

**Project #9012 – Waste Vegetable Feedstock  
Production of Biogas via Anaerobic Biodigestion**

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**BRIEF  
DESCRIPTION**

This project will evaluate the use of fresh waste vegetables as a feedstock for the production of biogas (methane and carbon dioxide), via anaerobic digestion. Using a portable, pilot scale anaerobic biodigester, we will identify those vegetable crop wastes (field tomatoes, beet tops, sweet potatoes, etc), that are most suitable as feedstocks for the production of biogas, identify the parameters that have the biggest impact on biogas production, and assess the nutrient quality of the final digestate effluent. The information garnered from this study will be used to determine the economic feasibility of generating green energy from these feedstocks. Furthermore, the portability of the AD unit allows it to be an important educational tool that can be readily displayed at area agricultural events.

**PROJECT  
OBJECTIVES**

- Assemble a portable anaerobic digester of sufficient size to provide meaningful biogas production results, but small enough to allow for rapid assessment of different vegetable waste feedstock
- Assess the suitability of different vegetable wastes as feedstocks for the production of biogas.
- Determine the handling, processing and storage requirements for different feedstocks.
- Determine the optimum conditions to maximize biogas production, including pH, ammonia concentration, feedstock size, needed micronutrients, temperature, and retention time
- Collect data to assess the economic potential of using vegetable wastes as energy feedstocks
- Measure the nutrient quality of the effluent generated from different input crops
- Use the unit as an educational tool at agricultural events such as the Outdoor Farm Show.