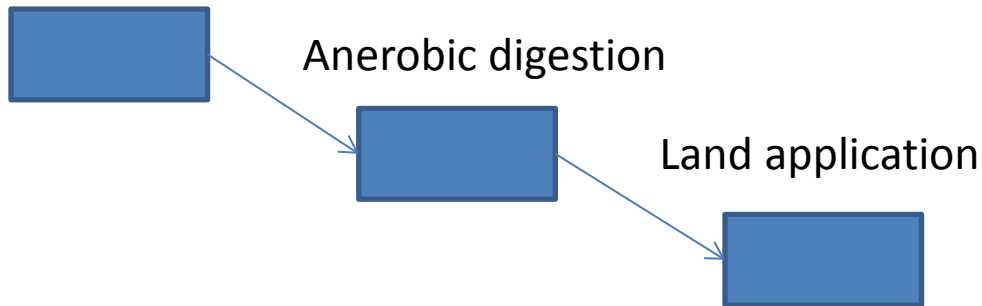


**WP4 - KU**

# Connection of WP4 to the Biochain

Feedstocks



Environmental impacts depending on:

1. Feedstof (cosubstrate)
2. Retension time
3. Digestion temperature (termophilic, mesophilic)

# Potential subject areas

- N<sub>2</sub>O emission after land application of fermentates

Methods: Mesocosm experiment with different fermentates mimicking different modes of application. Measurement of N<sub>2</sub>O with GC and assessment of O<sub>2</sub> distribution using optodes

- C storage after application of fermentates

Methods: Long-term incubation in C<sub>4</sub> soil. C storage of cosubstrate using <sup>14</sup>C technique. Long-term incubation measuring CO<sub>2</sub> using GC.

- Nitrate leaching after land application of fermentate

Methods: Incubations of fermentates measuring C and N mineralization. Calibration of Daisy. Simulation of N leaching and C storage in different scenarios.

- Comparison of environmental impacts

Methods: Life cycle assessment of different cosubstrates comparing environmental impacts from the entire biochain

# Overarching problem of sensitivity

- Are differences between fermentates large enough for us to measure any interesting differences in terms of environmental impacts after land application.
- N<sub>2</sub>O emission?
- C storage?
- Simulated N leaching?

# Delimitation

- How do I assure the best connection to the biochain
- How much can you ask one PhD student to cover (Lab work, Daisy, LCA)
- How do I cut down?