

ECN Responses on the 'Consultative Communication on the Sustainable Use of Phosphorus'

Introduction of ECN

The European Compost Network (EU transparency register identification number 26513411360-51) is the leading European membership organisation promoting sustainable recycling practices in composting, anaerobic digestion and other biological treatment processes of organic resources. Our purpose is to work with practitioners, researchers, technicians and policy makers to deliver integrated organic waste recycling solutions that generate high quality products for the benefit of the environment and the users of the recycled products. We serve as a central resource and network for the organic waste recycling sector in Europe, as well as the emerging bio-based economy.

ECN's vision is a Europe in which all organic resources are recycled to land sustainably and/or used to generate renewable energy to benefit the global and local environment, to contribute towards sustainable agriculture, improve human health and benefit the European market. To achieve this, effective recycling in all Member States should be built on separately collected organic wastes, using trained operators for biological processing. Biological treatment processes should be monitored within an independent quality assurance scheme in order to manufacture quality compost and digestate that can be applied to land safely.

ECN's activities thus cut across a number of resource areas, including:

- Returning macro (nitrogen, phosphorus and potassium) and micro plant nutrients to soils. Without effective organics recycling these nutrients will be lost to agricultural land, due to their disposal in either landfill or loss to the air following thermal treatment (e.g. incineration). Carbon applied to soils in the form of compost, helps reduce soil erosion (thereby improving soil structure, improving water infiltration and water holding capacity), and increases soil organic carbon (thereby increasing carbon sequestration and reducing greenhouse gas release).
- Offsetting the use of peat in horticultural growing media. Peat use is widely recognised as being environmentally detrimental due to associated effects of ecological habitat destruction and greenhouse gas emissions. Compost can partially replace peat in growing media blends, therefore contributing towards biodiversity targets and reducing greenhouse gas emissions.
- Creating renewable energy sources (electricity and/or heat derived from biogas) through anaerobic digestion plants for distribution through centralised networks.

ECN response

The European Commission has published the 'Consultative Communication on the Sustainable Use of Phosphorus' [COM(2013) 517 final] on 8 July 2013. This document sets out the **European Compost Network's** response to this consultation.

Q1 – Do you consider that the security of supply issues for the EU in relation to the distribution of phosphate rock are matter of concern? If so, what should be done to engage with producing countries in order to tackle these issues?

Yes, we anticipate that an adequate supply of low-contaminated (cadmium and uranium) raw phosphate rock will be limited. We support the initiative of the Commission to move towards a resource efficient and recycling society. Efficient use of all existing and potential P resources should be required, as a priority within the EU and globally.

The recycling of phosphorus from bio-waste and similar P containing organic resources (manure, meat, bone meal, sewage sludge) should be promoted. In respect to this we support and recommend to broaden the scope of the EU Fertiliser Regulation (EC) 2003/2003 on organic fertilisers and soil improvers and additionally to set threshold values for cadmium in mineral fertilisers, so that only low-contaminated P-fertilisers will enter the market.

In the long-run appropriate concepts and techniques for the full recovery of P from different material flows will need to be developed.

Q2 – Is the supply and demand picture presented here accurate? What could the EU do to encourage the mitigation of supply risks through i.e. the promotion of sustainable mining or the use of new mining technologies?

The consultative communication reflects accurately the current situation of supply and demand. In particular, high phosphate demand in the feed and food production sector, as well as the increasing demand of P-containing fertilisers in developing and emerging economies, highlights this increasing demand. In the long term, these increases, coupled with increasing contamination of the phosphate rocks with heavy metals, will result in a considerable reduction in the quantities available for use in the future.

Setting sustainable criteria for mining would be beneficial; however, the question is, what is sustainable and how this will be controlled?

Q3 - Do you consider that information on the worldwide supply and demand of phosphate rock and fertiliser is sufficiently available, transparent and reliable? If not, what would be the best way to obtain more transparent and reliable information at EU and global level?

It is currently difficult to obtain reliable data on this topic. It is necessary to expand existing collaborative platforms (such as the European Sustainable Phosphorus Platform) and to improve the reliability of data, taking into account their source.

Q4 – How should we handle the risk of soil contamination linked to phosphorus use in the EU?

With regard to soil contamination, the EU Commission should follow up the initiative to establish and implement a European Directive on Soil [COM(2006)232].

Furthermore, with respect of the revision of EU Fertiliser Regulation (EC) 2003/2003, we recommend that threshold values for pollutants (especially for Cadmium and Uranium) in mineral fertilisers will be set.

We support the inclusion of organic fertilisers, soil improvers and growing media in the scope of the EU Fertiliser Regulation by taking the proposed end-of-waste criteria for compost and digestate into account.

The same threshold values for pollutants should be applied to all fertilisers, soil improvers and growing media.

Q5 – Which technologies have the greatest overall potential to improve the sustainable use of phosphorus? What are the costs and benefits?

The most efficient fertilisation effect could be achieved taking P-availability, plant nutrient demand and soil conditions into account, by applying organic P-resources (compost/digestate/sewage sludge) directly to soil. This sustainable recycling of phosphorus from organic resources should be promoted to reduce the application of imported phosphate rocks and their derived mineral P fertilisers.

