



E³A: Anaerobic Digester Applications for the Farm or Ranch

Steps in the Anaerobic Digester Series

Understanding Technical Feasibility

Estimate Potential

Economics

Selection

Maintenance

Exploring energy efficiency and alternatives

This series explores the applications and benefits of on-farm anaerobic digestion to convert animal waste to energy. It can also help you decide if installation of an anaerobic digester is right for you. You should understand the benefits and limitations of anaerobic digestion before deciding to install a system. Knowing what to expect will help you get the most out of our anaerobic digestion system.

Is on-farm anaerobic digestion right for you?

The following questions may help you decide whether on-farm anaerobic digestion will work for you.

Are you willing to learn about anaerobic digestion? Many companies specialize in installation of anaerobic digesters. Recent technological improvements have made anaerobic digesters more successful on farms. However, anaerobic digestors are still a buyer-beware market. Educate yourself or hire a qualified consultant to guide you through the selection and installation process. Shop around for different financing options that might be available through banks or technology providers.

Yes

No

Uncertain

Is the primary method of manure collection on concrete? Anaerobic digestion requires a solids content less than 17 percent. Manure scraped or flushed from concrete typically has less than 17 percent solids and is therefore suitable for anaerobic digestion through conventional technology.

Yes

No

Uncertain

Is the manure at your facility primarily free of rocks, sand and soil after collection? Rocks and soil particles cause major operational problems for anaerobic digesters and must be removed before the waste is processed. Sand in bedding can also be a problem for anaerobic digestion if it ends up in the waste material supplied to the system. Removal of rocks, soil and sand typically involves adding water to the waste and subsequently letting the particles settle, which adds complexity, cost and additional maintenance.

Yes

No

Uncertain

Is there a nearby source of wastewater, such as from food processing or a municipality, that you may be able to combine with manure generated at your facility? When solids content of waste is high, manure can sometimes be combined with nearby sources of wastewater. This is referred to as co-digestion, which can improve digester operations and increase biogas production.

Yes

No

Uncertain

Are you willing to perform additional maintenance for operation of an anaerobic digester? Such a system will require more maintenance than other manure management practices such as composting or waste lagoon management. Installation of an anaerobic digester may require hiring one or two additional employees for routine maintenance, depending on the size of the operation. Be prepared to meet additional maintenance requirements.

Yes

No

Uncertain

Do any of the following apply to you:

- Average energy costs of at least \$5,000 per month
 - Frequent or credible complaints about odor
 - Poultry or swine operation
 - Potential for co-digestion
- Yes No Uncertain

Anaerobic digesters are a large financial investment. To justify the investment, you should be able to use the digester to offset other operational costs, such as energy use or lawsuit mitigation. If your operation fits any of these four criteria, an anaerobic digester might offset these costs and prove to be an economically viable purchase. However, you should still conduct a detailed analysis of potential revenues and costs over the life of your digester.

Consider your answers

- If you answered yes to most of these questions, you may be a good candidate for an on-farm anaerobic digester. Use the online decision tool for further guidance on technical feasibility.
- If you answered no to most of these questions, this system may not be the best choice for you. You may wish to speak with a consultant. Use the online decision tool for further guidance on technical feasibility.
- If you are uncertain about most of these questions, do more research before deciding whether an on-farm anaerobic digestion system is right for you.

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