qualify 10 teams to compete at a Pilot location in Canada in early 2018, with awards totalling \$800,000. Finally, the Grand Prize will see the top 4 teams compete in Florida for the ultimate \$10 million award. Information www.barleyprize.com

TWITTER

@phosphorusfacts

7 Nov. Nutrient sustainability for food industry, led by ESPP at Sustainable Food and Beverage Conference, Coventry UK @wbcsd @eaAgriFood

RT @vroumeas: #Wine is leading in the food industry to reduce their environmental impacts with immediate quality gains #AEC17 #circularrecon...

ORUS

ORUS...
 ...
 ...



NEWS

ESPP eNews no. 12 - June 2017
 June 15, 2017
 Newsletters share nutrient stewardship... European Commission...

ESPP: a coalition for action

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

Success story:

Véolia UK: fertilisers from wastes

Pro-Grow:

- 10 UK composting sites producing 200 000 t/year soil conditioners from green & food wastes
- All grades have “product” status and PAS100 certified

Granulation factory at Livingstone, near Edinburgh – capacity 20 000 t/y

Currently: fertilisers from food industry by-product ashes
 liming materials, micro-nutrient fertilisers

Under development:

recycled fertilisers
 (End-of-Waste target 2018)



Example: communicating success stories

- **Actions:**
 - vision & awareness
 - stakeholders & networking
 - dissemination
 - policy and regulation dialogue



Nutrient platforms and networks worldwide

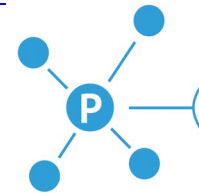
Netherlands 2010 <http://www.nutrientplatform.org/>

Germany 2015 www.deutsche-phosphor-plattform.de

Baltic: ESPP works with Baltic Sea Action Group www.bsag.fi



ESPP European Sustainable Phosphorus Platform 2011



North America Sustainable Phosphorus Alliance (SPA) 2017
(launched as NAPPS in 2015) <https://phosphorusalliance.org/>



**Sustainable
Phosphorus
Alliance**

Japan PCPR 2011 (Phosphorus Recycling Promotion Council)



Global Partnership for Nutrient Management (UNEP)
<http://www.unep.org/gpa/what-we-do/global-partnership-nutrient-management>



How ESPP functions

Legally established not-for-profit association

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

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

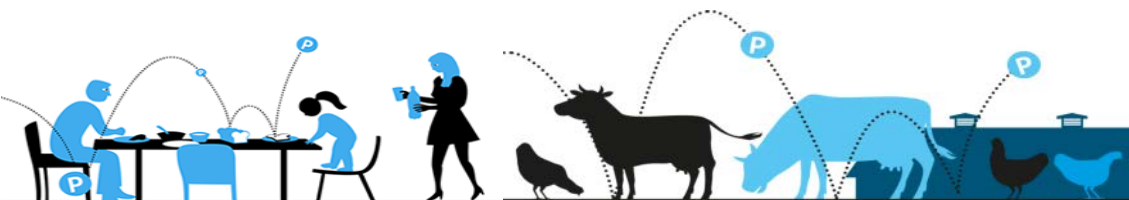
100% membership funded → *key to credibility, independence*

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

→ *balance between different interests*

- in touch with reality
- payment = real commitment
- not project funded

→ *not limited to 3-year horizon*



How ESPP functions

Decision by consensus

Mediation rather than advocacy

- enable dialogue between stakeholders
- develop shared proposals for policy
- communicate with regulators

Example: Joint Statement on the EU Fertilisers Regulation proposal, between EU federations in the mineral fertilisers, organic fertilisers, soil improvers, digestate, Animal By-Products, limiting materials and wastewater industries, 20th November 2017 www.phosphorusplatform.eu/regulatory



Joint statement on the EU Fertilising Products Regulation
20th November 2017

Our organisations jointly underline the importance of addressing a number of **important outstanding issues in the proposed EU Fertilising Products Regulation**, including those indicated below. Not all of our organisations are directly concerned by all of the points listed, but we consider that they require attention to achieve a final regulatory text which is workable in implementation, which will facilitate innovation and development of the nutrient circular economy and nutrient stewardship, whilst ensuring the protection of farmers, consumers and the environment.

