

## **Assessing influence of enzymatic and bacteria consortia on anaerobic digestion of swine manure**

### **1. Summary**

Swine manure is stored in open earthen lagoons that can be a source of malodorous emissions. There is interest in covering swine lagoons to mitigate odors and/or use anaerobic digesters to recover gaseous fuels (biogas) from the manure organic matter. The use of selected enzymes and bacteria can be beneficial to improve yield of gaseous fuel and/or reduce emissions of malodorous gases. In this project, two commercial products currently in R&D stages will be tested separately and as a blend to improve biogas productivity from swine manure. Anaerobic digestion tests will be conducted in closed reactors with pressure sensors to measure gas production yield.

### **2. Analyses**

- Gas composition → to assess the impact of treatments, i.e., (1) enzyme blend additive, (2) bacterial blend additive, and (3) mixture of enzyme-bacterial additive, compared to control digestion unit.
- Digestate composition (CHNOS, ICP-AES) → to assess the impact of treatments on digestion process residue, i.e., nutrient and energy contents.