Research Summary Sheet

Deliverable n°: 3.1 (Task 3.1)

"Relevant parameters and optimized tools for evaluation of safe and sound digestate use"

Context and Challenges

NoAW project wants to generate innovative and efficient approaches to convert agricultural waste into products and opportunities with direct benefits for both environment, economy and EU consumers. This particular deliverable was dedicated to the methodological approach for the safe use of anaerobic digestate as a renewable fertilizer. In particular, the main basis for the determination of the agronomic characteristics of digestate assessment, for the use of its nutrients content, for the verification of its microbiological load and for the determination of the presence and environmental fate of organic contaminants were assessed in this deliverable.

Results and Applications

A full-scale biogas plant in eastern Bavaria was analyzed as case study. The determination of the agronomic characteristics of the digestate produced from the full-scale plant was the main result. In particular, the physico-chemical properties, agronomic trial tests in pots and growth tests in two plants (wheat and tomatoes) using soil from case-study-farm. Advanced nutrients management considers also the use of NIRS sensing for the use of digestate on fields. Microbial analysis is used to monitor the content of bacterial pathogens which might impair public health. Methodology like treatment indicator parameters and analytical protocols are under construction to monitor the content of following bacterial pathogens: Salmonella spp., E. coli, Clostridium perfringens spores. The presence and the environmental fate of relevant contaminants is under investigation. Besides heavy metals, this study investigates also the presence of organic contaminants, namely estrogens, veterinary drugs and pesticides.

The project leading to this application has funding from European Union's Horizon 2020 research and innovation programme under grant agreement No 688338.

Breakthroughs, benefits and added value

The “Relevant parameters and optimized tools for evaluation of safe and sound digestate use” were defined in methodological terms. Therefore, this deliverable does not contain any experimental results but define the methodology for further work.

Further information on NoAW project: http://noaw2020.eu

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