The signatories call the co-legislators to **conclude this important dossier rapidly**, because implementation is strongly awaited by industry and stakeholders to develop the Circular Economy, whilst **ensuring dialogue** with industry and operators to **ensure that the final text is functional**.

In this context, the European Parliament report adopted 24/10/17 and the Council discussions provide in many respects a good starting point for trilogue discussions.

We particularly underline the following issues:

Positive from the European Parliament as adopted

- Confirm the proposed "Mineral" (<1% organic carbon) and "Low-carbon" fertilisers definitions** both in Annex I (PFCs) and Annex III (labelling).
- Need to **resolve the exclusion of industry by-products**, which are not waste, as highlighted by the European Parliament⁴.
- Importance of developing **implementation guidance** and of ensuring **assessment of Regulation implementation**⁵.
- Favour the **co-existence of production lines for CE-marked and National fertilisers** on the same production sites by validating the production site if lines for the processing of input materials authorised are clearly separated from production lines for the processing of other input materials⁶.
- Confirm the objective to **accelerate and support the "STRUBIAS" process**⁷.
- Polymers**, for controlled release fertilisers and for improving stability⁸: ensure that biodegradability criteria are feasible and agronomically appropriate.

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ESPP communications tools

→ available for other networks

- **Twitter**  [@phosphorusfacts](https://twitter.com/phosphorusfacts)
- **ESPP website** www.phosphorusplatform.eu
 - events
 - Members Pages,
 - news
 - R&D projects
 - success stories
 - regulatory
- **SCOPE Newsletter**
 - science and innovation
- **eNews**
 - monthly
 - policy, practice

→ 45 000 email listing worldwide



ESPP eNews no. 19 - January 2018

Newsletter about nutrient stewardship - European Sustainable Phosphorus Platform (ESPP).

Please subscribe www.phosphorusplatform.eu/Subscribe
Link to www.phosphorusplatform.eu/eNews19
Download as PDF

Consultations open for input

- [STRUBIAS market report open for consultation](#)
- [Standards needs for the circular economy](#)
- [EU public consultation on pharmaceuticals](#)
- [Livestock nutrient flows and impact assessments consultation](#)
- [Call for data on manure processing](#)
- [Apply for the Baltic Sea nutrients and carbon reuse challenge](#)
- [Survey on sustainable development in the livestock sector](#)
- [ESPC3 call for presentations & success stories](#)
- [Third European Sustainable Phosphorus Conference, Helsinki, 11-12 June 2018](#)

Policy

- [EU Fertilisers Regulation moves to trilogue](#)
- [Agreement on tightening EU waste legislation](#)
- [Business call for further action on Circular Economy](#)
- [Netherlands phosphorus emission trading approved](#)

Sustainable phosphorus

- [Sustainability in the Food and Beverage Industry - ENG Conference](#)
- [Climate change impacts on agricultural phosphorus losses](#)
- [Phosphorus recovery & recycling](#)
- [Nordic waste and water phosphorus network](#)
- [Pharmaceuticals not found in struvite-fertilised tomatoes](#)
- [Market report on nutrient recovery systems](#)
- [Biogas success stories recycling nutrients](#)
- [What is widdle?](#)
- [Biochars show rich and varied phosphorus forms](#)
- [Fertiliser effectiveness depends on soil chemistry and fertiliser placement](#)
- [Recovered phosphates show good fertiliser performance](#)

Agenda

- [Stay informed](#)
- [ESPP Members](#)

