



European Sustainable Phosphorus Platform (ESPP) input to the public consultation on the future of the Common Agricultural Policy

Consultation: https://ec.europa.eu/agriculture/consultations/cap-modernising/2017_en

Phosphorus stewardship and circular economy for nutrients in the CAP

Phosphorus is essential to agriculture. Around 95%ⁱ of world phosphate rock mined is used in agriculture, around 85% in fertilisers and 10% in animal feed.

However, phosphate rock is on the EU list of Critical Raw Materials, because phosphate rock reserves are concentrated in a few countries and Europe is 90% dependent on importsⁱⁱ and because phosphorus is **directly linked to global food security**. Without input from phosphate fertilisers, probably only around one quarterⁱⁱⁱ of the world's population could be fed^{iv}. Phosphorus input is necessary to ensure agriculture's productivity, including in organic farming^v.

At the same time, phosphorus losses pose major environmental issues. Phosphorus is the principal non-morphological cause of surface water quality failure in much of Europe (non-compliance with Water Framework Directive objectives), being a **key cause of eutrophication** in lakes, rivers, estuaries and enclosed seas. Both phosphorus and nitrogen emissions considerably exceed "planetary boundaries"^{vi}

Improving phosphorus use efficiency in agriculture reduces both resource depletion and eutrophication. This could be achieved, for example, by changing agricultural techniques (reduced tillage, crop rotations, crop varieties), precision farming nutrient application, controlled release fertilisers, bio-stimulants, precision animal feed, phytate use ...

Phosphorus and nitrogen stewardship offer **synergies and opportunities with other challenges**, including atmospheric ammonia emissions^{vii}, improving sanitation and water quality, biogas and biofuels, food waste, soil carbon, contaminants and food safety and global food security.

For example, reuse or recycling of organic wastes (manures, sewage biosolids, food waste, agri-food by-products ...) not only contributes to the nutrient circular economy (P, N K, micro-nutrients) but can also **return carbon to agricultural soils**^{viii}. Much of Europe's arable farmland shows soil carbon depletion, whereas soil carbon contributes to nutrient storage, water retention (drought resilience), prevention of soil erosion and constitutes a greenhouse carbon sink^{ix}. Research, monitoring, risk assessment and development of treatment processes are necessary to ensure that such organic wastes can be recycled to agriculture safely and with societal acceptance, in particular as regards organic contaminants such as pharmaceuticals.

Phosphorus recycling (recovery, reuse) is important to improve phosphorus stewardship, alongside more efficient use and societal choices on diet, meat consumption and livestock production. The **nutrient circular economy in Europe** could – in addition to environmental gains - generate over 90 000 jobs^x and improve farmers' net income (nutrient purchase, but also manure valorisation).



Nutrient recycling will enable **rural job creation** that will be not subject to delocalisation, and will be largely decentralised in rural areas, corresponding to nutrient sources: manure, sewage, agro-food processing.

Finally and importantly, **phosphorus stewardship is important for farmers' incomes**. Nutrient management can imply significant costs (e.g. manure "disposal", nutrient trap strips), fertiliser costs can be reduced by improved use or by access to recycled nutrient products, and nutrient recovery can potentially provide a secondary income stream for farmers.

ESPP (European Sustainable Phosphorus Platform) proposals

For the above reasons, we suggest that the CAP should:

- Integrate **closing the nutrient cycles** (for phosphorus and nitrogen) into CAP criteria and funding mechanisms, in coherence with objectives of restoring soil carbon and recycling other nutrients
- Reinforce **mechanisms to reduce nutrient losses**, in particular progress towards compliance with the Nitrates Directive, Drinking Water and Water Framework Directive quality objectives
- Support the integration of criteria on sustainable nutrient management and nutrient circular economy in **farm, crop and food product sustainability criteria**
- **Incite** nutrient stewardship in CAP support mechanisms
- Support farmers and local operators in closing the nutrient cycle (nutrient Circular Economy), and in implementing nutrient recycling, by specifying this objective in **regional funding programmes**
- Enable the RDP funding actions identified by the **EU EIP-AGRI Focus Group on Recycled Nutrients**: demonstration of nutrient recycling technologies and use of recycled nutrients in practice, integration of nutrient recycling into certification schemes, demonstration (including long term field demonstration) of agronomic performance of recycled nutrients and organic fertilisers, monitoring and decision support systems for use of recycled nutrient products, demonstration of low ammonia emission techniques for manure management, local testing of business and cooperation models for nutrient recycling. See SCOPE Newsletter [n°124](#)
- Take into account the recommendations of the **ENRD (European Network for Rural Development) working group on Resource Efficiency** (underway)
- In parallel, **other regulation may need to be updated** to ensure coherence with CAP objectives on nutrient stewardship and the nutrient Circular Economy, in order to facilitate innovation with new recycled nutrient products or reuse, to avoid regulatory obstacles to access to markets and to ensure equivalent treatment of recycling vs. existing systems, whilst ensuring quality and safety



What is ESPP

The European Sustainable Phosphorus Platform is a membership-funded, not-for-profit association, which brings together industry, knowledge institutes and public establishments to promote and implement phosphorus sustainability in Europe, including from the following sectors

- Water and waste treatment
- Fertilisers and soil amendments
- Chemicals
- Recycling and processing technology suppliers
- Knowledge institutes
- National and regional governments
- Partner networks: composts, digestates, manure management, R&D networks ...
- National or regional nutrient or phosphorus Platforms

ⁱ - W. Schipper in SCOPE 123

ⁱⁱ - Morocco is estimated to hold 70% of world phosphate rock resources, Rosemarin SCOPE 123

ⁱⁱⁱ - C. Thornton in SCOPE 105 & SCOPE 80 – derived from Dawson et al.2011

^{iv} - Marc Sutton in SCOPE 118 but referring to « mineral fertilisers » = nitrogen

^v - at present, the EU Organic Farming Regulation 889/2008 allows the use of phosphate rock, but this is not an effective fertiliser, see Askegaard in SCOPE 123

^{vi} <http://www.stockholmresilience.org/research/planetary-boundaries/planetary-boundaries-data.html>

^{vii} - c.f. EU National Emissions Ceilings Directive, updated December 2016 to 2016/2284/EU see ESPP eNews N°6 and <http://ec.europa.eu/environment/air/pollutants/ceilings.htm>

^{viii} - UK Soil Association in SCOPE 120

^{ix} - Paris commitment “4 per 1000” <http://4p1000.org/understand>

^x - ESPP “Estimating potential economic benefits and job creation of P-recycling and P-stewardship” 29/5/2013
<http://www.phosphorusplatform.eu/component/jfile/download/YWU0NjlmMTA0N2E1N2I1OTc3ZjQwN2MzNDE5YWO3MWE=/espp-jobs-and-employment-outline-29-5-13-pdf>