Waste to Watts

*Decreasing Landfill Waste Through Organic Digestion*

WEST LAFAYETTE GO GREENER COMMISSION
PURDUE STUDENT SUSTAINABILITY COUNCIL
PURDUE OFFICE OF SERVICE-LEARNING AND ENGAGEMENT
ENVIRONMENTAL & ECOLOGICAL ENGINEERING
Our Team

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Program Overview

FOOD WASTE

ANAEROBIC DIGESTION

DIVERSION & MITIGATION

PARTNERSHIPS
Purdue Dining Court Program

**Initial Metrics**

- 3 tons per weekday
- 4,600,000 lbs diverted since inception
- Provides 18% of WWTP Electricity
  - 681 kwh per weekday
  - $3,500 monthly energy savings

**Potential/Max Capacity**

- 18 tons of food waste per day
- Provide 100% of WWTP Electricity

*Boiler Bytes: Food waste helping provide energy source*
What is Acceptable Food Waste?

**Yes**
- Unpackaged and Degradable Food Products
  - Fruits
  - Meat
  - Dairy
  - Bread
  - Vegetables
  - Processed Food

**No**
- Non-Degradable Materials, Package Products, or Yard Waste
  - Bones
  - Wrappers
  - Utensils
  - Packaging
  - Yard Waste
    - [twigs, plants, leaves]

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**Meet You At Arni's**

**Drop-Off Location**

Community = 200 lbs/week
- Individual/home drop off

Dining Courts = 3,000 lbs/day

For drop-off locations visit the West Lafayette Streets and Sanitation Department website at: [www.westlafayette.in.gov/street/](http://www.westlafayette.in.gov/street/)
Education Efforts

Coffee shop talk with composting and organic digestion experts

“With the West Lafayette Food Waste Program, we have reduced our trash pick-up (for 2 people) to one lightweight 13-gallon bag per week. We thought at first it would be a lot of work; but it is so easy!”
honors college scholarly project
program expansion to purdue campus

questions explored:
where does campus food waste exist and how is it managed?
what is the potential for purdue to increase program contribution?
Greek Life Program

West Lafayette Go Greener Commission
- manages contracts
- coordinates funding

Purdue Office of Engagement
- Provides $$ in grant funding to pay for collection containers

Black & Gold & Green
Purdue Campus Master Planning and Sustainability
- Provides Interns to transport food waste

Purdue Student Sustainability Council
- program management
- education of Greek Houses

Greek Life Organizations
- coordinate food waste flow internally
- pay for collection services
Education Materials

EFFORTS TO COUNTERACT TURNOVER AND PREVENT CONTAMINATION

• Provide signage (left)
• Education Guide for kitchen staff
• Brief presentations to house residents

FOOD WASTE DONATION

DON’T:
- Bones
- Pineapple tops
- Avocado pits
- Wrappers
- Chopsticks/Utensils
- Napkins / Paper
- Any non-foods

AVOID:
- Large quantities of
  - Sloppy things (salad dressing, mashed potatoes)
  - Fruit rinds (too much can be hard to grind up)

DO DONATE:
- Any other food!
11 Participating Houses
53 Potential Additional Participants

140 lb/week diverted per house
Project ~1500 lb/week diverted in Fall 2019

170.25 kwh/week energy savings
~$17.00 savings/week
Further Expansion Potential

- West Lafayette Community School Corporation & Residents
  - 3 schools & 300 households

Challenges
- Restrictive WWTP Design
- Transportation
- Education/Outreach
- Funding

- Reduction in GHG emissions
  - 27,376 kWh/year

- 198,000 lbs/year diverted
Based upon $ .07/kWh

*Based upon 227 kWh per 1 ton of food waste

*Based upon Spring 2019 pilot data from Greek houses and drop-off location, and West Lafayette Community School Corporation Schools
Next Steps: Environmental and Ecological Engineering Senior Design

- Feasibility Study Comparing...
  - Digestion
  - Composting
  - Fossil Fuels

- Diversion Methods "Calculator"

- Plan for at Least 1 Community Partner

How much do we need to expand to make it "worth it" in terms of cost savings, reduction in fossil fuel use, increasing city recycling, and mitigating GHG emissions?
Questions?