HELSINKI | 11-13 June 2018

ESPC3 | European Sustainable Phosphorus Conference

Consultations open for input

STRUBIAS market report open for consultation

The European Commission Joint Research Centre (JRC) circulated on 20th December 2017, for comment, a **DRAFT "market study"** (165 pages) for the "STRUBIAS" recycled nutrient products (precipitated phosphate salts, ashes and processed ash products, biochars and pyrolysis products). This document provides the economic and market assessment necessary for future addition of these products to the (revised) EU Fertilisers Regulation annexes (as



2) Developments in Europe

*30 % of PM₁₀ air particles in Milan
result from livestock ammonia emissions*



*Phosphorus is the first
(non morphological) cause of
EU Water Framework Directive
quality status failure*

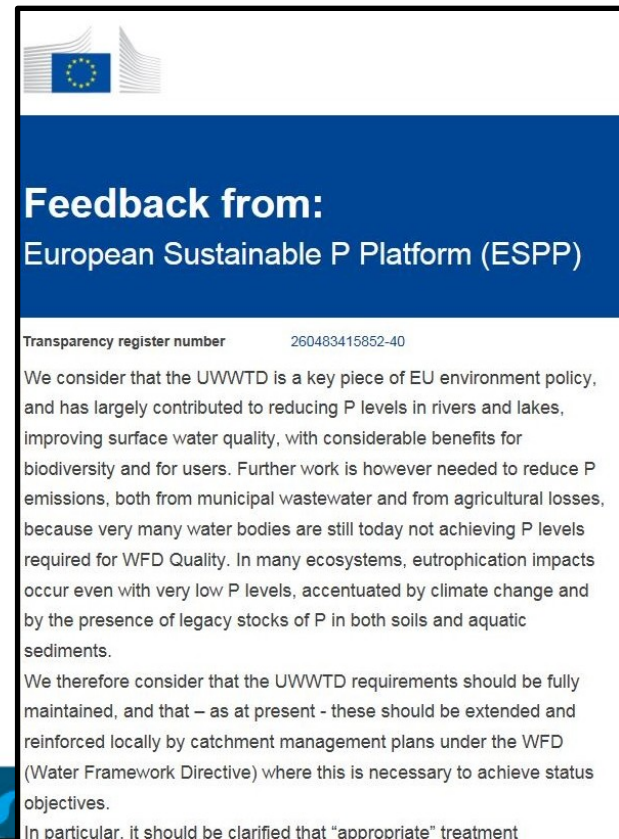



European policies driving nutrient recycling

Nutrient abatement policies

- *Urban Waste Water Treatment Directive 1991/271*
- *Nitrates Directive 1991/676*
- *Water Framework Directive 2000/2000*
- *Groundwater Directive 2006/118:
phosphorus on monitoring list 2014*
- *National Emissions Ceilings Directive
2016 revision
→ 19% ammonia emissions reduction by 2030*

ESPP in action.
2017 submissions to EU
consultations on revisions of water
protection policies





Feedback from:
European Sustainable P Platform (ESPP)

Transparency register number 260483415852-40

We consider that the UWWTD is a key piece of EU environment policy, and has largely contributed to reducing P levels in rivers and lakes, improving surface water quality, with considerable benefits for biodiversity and for users. Further work is however needed to reduce P emissions, both from municipal wastewater and from agricultural losses, because very many water bodies are still today not achieving P levels required for WFD Quality. In many ecosystems, eutrophication impacts occur even with very low P levels, accentuated by climate change and by the presence of legacy stocks of P in both soils and aquatic sediments.

We therefore consider that the UWWTD requirements should be fully maintained, and that – as at present - these should be extended and reinforced locally by catchment management plans under the WFD (Water Framework Directive) where this is necessary to achieve status objectives.

