European Sustainable Phosphorus Platform

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ESPP input on "Biobased Industries and Biomaterials"

4/6/2023. To: GROW-F2@ec.europa.eu
Following the workshop of 10th May 2023 and DG GROW email request and questions of 22 may 2023

Question1: how to stimulate demand for biomaterials

- **Organise a targeted reflexion on the place of biomaterials in the EU "Taxonomy" criteria**.

  In particular, the criteria (Delegated Act) proposed to public consultation to 3/5/23 includes "Phosphorus recovery from waste water", but not nitrogen recovery. Also, nutrient recovery is not included in the proposed criteria for biomethane production. Concerted development of recovery targets for phosphorus and nitrogen is needed for different waste treatment systems and contexts: the proposed targets for P-recovery in the current Taxonomy text are based on the German P-recovery legislation, but are incomplete. N-recovery is not included in the text, and definition of recovery targets would facilitate its inclusion in future criteria.

  The Urban Waste Water Treatment Directive recast (currently in Parliament/Council) proposes (art. 20) to enable COM to fix recovery and recycling targets for phosphorus and nitrogen. As for the Taxonomy, concerted reflexion is needed to propose appropriate targets.

  This reflexion could also consider how to include biomaterials objectives in possible future Taxonomy criteria for agriculture (agriculture was removed from the May 2023 Taxonomy proposal).

- **Organise a stakeholder forum to develop proposals for market tools to support the nutrient circular economy**

  The forum should aim to develop consensus actionable proposals for market tools taking as starting points the Circular Economy Action Plant commitment to integrate the circular economy into Member States fiscal policies, via the European Semester and the Green Deal reference to possible "*legal requirements to boost the market for secondary raw materials, with mandatory recycled content*".

  COM could play a strategic role in organising concertation by bringing together different COM policy services (Bioeconomy, Taxonomy, Circular Economy, Fertilisers, Water Policy, Waste Policy, Agriculture), engaging research and experts and by engaging with stakeholder organisations (farmers, industry, supermarkets). Discussions should

  Tools considered should include VAT to support fertilisers with recycled nutrient content, ecotaxes or resource import taxes which favour sustainable fertiliser

production. Income from nutrient fiscality should be used to support recycling and returned to farmers, so that net overall impact for agriculture is not financially penalising; development of nutrient emissions trading to improve cost-effectiveness of water policy objectives, in particular between waste water treatment and agriculture, including development of nutrient certificates / nutrient credits; transfer of taxes and contributions from jobs (social contributions, VAT) to ecotaxes on resources and on nutrient emissions; if imported products (fertilisers, animal feed, food products …) are not subject to the same sustainability constraints or ecotaxes, then this must be compensated by import taxation (this should include food products or feed crop if grown by farmers not subject to the same sustainability constraints as in Europe).

Question 2: Which areas, opportunities, choices ?

- **Regulatory and societal challenges to nutrient recycling in the food chain.**

  The EU Fertilising Products Regulation has made significant progress in regulatory enabling of nutrient recycling to fertilisers (composts, digestates, STRUBIAS), but to date all animal by-products are still totally excluded from CE-mark fertilising products (a draft SANTE Delegated Act is pending which would start to open the door for some ABP derived materials). Cat1 ABP ash, which represents a significant source of high-quality secondary phosphorus, is still completely excluded, with an EFSA Opinion expected to be mandated by SANTE in coming months.

  Other regulatory obstacles to recycling secondary nutrients to the food chain include the Animal Feed Regulation 767/2009, Art. 6.1, which can be considered to exclude all materials from sewage, manure or industrial wastewater, irrespective of treatment (even where such materials are manifestly health-safe, such as phosphoric acid acid-leached from sewage sludge incineration ash). Clarification is also needed concerning use of algae grown using waste streams (e.g. algae grown using nutrients in wastewater or CO2 from cement production), or substances extracted from plants and algae which are ‘waste’ (e.g. from seaweed deposited by tides on beaches).

  These obstacles are important, because such exclusions can effectively prevent placing of recovered nutrient chemicals onto the commodity chemical market. It is not feasible that a lorry-load of phosphoric acid leaving a sewage sludge reprocessing plant should carry a label saying “not to be used in animal feed”, because no phosphoric acid user operates separate processing lines for input phosphoric acids of different origins.

  At the same time, societal acceptance can also be a challenge, so that downstream market acceptance (farmers, food companies, supermarkets, consumer associations) is also important.

  DG GROW could organise dialogue between recycling industries, animal feed and food industries, farmers, supermarkets, consumer organisations, health safety experts and Member States to identify which regulatory obstacles are significant, how

to address them, and what treatment, testing, labelling requirements are appropriate to ensure both health-safety and consumer confidence.

Pathogen safety of secondary nutrient recycling to the food chain

Research projects should include analysis to develop a data bank on pathogen safety of recycled nutrient materials originating from animal by-products (including manures, separately collected household food wastes), from category 1 animal by-products and from sewage. In particular, there is a need to develop data on pathogen safety of:
- ashes from cat. 1 ABPs (prions)
- nitrogen products recovered from offgases or ammonia stripping from stable offgas, manure digestate, food waste digestate, sewage sludge …
- biomass grown using manure or sewage sludge or digestates as substrate (algae, duckweed, feed crops)

Question 4: Issues and prices, including long term ?

- **Nitrogen recovery and recycling**

  The 2022 fertiliser supply and price crisis, related to natural gas and Russia's war of aggression against Ukraine, has caused interest in nitrogen recovery and recycling. At the same time, requirements for nitrogen removal (ammonia or N_2O/NO_x stripping from offgases, nitrogen removal from wastewaters) are tightening. Today processes exist for nitrogen recovery for use locally (plasma N fixation, ammonia sulphate solution recovery, organic-carbon containing fertilisers = organic and organo-mineral fertilisers) but are not adapted for transport, logistics and industrial recycling of the output products.

  Economic viability of nitrogen recycling is complex because of fluctuations in energy prices and lack of visibility concerning Green Ammonia development (solar electricity -> hydrogen -> ammonia) and possible future use of ammonia as a transport and energy storage fuel.

  COM could enable dialogue between industry, research, agriculture, wastewater and gas treatment operators, on long -term objectives for integrating ammonia recovery (from digestate/biomethane production, from wastewater, from offgas N_2O/NO_x removal) with Green Ammonia scenarios, including R&D and process development, economic models, policy and market tools.

  Nitrogen recovery technology is behind that for phosphorus recovery, and technology development of recovery nitrogen should be supported in Horizon Europe and other R&D funding (LIFE, Interreg), targeting recovery of N in a form adapted either to local/regional use by farmers or to transport and industry use (transportable commodity chemical).