Nutrient recovery and re-use

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IS THERE A STRONG SCIENTIFIC BASIS?
HOW MANY TECHNOLOGICAL SOLUTIONS?

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VALUE CHAIN OF NUTRIENT RECOVERY FROM MANURE AND DIGESTATE

WHAT ARE THE CHALLENGES?

- **Identify relevant techniques** (e.g. composting, bio-digestion, etc.) to process livestock manure and other organic sources and **assess the agronomic and environmental value of the derived products** (e.g. nutrient availability, quality, impacts on soils, contaminants, etc.).

- Contextually, **identify tools and instruments** to help farmers to measure the nutrient content (and availability for crops) and recommendations for the application of these products.

- **Analyse economic and technical factors** (e.g. livestock management practices, sanitary aspects, etc.) that stimulate or limit the use of these products in agriculture and **indicate how to address them** exploring the role of innovation and knowledge transfer.

- **Illustrate possible strategies** to adapt derived products to market demands (e.g. development of quality standards) and successful business cases that exist at farm level, local and regional scale.

- **Identify research needs from practice, possible gaps** in technical knowledge, and further research work to address them.

- **Suggest innovative solutions and provide ideas** for EIP-AGRI Operational Groups and other innovative projects.

CHALLENGES AFFECTING THE EU (I)

• Valley of death between scientific findings related to nutrient recovery and technological innovations

• Unpaired nutrient recovery solutions with a sustainable and profitable energy flow

• Total P dependence on third countries and fossil fuel-based processes for the vast majority of currently used fertilisers

• Lack of harmonised regulations related to fertiliser across the EU
CHALLENGES AFFECTING THE EU (II)

• **How do we want to produce food and agricultural products in the EU?**
  - Do we want to be self-sufficient?
  - Do we want farms to focus only on short-term profitability?

• Little market demand on sustainable agricultural products

• Are we really committed to maintaining the rural population?

• Trade within the EU and amongst the EU and third countries affecting prices of commodities and agricultural products
PARTICULAR CHALLENGES

• Developing the potential of microorganisms in...
  • ... soil restoration
  • ... soil fertility and crop production (enhancing nutrient uptake)
  • ... waste streams processing

• Implementation of policies for increase soil health (organic matter content, fertility, soil structure, carbon sink...)

• Pollutants in waste streams are a handicap for commercial utilisation of recovered nutrients

• A more efficient use of nutrients (plant breeding, agricultural practices and nutrient management).