In particular, it should be clarified that “appropriate” treatment



European policies driving nutrient recycling

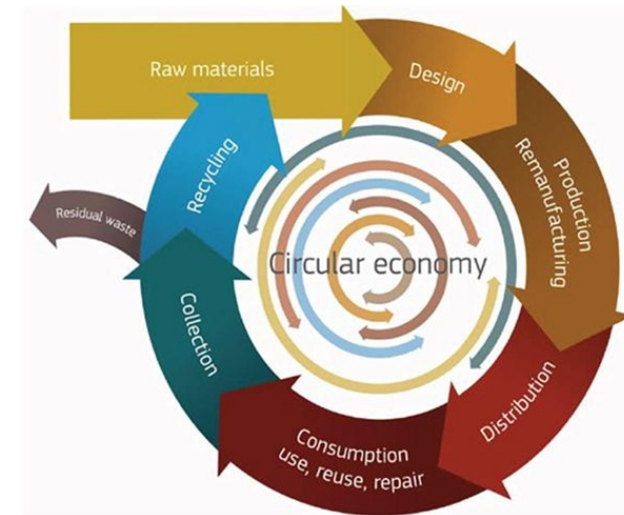
2014 EU Consultative Communication on Sustainable Use of Phosphorus

Proposals include:
increasing knowledge and research,
P-recycling,
risk of soil contamination by mineral or recycled fertilisers

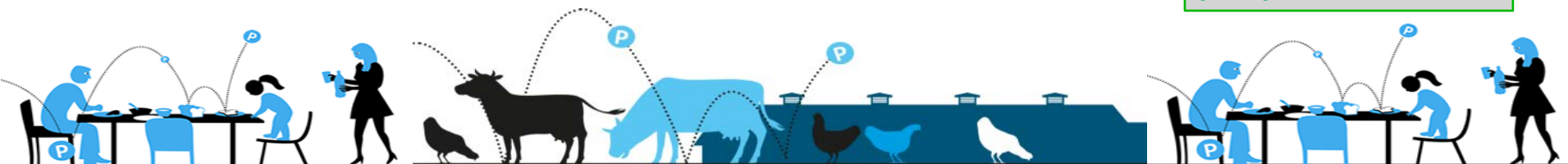
...

see www.phosphorusplatform.eu/scope107

2015: EU Circular Economy Package Flagship initiative = new EU Fertilisers Regulation



ESPP in action.
In responses to EU
public consultation:
54% of respondents
cited bio-nutrients or
phosphorus



