

D-Lab: Biogas

Objectives:

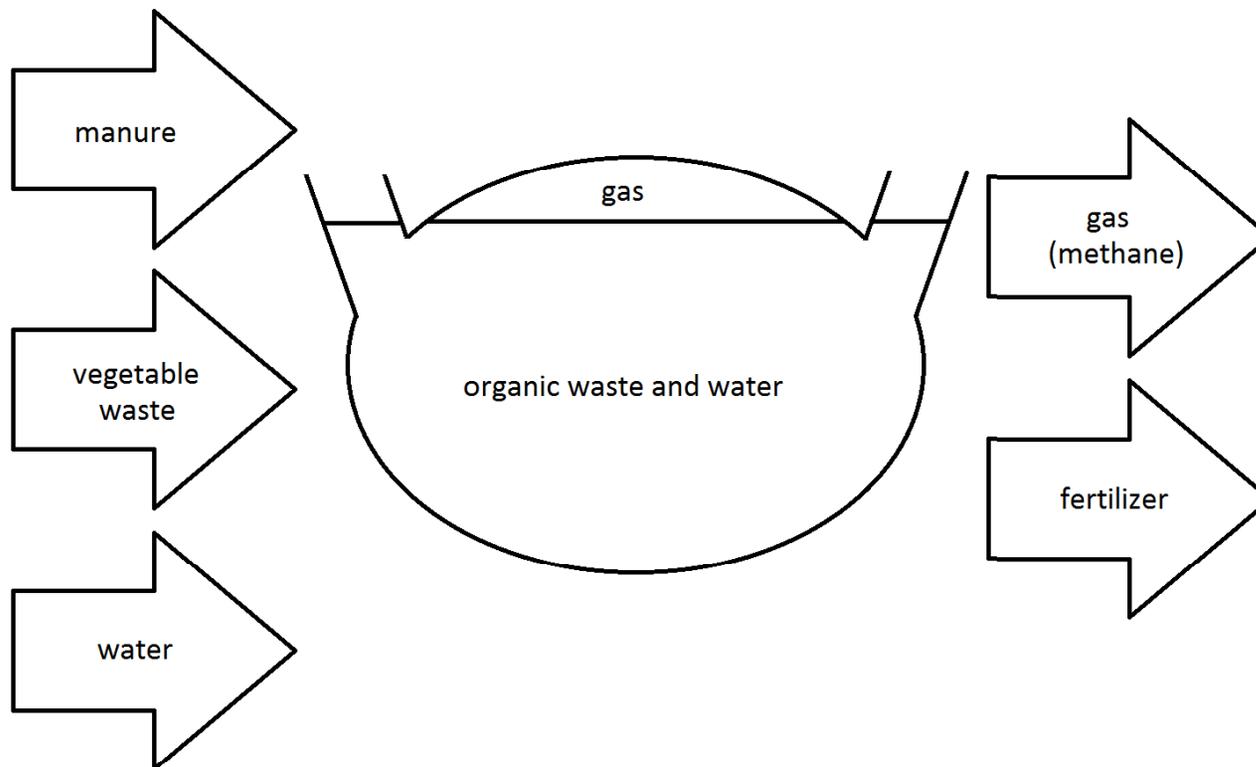
- Learn about how biogas digesters work
- When and where they are appropriate
- Important design considerations
- We're going to build a small scale demo one

