

# Converting Food to Energy: Recovering food waste and transforming it to a reusable product

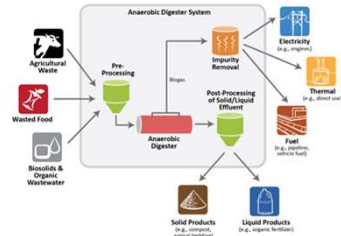
A partnership between Clarkson, Canton Public School District and Cornell Cooperative Extension in Saint Lawrence County

Jacob Hunt, Olutooni Ajayi, Laryssa Terleckyj, Stephanie Barajas, Hannah Beebie, Ha Dao, Lily Flanigan, Cameron Dion, Matthew Kowalski, Maddie Bredehoeft, Rory Fischer

Megan Smith, Tom van de Water, Nick Hamilton-Honey, Dr. Jan DeWaters, Dr. Stefan Grimberg



## Problem Statement & Objectives



**Goal of the program:**  
Teach students early on about the value of separating waste so resources can be recovered easily.

**How do we do that?**  
Implement the activities below:

- Food Waste Collection
- Classroom Activities
- Teacher Workshop
- Field Trips to Digesters

**Closed Loop System**  
Recovering food waste reduces the amount of greenhouse gasses emitted from landfills while providing a fuel source, fertilizer for crops, and bedding for livestock.



<https://www.nh.gov/econcommerce/program-areas/ke-rrm-organic/anaerobic-digestion.html>

## Food Waste Collection



- Food waste collection bins were put in the middle school and high school cafeterias
- This food waste from lunch leftovers and kitchen scraps is then brought to the anaerobic digester at the Cornell Cooperative Extension Farm where it is turned into effluent, biogas, and solids



- Effluent can be used as fertilizer in fields and the strained solids can be used as bedding for livestock. Biogas is a potential fuel source.

## Teacher Workshop

- Teachers learning about organic waste in the solid waste stream
- Anaerobic digestion as a possible technology to recover resources from food waste
- Developing classroom activities that would fit in science curricula



## Classroom Activities



- Students made mini-anaerobic digesters to break down different types of organic materials with microbes
- Biogas from the bioreactors was collected and measured in either balloons or gas catchment bags
- Students learned about different waste streams and disposal tactics, such as recycling, incineration, composting, landfills, and anaerobic digestion along with the energy inputs and outputs of each system