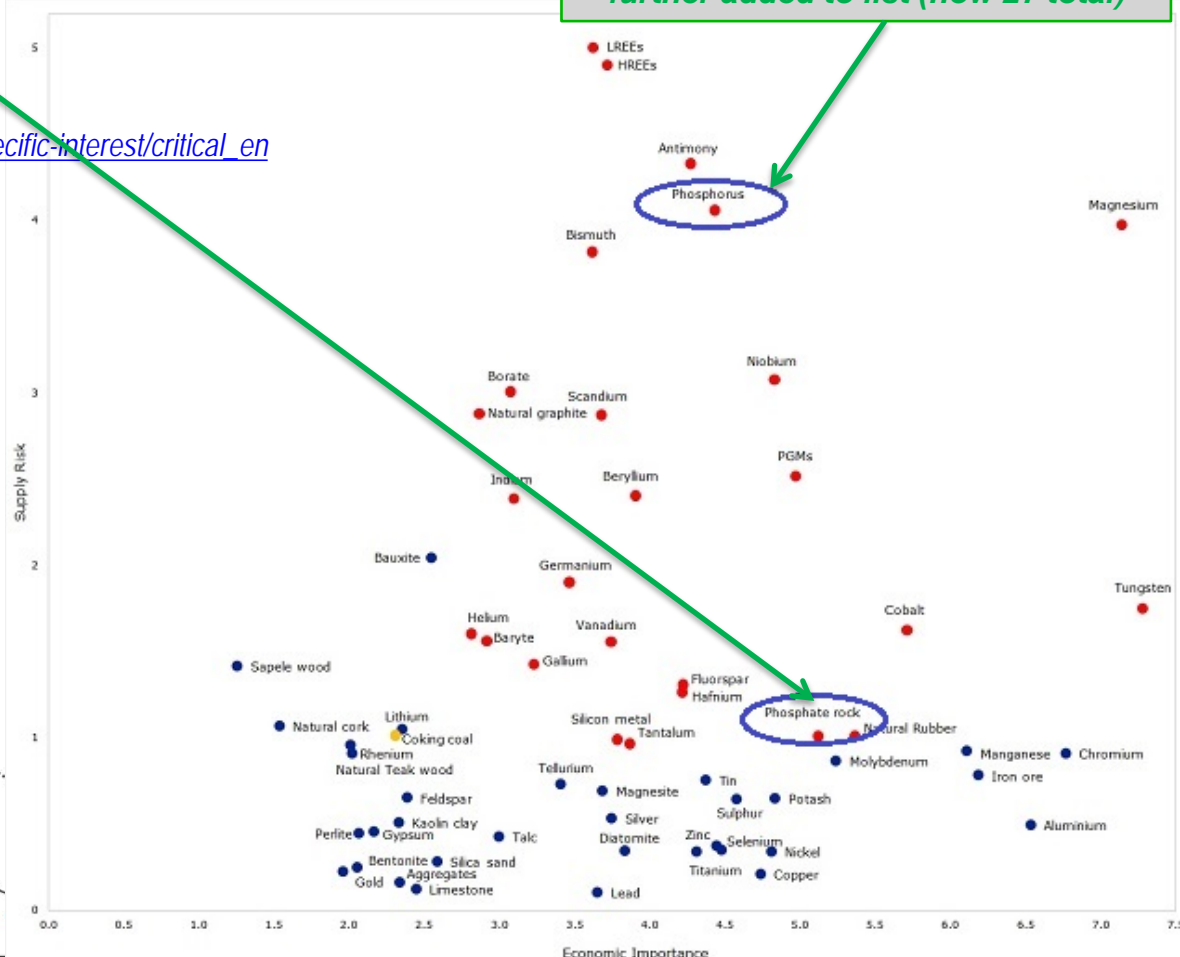
European policies driving nutrient recycling

EU List of Critical Raw Materials

- 2014 Phosphate rock added to EU list of 20 CRMs

see https://ec.europa.eu/growth/sectors/raw-materials/specific-interest/critical_en

ESPP in action.
 2017 White Phosphorus (P₄) further added to list (now 27 total)



European policies driving nutrient recycling

2017 (ongoing) – Revision of EU Fertilisers Regulation

- **Current Regulation = (virgin) mineral fertilisers only**
- **New = composts, digestates, organic soil improvers, biostimulants, recycled nutrients**
- Will open EU market for recycled nutrient & organic carbon products and also for recycling technologies
- Currently in Council - Parliament trilogue decision process
- Many issues remaining

STRUBIAS (ongoing)

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

ESPP in action.

- ESPP amendments adopted by European Parliament**
- acceleration of STRUBIAS
 - “low carbon” fertilisers category (with Fertilisers Europe, ECOFI)
 - traceability
 - widening input materials for food industry by-products, plant materials, animal by-products ...

see www.phosphorusplatform.eu/regulatory

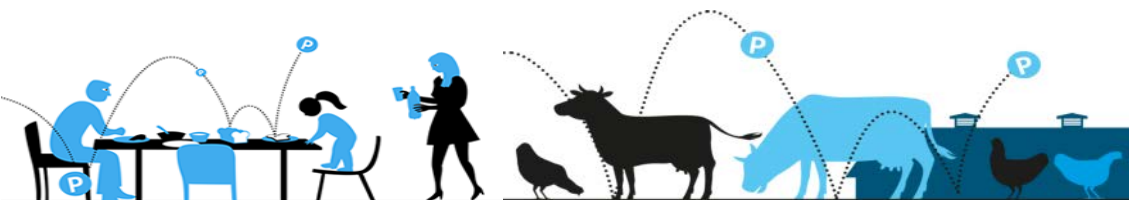


EUROPEAN COMMISSION

European Commission > DocsRoom > Document detail

Proposal for a Regulation on the making available on the market of CE marked fertilising products and amending Regulations (EC) No 1069/2009 and (EC) No 1107/2009

Document date: 17/03/2016 - Created by GROW.A.5.DIR - Publication date: 17/03/2016



National policies

Switzerland 2016 obligatory P-recovery from sewage sludge and animal waste ash (or separate storage pending recovery)

Germany 2017 new sludge ordinance (AbfKlärV underway) will make P-recovery obligatory for all sewage works > 50 000 p.e.

