

Optimising bio-based fertilisers in agriculture – Providing knowledge basis for new policies (LEX4BIO)

Background

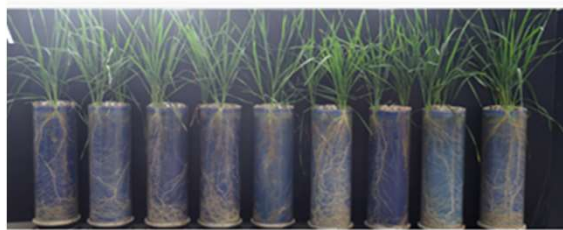
- Europe is dependent on imported mineral fertilisers
- Nutrient-rich side-streams (NRSS) inefficiently utilized in agriculture
- Bio-based fertilisers (BBF), produced from NRSS (e.g. manures, sewage sludges, biowaste, animal by-products), were studied in LEX4BIO
- Evaluation of BBFs included: agronomic efficiency, food safety, human health, environmental risks, ecological impact of BBF production, socio-economic impact and policy framework



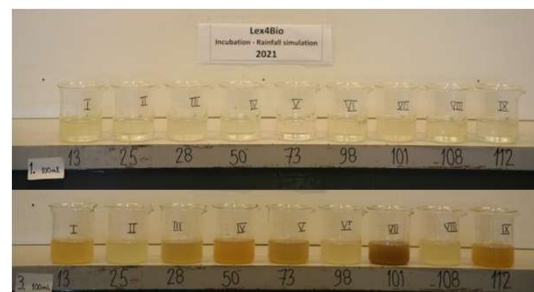
Ecotoxicological test with oilseed rape



BBF effect on shoot and root growth in phenotyping experiment



Percolation water after rainfall simulation



Wheat stand in N-BBF field trial



BBF examples



Conclusions

- BBFs can function as fully or partially effective replacement for mineral N and P fertilisers
- Phosphorus demand of European croplands is below current P fertiliser recommendations and could largely be covered by P recycling products
- Environmental implications of BBF application are generally less or similar to synthetic mineral fertilisers but vary between soils, BBFs and cropping systems
- BBF contaminant levels were generally far below national EU member state benchmarks and BBFs studied generally do not pose a risk of disseminating antibiotic resistance in the soil
- Addressing barriers for BBF uptake requires collaborative efforts from policymakers, researchers, industry, stakeholders and farmers themselves