Nährstoffrückgewinnung aus Schweinegülle mittels Kristallisation an reaktivem Substrat – Nährstoffe aus Gülle

Förderkennzeichen: UT 440

This joint research project investigates the removal of nutrients from liquid pig manure. When applying liquid manure directly to agricultural land, nitrous oxides (whose greenhouse effect amounts to a multiple of the greenhouse effect of CO_2) are generated due to reactions with the soil bacteria. Pretreatment of the liquid manure, for example in co-fermentation plants, avoids this climate-related process while at the same time providing energy from CO_2-neutral generation of biogas. In areas with intensive livestock farming, soil phosphate concentrations are limited by law, and fermentation residues (substrate from liquid manure and renewable resources) due to their phosphorus content, thus, cannot be spread on the utilized agricultural fields. Leasing of additional terrain in consequence of this situation affects the economic balances of the respective farms. The simultaneous nutrient removal method to be developed in this project is intended to convert the liquid-manure nutrients into transportable, easy-to-dose substances, thus ensuring that the phosphate substrate can be regionally marketed (as fertilizer for e.g., specialized crop). Based on the patented P-RoC method, experiments are carried out on the laboratory-scale, semi-industrial and pilot-scale application to liquid pig manure, investigating at the same time the effects of phosphate reduction on biogas production and aspects regarding the fertilizing efficiency and plant compatibility of the fertilizer produced.