See ESPP eNews n° 7 <http://www.phosphorusplatform.eu/scope-in-print/news/1408-eneews7>



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Principales nouveautés dans l'ordonnance sur le traitement des déchets

L'ordonnance sur le traitement des déchets (OTD) est soumise à une révision totale. Voici en résumé les principales modifications :

- Des exigences sont formulées pour la valorisation de certains déchets, laquelle n'était pas encore réglementée dans le droit fédéral. Il s'agit notamment des biodéchets (y compris réglementation relative aux possibles installations de traitement) **et des déchets riches en phosphore.**
- Un plan d'élimination des déchets est exigé pour tout projet de construction. Le maître d'ouvrage est tenu de déterminer les déchets dangereux pour la santé et pour l'environnement (p. ex. amiante, déchets de chantier contenant des biphenyles

Scope Newsletter n° 118

<http://www.phosphorusplatform.eu/scope118>



National policies

Finland government 2017 objective to process 50% of manure and sewage sludge for nutrient recycling

HELCOM Recommendation 38/1 2017 (9 countries + EU) - requires

- “maximum recycling or recovery of phosphorus and other useful substances and compounds” from sewage sludges.
- biosolids to land only to crop needs
- P-recovery from ash if sewage sludge is incinerated
- annual reporting of % P recovered from waste water

See www.phosphorusplatform.eu/eNews9

<http://mmm.fi/en/recyclenutrients>

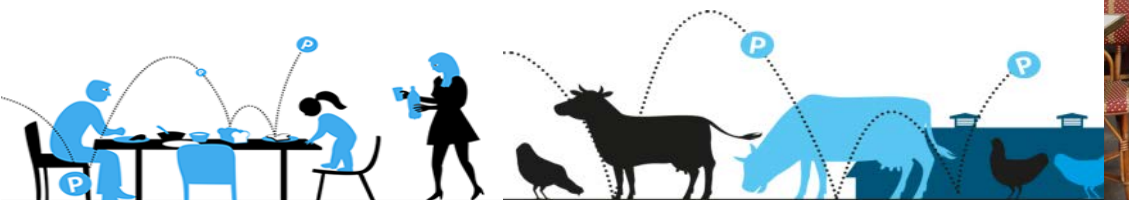


2) Success stories

Success story: "La Belle Bouse" (a comely cowpat)

- Lyon based startup
- Locally sourced organic fertiliser for households from cattle manure
- *"matured for 9 months like a great cheese"*

<http://www.labellebouse.fr/>



Success story:

COOPERL / Brittany farmers' cooperatives

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

Supported by EU Investment Plan

<http://www.cooperl.com/en/environmental-solutions>

www.phosphorusplatform.eu/scope122



Success story:

Thames Water – Ostara Pearl®

- Slough municipal wastewater treatment plant, UK
- 150 tonnes Crystal Green® fertiliser / year
- High quality slow release fertiliser
- Since 2013

www.ostara.com and www.phosphorusplatform.eu/scope99

<http://www.aljazeera.com/programmes/earthrise/2014/12/recycling-phosphorus-2014121693225616272.html>



Success story:

Timac: struvite as maize starter fertiliser

- Fertiliser industry added-value for recycled nutrients
- NuReSys recovered struvite from potato processing
- Non-burning, enabling “ultra localisation” next to roots
- Micro-granulation
- Ammonium addition for nutrient balance



Success story:

