

Anaerobic digester could have economic benefits for university

*By: Kristen Brown,
Research Assistant, Biosystems Engineering*

The biosystems and agriculture engineering department (BAE) at Michigan State University is continuing its work with waste management. Dana Kirk, a MSU research assistant, and Bill Bickert, professor of the BAE department, have been advancing research in anaerobic digestion in search of more efficient, money-saving solutions to deal with campus waste.

Anaerobic digestion is environment free of oxygen where bacteria convert organic matter to methane and water. Methane, or biogas, can then be used as a renewable energy source.

Not only would anaerobic digestion aid in manure management at MSU farms, but it also has the potential to become an outlet for food waste and slaughterhouse waste disposal.

An audit in which to estimate the amount of post-consumer food waste generated at MSU cafeterias will help to determine the feasibility of using an anaerobic digester as an efficient disposal method.

“Food waste is sent through the ‘garborator’ and then to the waste water treatment plant,” Bruce Haskell, food services coordinator for MSU, said.

Typically, high BOD levels in the water lead to costly surcharges.

At the campus meat lab, slaughterhouse waste, or “offal,” is collected by a rendering company.

“We pay \$56.00 for them just to back into the building, and two cents a pound for what they take,” Tom Forton, the meat lab manager said.

Depending on the animal size, it could cost over \$70 for the waste of one average dairy cow to be rendered.

The university is under pressure from local environmental groups to deal with manure disposal issues. According to Bickert, the challenges in manure management go beyond traditional system design. Innovative treatment technologies have the potential of reducing nutrients, odors and pathogens in the manure stream.

“We are exploring different ways for animal producers to recover the costs of a manure management system through sale of new products,” Bickert said.

Kirk said mixing organic waste, which could lead to revenue generation from improved biogas production, is important for industry acceptance.

“It is not so much that there is a waste problem at the university, but there is an opportunity to better utilize the ‘waste’ and demonstrate to the stakeholders of Michigan that the university is committed to seeking sustainable solutions,” Kirk said.