



## EIP AGRI Focus Group

# Improving nutrient recycling in agriculture

## Subject of the Focus Group

How to improve the agronomic use of recycled nutrients (N and P) from livestock manure and other organic sources?

## Context for the Focus Group

Mineral nutrients are vital for producing the food on our plates, and agricultural intensification using mineral fertilisers has allowed the world to sustain population growth and prosperity. Nevertheless, the population growth and dependency on fossil resources needs to be re-thought and more attention is required towards closing nutrient loops throughout the entire human agro-food chain.

## Key Questions

The Focus Group discussed the benefits and constraints of some emerging technologies that allow the recovery and re-use of nutrients. The list of existing treatment techniques is ever-expanding.

The FG identified farmers acceptance and appreciation as one of the key issues when considering using recycled nutrients in practice. To increase the adoption of organic waste processing technologies and the production of new types of biobased fertilisers on a large scale, a real understanding of the fertilisers market and the end-user requirements is needed. The market uptake needs to be driven from the demand side, not (or not solely) from pushing technologies that aim to recover nutrients from manure and other wastes.

## Main Findings

In addition to an overview of the most relevant legal frameworks at the EU level, the final report outlines possible policy measures for further discussion and debate, such as financial incentives, environmental taxation schemes, labelling obligations and the Common Agricultural Policy (CAP).

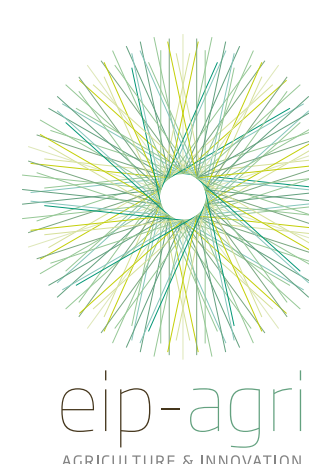
Practical tools and practices are identified. These tools may involve the assessment of the composition of the fertilisers (e.g. N/P ratio), the release pattern of nitrogen from biobased fertilisers, or the emission of ammonia, etc. Also, the value of soil organic matter as being valuable for soil fertility must not be ignored.

## Ideas for Operational Groups

Demonstration of nutrient circular economy technologies such as low NH<sub>3</sub> emission techniques while involving the whole value chain to highlight the improvements in terms of sustainability,  
Demonstrate how tailor-made biobased fertilisers match plant requirements,  
Integration of nutrient management in certifying schemes to create transparency and trust,  
Devise or adapt cooperation business models to improve the production and marketing of tailor-made fertilisers,  
Exchange of information between farms on the use of biobased fertilisers, including nutrient and carbon behaviour in the soil. To demonstrate nutrient Circular Economy technologies that can be replicated, including technologies for the reduction of ammonia emissions.

## Research needs from practice

Develop and adopt specific LCA and environmental risk assessment for agricultural systems as the current methods were designed particularly for industrial processes,  
Devise a uniform way of assessing nutrient use efficiency of fertilising products, including meta-analysis of existing data and reports,  
Focus on organic contaminants in some of the recovery pathways, like impacts of organic components on soil ecology and on food safety and how to improve the processing to treat these contaminants,  
Better understand the perception and acceptance of recycled nutrients throughout the food production value chain using social sciences,  
Use remote sensing tools and practices to get a better understanding and matching of fertilisation with crop requirements.



All findings from the Focus Group and more ideas for Operational Groups and research needs are available in the final report on the EIP AGRI website: <https://ec.europa.eu/eip/agriculture/en>.