Biodigesters

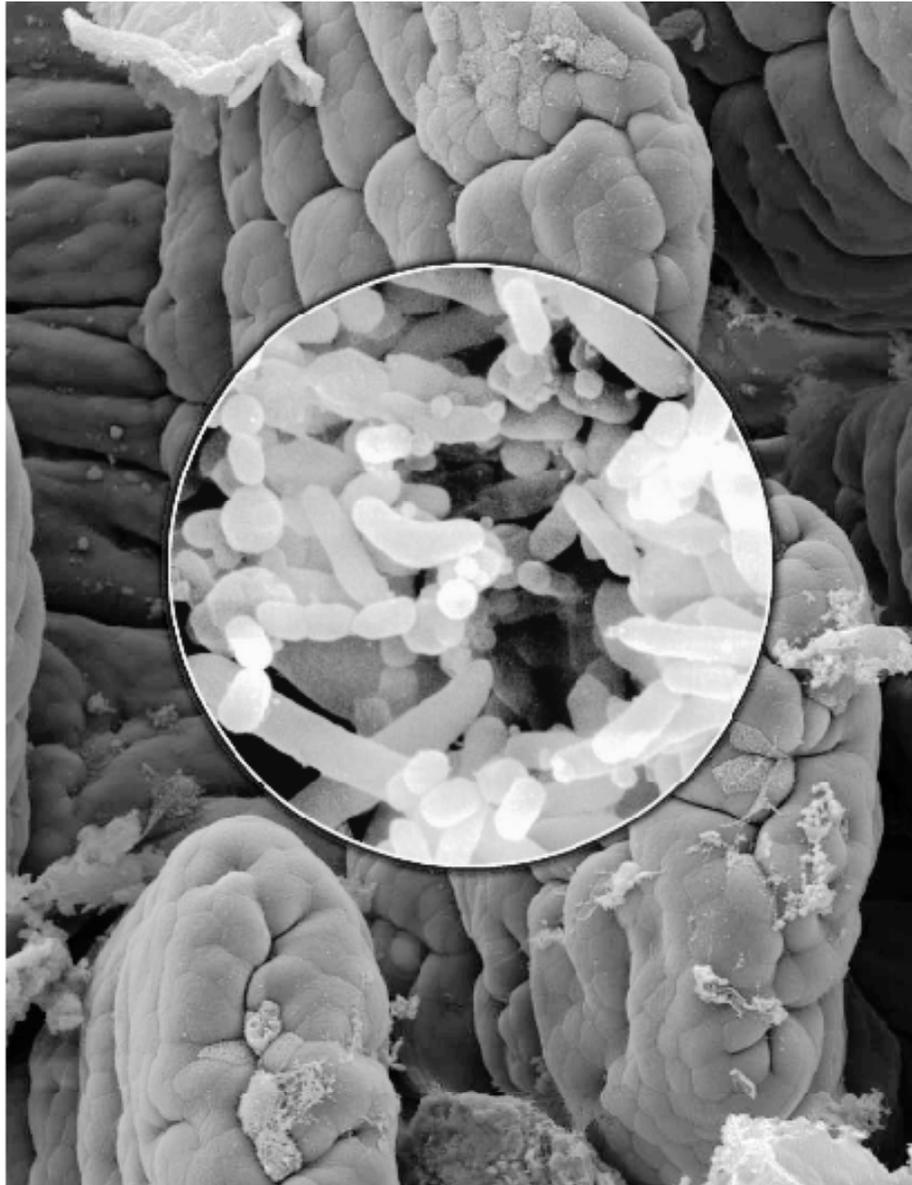
[Pictures of biogas digesters removed due to copyright restrictions.]

What is a biodigester?

- A biodigester transforms animal manure and vegetable waste into gas for cooking fertilizer for the crops



D-Lab: Biogas



Bacteria
produce
methane in
anaerobic
conditions

Scanning electron microscope images of *B. thetaotaomicron*, a prominent human gut bacterium, and the intestine. From: Human Gut Hosts a Dynamically Evolving Microbial Ecosystem Gross I PLoS Biology Vol. 5, No. 7, e199 doi:10.1371/journal.pbio.0050199

D-Lab: Biogas

- Biogas Composition
 - CH_4 : 50–75%
 - CO_2 : 25–50%
 - N_2 : 0–10%
 - H_2 , H_2S , and O_2 : trace
- Energy
 - 20 MJ/m³



Courtesy of [stefanottomanski](#) on Flickr.

D-Lab: Biogas

- Common sources of problems
 - Leaks
 - Temperature
 - pH

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Questions?

MIT OpenCourseWare
<http://ocw.mit.edu>

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