Harnessing manure: Digesters transform waste into sustainable on-farm energy

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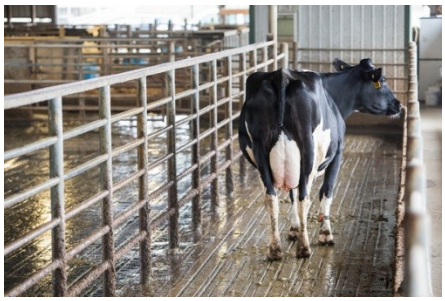

Energy is a major expense on just about every farm in the U.S. And in most sectors of agriculture, environmental concerns are ratcheting up. For these two reasons, some farmers are exploring alternative energy sources like manure digesters. On the right operations, these systems can cut energy costs, improve environmental sustainability and in some cases, generate new revenue.

What is a manure digester?

A manure digester, also known as an anaerobic digester, is a system that breaks down livestock manure in an oxygen-free environment. This process produces biogas primarily composed of methane and carbon dioxide. The biogas can be used to generate electricity or heat. It also can be refined into natural gas for a range of uses, including in motor vehicles.

Other benefits of manure digesters for farmers

In most cases, a manure digester can:

- Help reduce electricity costs
- Create new revenue opportunities in breaking down food processing byproducts
- Generate new revenue by selling biogas or energy it generates back to utility companies
- Create byproducts that can be sold as fertilizer to crop farmers
- Help farmers reduce manure odors and potential environmental hazards

"Manure digesters present a tremendous opportunity for dairy farmers not only to manage waste more effectively but also to transform that waste into a valuable renewable energy resource," said Nationwide Senior Dairy Consultant Dan Rice. "By investing in this technology, farmers can enhance their operations' sustainability while improving their bottom lines and community acceptance."

Things to think about before adding a manure digester

While they offer numerous benefits, manure digesters aren't ideal for every farm. Consider these factors:

- **Farm size.** Digesters are typically more cost-effective for larger farms with a steady supply of manure.
- **Initial investment.** The upfront costs for installing a digester system can be substantial. Farmers should research available grants or financing options.
- **Maintenance requirements.** Factor in regular maintenance and ongoing costs and time commitments.
- **Energy needs.** Assess your farm's energy consumption to determine if a digester is the right solution.
- **Local regulations.** Check local and state regulations regarding biogas production and use.

- **Technical expertise.** Since digesters require some technical knowledge, training or hiring skilled personnel may be necessary.

Getting started

If you're interested in exploring manure digesters for your farm, talk to a local University Extension specialist familiar with the systems. It's also a good idea to visit other farms where a manure digester has been successfully added. Think about conducting a feasibility study to get a feel for the potential costs and benefits to your farm. Finally, consult with your insurance, financial and legal advisers before signing any contracts.

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