Italpollina plants nutrition

- Range of organic and organo-mineral fertilisers (liquid & solid), biostimulants and plant nutrition products
- For conventional and organic farming
- Input materials include:
 - processed manures and animal by-products
 - food industry by-products, e.g. stillage
 - vegetal cakes and meals
 - micro-organisms like P solubilizers
- Sales in 80 countries
- 5 plants and R&D laboratories,
- 200 000 t/y organic fertilisers
- 5 Ml/y biostimulants

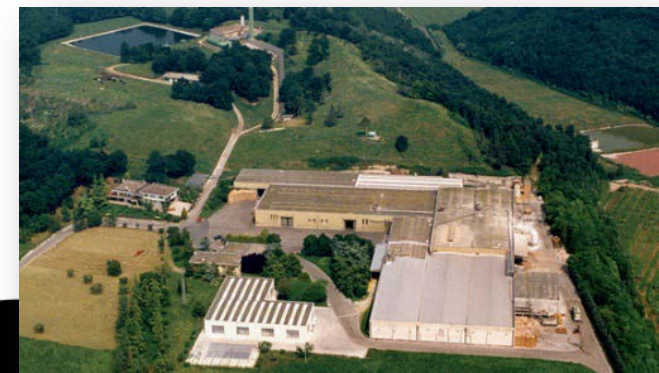
www.italpollina.com



ITALPOLLINA



LISIVEG®



Success story: Fibrophos UK

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

<http://www.fibrophos.co.uk/phosphate-in-fibrophos-fertiliser/>



Success story: SARIA UK – Kalfos

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

<http://www.kalfos.co.uk/>



Success story:

Ecophos P-recycling from sewage sludge ash

- Pilot plant operational Varna, Bulgaria
- Produce DCP (Di Calcium Phosphate) for fertilisers, animal feed
- Full-scale plant under construction Dunkerque, France
capacity: 200 000 t/y DCP from low grade P-rock and ash
- Contract to treat 60 000 t/y ash from Netherlands (SNB – HVC Groep) = 4 000 t/y P

See SCOPE Newsletter 111 and www.ecophos.com

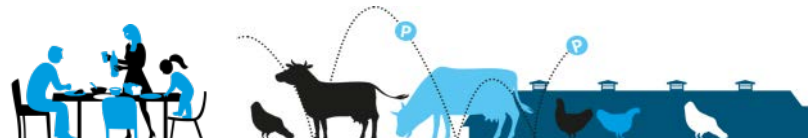


A big step for Phosphorus recycling!

The Dutch companies HVC and SNB have signed a contract with EcoPhos (Belgium) for the recycling of Phosphorus from the fly ash of the Sewage Sludge Incineration Plants in Dordrecht and Moerdijk in the Netherlands. With this agreement HVC and SNB have made a big step for the Waterboards in the Netherlands in recycling Phosphorus, an increasingly scarce very important resource.

Unique process

Ecophos has developed a unique process to valorise Phosphorus from the fly ash of sewage sludge incineration plants into high quality fertilisers. The Ecophos process leads to well-known existing



Success story: Romerike Biogas Plant Oslo

- Since 2012
- 100 000 t/y fertiliser
from commercial & household food wastes
- Sorting (optical, mechanical) –
Thermal hydrolysis (THP) –
Anaerobic digestion
- Biogas used to fuel city buses
1 kg food waste = 0,13 l diesel

http://www.mita.lt/uploads/documents/food_waste_recycling.pdf



Success story: NutriTrade Baltic local fish

- Local fisherman incited to catch cyprinids
 - restore food web (algal grazing zooplankton)
 - remove nutrients from the sea
- Promote new markets for local fish products:
 - recipes, chefs, new processing routes & consumer products
- Biogas production from processing by-products
- Cost: c. 66 €/ kgP removed (not inc. sales)

Launched 2015. John Nurminen Foundation / NutriTrade

<http://nutritradebaltic.eu/pilots/pilot-fish/>



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European Sustainable Phosphorus Conference

www.phosphorusplatform.eu/esp3

