

# Innovation of technologies in composting, compost use and soil protection

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Working Group Sustainability, Soil Protection and Land Use  
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ATCZ42 – INTEKO



EVROPSKÁ UNIE



# Project partners



ZERA  
Regional agency for ecology and agriculture  
Náměšť nad Oslavou, CZ



Bio Forschung Austria  
Vienna, A



Mendel University  
Brno, CZ



Federal Agency for Water Management  
Petzenkirchen, A



# Strategic partners

- Agroklastr Vysočina z.s., CZ
- Stadt Wien, Magistratsabteilung 48 Abfallwirtschaft, Straßenreinigung und Fuhrpark, A
- Kompost & Biogas Verband Österreich, A
- Niederösterreichische Agrarbezirksbehörde, A
- European Compost Network, DE

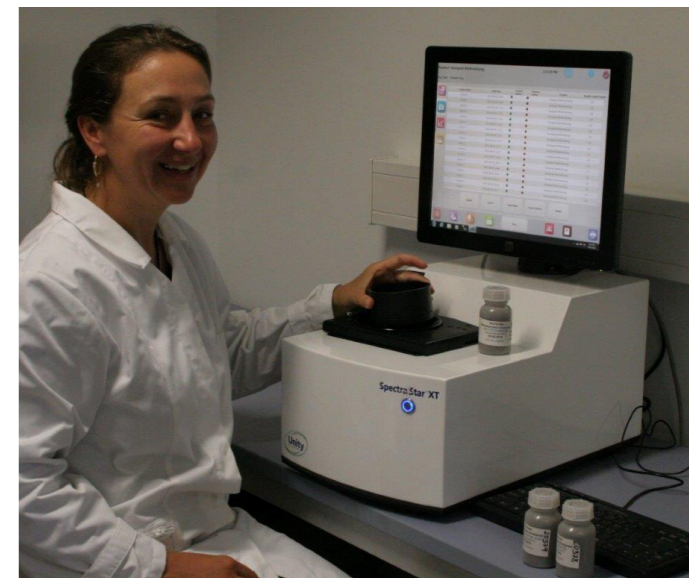
## Project duration

September 2016 – August 2019



# Project aims

- innovative technologies for composting and for quality control of compost using NIR-spectroscopy
- Recycling of phosphorus: secondary raw materials from sewage sludge and biochar
- Development of a cost-effective method for measuring nitrate leaching into the groundwater using ion exchange resin technology





# Innovation in composting technology

## **-Input materials**

organic (household) wastes, sewage sludge, biochar

## **-process management**

monitoring of the composting process (critical points C:N, pH)

## **-Compost quality**

system for quality assessment – N fixation – compost stabilization





# Innovation in composting technology

- **Input materials**  
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- **process management**  
monitoring of the composting process (critical points C:N, pH)
- **Compost quality**  
system for quality assessment – N fixation – compost stabilization

## Planned results:

- laboratory equipment and NIRS for CETT
- definition of compost quality
- methods for determining compost maturity
- quality criteria for compost
- methods for the production of organic fertilizers from renewable sources

# Recycling of phosphorus

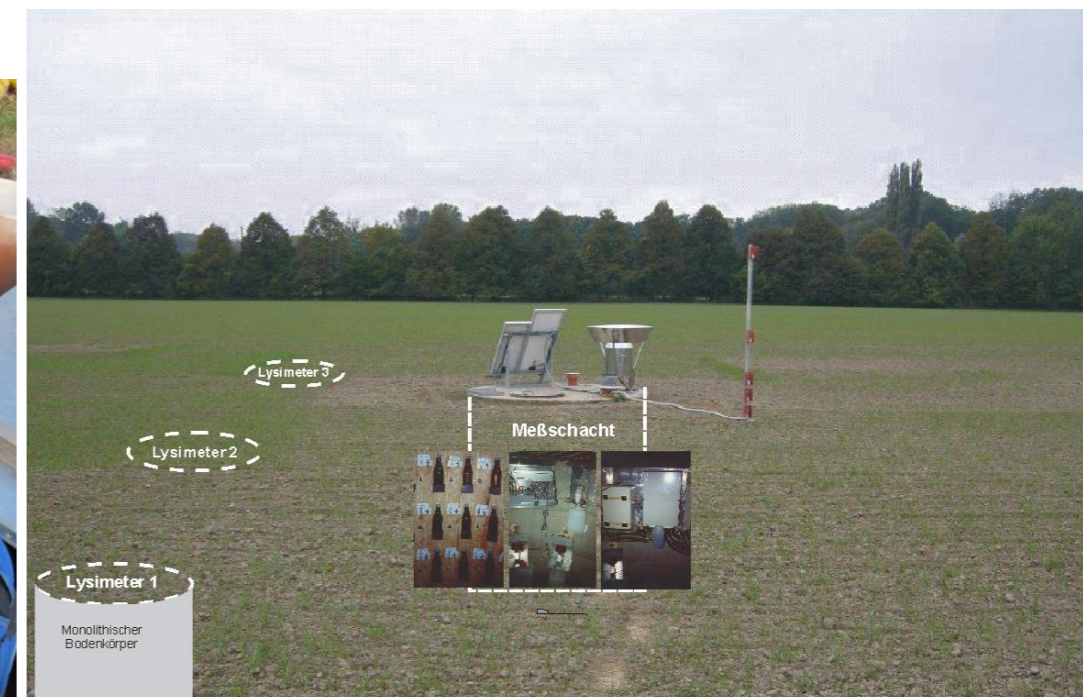
- **Improving the availability of phosphorus in secondary raw materials from sewage sludge**  
experiments on laboratory scale and on practical scale,  
chemical analyses,  
plant experiments
- **biochar from sewage sludge**  
co-composting with organic wastes  
effects on plant growth and on nitrogen leaching



# Innovation in measuring nitrate leaching

for evaluation of the effect of compost on groundwater quality

- **development of innovative sensors for recording nitrate leaching to the groundwater**  
using ion exchange resin  
cost effective
- **measuring nitrogen concentration and water movement in the soil**  
in the lysimeter station Lobau of BFA
- **Experiments for testing the sensors**  
with compost fertilization





# Thank you for your attention!

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