

“Food Waste Reduction and Resource Recovery through the USF Campus Food Waste Recovery Project”

By: Kara Panesar, Shelby Peterson, Whitney Fung, and Dr. Sarina Ergas – USF

Abstract:

In affluent countries, such as the United States, increases in food waste remains a large concern. The United States Department of Agriculture found that over 31% of all edible food is not consumed [1]. Of this percentage, most of the food waste is wasted at the consumer level [1]. This unconsumed food is not disposed of in environmentally benign ways, and instead ends up in landfills or thermal waste-to-energy facilities (i.e., incinerators). The United States Environmental Protection Agency (USEPA) discovered that over 21% of landfill waste consists of food waste. Landfills also contribute to over 20% of the country’s methane emissions [2]. To prevent food from reaching landfills and contributing to greenhouse gas emissions, creative interdisciplinary solutions are required.

The University of South Florida’s Campus Food Waste Recovery Project has a vision to reduce food waste produced by over 50,000 students on its Tampa campus. This is a multidisciplinary initiative that looks to reduce student waste, donate edible food to those who need it, and recover resources from food that cannot be consumed. Students and faculty in the college of engineering are investigating anaerobic digestion of the unconsumable food waste. Anaerobic digestion will help with resource recovery, including the production of biogas, which the project team plans to purify and use to power small utility vehicles, as well as producing a nutrient rich fertilizer which can be used throughout the 1,500 acre campus. Research will be performed to determine the most optimal methods to maximize biogas production, produce the most nutrient-rich fertilizer, and determine the full environmental benefits from anaerobic digestion at different scales.