

ANAEROBIC DIGESTION

Anaerobic digestion processes manure in a biodigester to produce biogas that can be used to generate electricity, heat or renewable natural gas. One of the by-products is a nutrient-rich manure called digestate, which can be used as fertilizer. Biodigesters also create financial opportunities through the sale of digestate, electricity or renewable natural gas.

Implementation Tips

- Visit farmingbiogas.ca to assess your farm's suitability for a digester and for additional resources.
- Herd size is an important consideration when determining the use of an anaerobic digester and ensure that the scale of digester meets the needs of your operation.
- If your herd size is not at a size of profitability for digester investment, consider collaborating with neighbouring farms to create a manageable size of herd to support and profit from a digester.
- Work with an anaerobic digester provider to determine location, size, and space to put it, as well as to evaluate operating costs and potential for return on investment.

Resources

- **Website:** Farming Biogas (dfc-plc.info/AD1)
- **Report:** Canadian Agricultural Biogas Study, Canadian Biogas Association (dfc-plc.info/AD2)
- **Webpage:** Funding and Incentives, Canadian Biogas Association (dfc-plc.info/AD3)

Benefits



Reduced GHG emissions



Estimated return on investment

Low



On-farm emission mitigation potential ++

“We created our own system in 2009, composed of two 1,000 m³ anaerobic digesters, a mix tank and a receiving tank. We milk about 150 cows, so we take all the manure from our farm into the mix tank and add in the same amount of off-farm waste (about 8,000 tonnes per year). We feed this mix into the digesters every hour. We collect the gas under a dome, which is fed back through a generator. We have a 250-kW contract with a local hydro company and use about 1/5th of the energy we produce to power our farm, as well as a portion of the heat generated from the digester. We noticed an increased fertilizer value from the digestate that comes out the back end – almost a 15% increase in crop yield by year three. Researchers from the University of Guelph monitored our methane levels before, during, and for a few years after construction, and we were able to take out 90-97% of the emissions from our manure storage pit. It's a bit like taking care of an animal, it needs to be fed and cleaned, and if you treat it well, it will treat you well back.”

— Korb, a dairy farmer in Ontario