



January 2019

Anaerobic Digestion

The times they are a changin,' but the more they change, the more things seem the same. With the release of the Iowa Energy Plan, the United States is striving for a greener and cleaner energy production sector, the quest for energy independence, and the development of certain renewable energy credits, there is again attention on the use of anaerobic digestion for manure treatment and energy creation.

While I've written about anaerobic digestion before, [Value adding manure – manure to energy](#) and [How much biogas potential is there in Iowa](#), I think given the anticipation around the topic, and perhaps the interest that will be generated to work with farmers to develop projects, it may be a good time to review a bit more about what anaerobic digestion is and how these projects may work.

Anaerobic digestion is the breakdown of organic materials without oxygen. When this happens, methane, or natural gas, is generated. This process will occur in all liquid manure storages, but when we talk about anaerobic digestion, we generally

mean trying to enhance or increase the rate of the process and capturing the methane that is generated. This can occur from old organic materials and the process actually has high flexibility, making it an interesting option for bioenergy conversion platforms.

Why is anaerobic digestion, once again, receiving more attention now? Renewable Energy Identification Numbers, or RINS, have opened up a new market. These RIN credits were created to have a system that ensured some fraction of our fuels were created from cellulosic conversion pathways, and anaerobic digestion of manures qualifies, as long as the created methane is cleaned to pipeline quality and then injected into the natural gas pipeline. This may sound like a small change, but the RIN, along with the slightly higher value of methane, can make the process generate substantially more revenue than conversion to electricity and selling power back to the grid. Moreover, this has led to many questions about if anaerobic digestion can now be a viable pathway for conversion of other agricultural resources into energy and energy products.

Given this, companies may have interest in working with farms to bring anaerobic digestion projects to fruition. These projects may be manure only, manure with biomass materials, or even moving manure and industrial waste products, depending on the location, the conversion technology, and how the resulting biogas is used. With all of these projects, it will be important to determine how manure rights will be handled. Is manure ownership transferred? Who is in charge of managing the system? Do any nutrients come back to the farm? While digesters and technology have been developed, asking questions and understanding what you are committing to will be important for making these projects work. Given the emphasis on this topic, look for new extension efforts to provide

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more of the science and questions to ask in the near future.

Manure Applicator Training Continues

Confinement site and dry manure certification workshops started earlier this month and will continue through the end of February. Training opportunities can be found on [our website](#). When you come to a training session, be sure to bring your CMS or CNS card and driver's license. This will help assist you in filling out the paperwork.

If you are unable attend one of the scheduled workshops, you can contact your local county extension office about reshowing these programs. There is no charge for attending the workshops or viewing the video on the scheduled reshow date and time. However, applicators requesting to view the training materials at non-scheduled times will be charged a fee. Additionally, the DNR also offers [E-Learning for Commercial, Confinement Site, and Dry Applicators](#).



Figure 1: Manure Applicator Certification continues across the state.

Manure Scoop

In this month's manure scoop [we take a look at nutrient budgets, manure and water quality](#). There are multiple viewpoints when everyone looks at data and given the publicity this piece has gotten I thought I'd take a chance to share mine and how we can reflect on what it tells us.



Figure 2: Manure nitrification-denitrification system. Will manure treatment and nutrient removal be necessary?

Events

[Soil Health Conference](#)

February 4-5, 2019, Ames, Iowa

[Soil Fertility and Nutrient Management Short Course](#)

February 19, 2019, Ames, Iowa

[Manure and Soil Health Webinar - Livestock and Poultry Environmental Learning Center](#)

March 1, 2019, 1:30 pm