Technologies for the extraction of P from organic materials (P-containing waste, sewage sludge or animal bone ash) exist, but are currently not available cost competitive on an industrial scale. Recycled P-fertilisers from recovery processes are much more expensive than mineral P-fertilisers. Additionally there is a need to set quality criteria for these processed recycled P-fertilisers.

Overall, it is difficult to highlight one of the numerous newly developed technologies for P recovery explicitly because these are largely still in the development stage. However, it would make sense to promote techniques which can be relatively easily and inexpensively established. At the moment, the least technical recovery procedures are economically viable.

In addition, recycled P-fertilisers are often not producible in a sufficiently homogeneous form, production levels are very low, and plant availability of substances is often inadequate. Depending on the process, these fertilisers often, even with small quantities of heavy metals and organic pollutants, can be contaminated.

Against this background it therefore seems more than appropriate, to use existing organic fertilisers with high P content and proven high quality (such as quality-assured compost, digestate and sewage sludge) from recycling processes (composting/anaerobic digestion) directly in agricultural systems.

Q6 – What should the EU promote in terms of further research and innovation into the sustainable use of phosphorus?

In order to obtain reasonable data on phosphorus availability and fertilisation aspects, the EU should promote and support long-term field trials on the use of organic fertilisers and soil improvers across Europe.

Future EU Research should focus on P availability and solubility of recycled P products from incineration ashes (sewage sludge etc.) and how these products react in soils (for example, accumulation, immobilisation etc.).

Q7 – Do you consider that the available information on the efficiency of phosphorus use of recycled phosphorus in agriculture is adequate? If not, what further statistical information might be necessary?

Only a small number of statements and reliable studies on the effectiveness of new recycled P-fertilisers from recovery processes exist. Therefore there is a pressing need for more research and information. The efficient use of phosphorus from inorganic fertilisers is similarly not transparent. In particular, the accumulation rates of phosphate in the soil as a result of long-term (monitoring) fertilisation are not sufficiently investigated and documented. A comprehensive European-wide monitoring programme with a correspondingly high sample size could usefully contribute to get a better overview on the fertilisation efficiency of P products on the EU market.

Q8 – How could the European Innovation Partnership on ‘agricultural productivity and sustainability’ help to take forward the sustainable use of phosphorus?

The Commission should consider to include ‘efficient P fertilisation and recycled P-fertiliser’ in the European Innovation Partnership on ‘agricultural productivity and sustainability’.

Furthermore, the EU should support and promote public relations to raise awareness of the P resource shortage amongst European citizens. Therefore support should be given to initiatives which are engaged in this field.

The EU should support the mandatory use of recycled P instead of primary (mineral) P in agricultural systems.

Q9 – What could be done to ensure better management and increased processing of manure in areas of over-supply and to encourage greater use of processed manure outside of these areas?

Firstly, the EU Nitrate Directive should be implemented with better control mechanism in Member States. The use of existing organic fertilisers needs to be optimised, before investigations are carried out on high recovery technologies, where the outcome and success is still unknown.

To ensure better manure management in regions with excessive supply, it would be necessary to develop, in the first instance, appropriate technologies (such as drying and pelletising) for upgrading and processing manure with the aim of manufacturing transportable material having a positive market-value.

Q10 – What could be done to improve the recovery of phosphorus from food waste and other biodegradable waste?

First of all there is a need to improve the collection and management of food waste and bio-waste in Europe. Therefore we are calling for a **specific separate collection target for bio-waste** (50 % by 2025) with

the aim of producing high quality products through composting and anaerobic digestion.

With regard to creating sustainable European markets for quality products from bio-waste there is a need to define **end-of-waste criteria for compost and digestate** based on separately collected bio-waste and food waste.

In general, **improved implementation of the European waste regulations and directives** is needed. The reduction target of biodegradable waste going to landfills set in the Landfill Directive has to be fulfilled across all Member States. In the long run, a total ban of biodegradable waste going to landfills should be targeted. In respect of the waste target review process currently being carried out by the European Commission, more ambitious goals should be set in relation to the management of bio-waste and food waste.

ECN also suggests that the Commission considers the possibility of developing an **indicator that tracks the recycling of organic carbon into humus (compost) and essential plant nutrients from organic soil improvers and organic fertilisers**. Recycling bio-wastes plays a unique role in recycling nutrients such as phosphorus; therefore we recommend that a target (P-recycling target from waste-derived products) addressing this issue should be developed.

Q11 – Should some form of recovery of phosphorus from waste water treatment be made mandatory or encouraged? What could be done to make sewage sludge and biodegradable waste more available and acceptable to arable farming?

In the first instance the out-dated EU Sewage Sludge Directive should be revised by strengthening the threshold values on pollutants. The use of sewage sludge should be restricted to externally quality assured sewage sludge products. Continuous quality monitoring based on mandatory quality assurance systems should be prescribed to increase the acceptance of this organic fertiliser. Also a declaration of the eligible P recycling content in the sludge is possible by means of quality assurance, which will promote its direct use in agricultural systems.