



2021 Campus Race to Zero Waste Case Study Competition

University of California, Irvine

1. Contact info (name, department, school, email, phone)

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2. Focus of Case study

This case study focuses on the various stages of UC Irvine's food waste reduction program and the campus food waste to biofuels program in the post-consumer process.

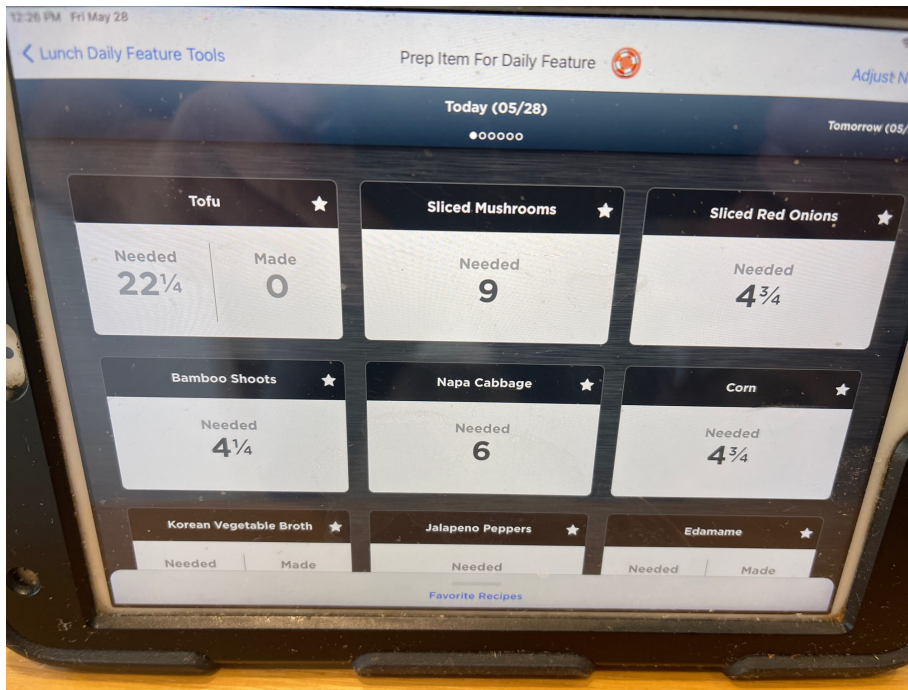
3. Detailed description of campaign or effort:

At UCI, food waste reduction starts long before the food waste is created. Waste reduction happens throughout the entire process.

Waste Reduction Operations in the Kitchen:

This starts with procuring the correct amount of food. Utilizing previous results and acceptability factors (the percentage of people who might generally pick an item), production levels of various food items are forecasted to prevent overproduction and cause additional waste. The first picture below shows how cooks are told to prep each item based upon recipes and expected customer counts. Pre-consumer food waste reduction is supported by several techniques: using both food trim techniques and the ENABLE waste tracking program, where all pre-consumer food waste is measured and documented to help educate and prevent future food waste (shown in the second picture below). Furthermore, kitchen staff record food waste weights and ensure a clean food waste stream into the collection bins. Oil filtration is implemented to double the life cycle of all frying oils (shown in the last picture below). Another technique is small batch cooking to ensure the correct amount of food is produced for each meal. All of this helps support waste minimization to reduce over-procuring food in the future. Lastly, staff members participate in quarterly zero waste trainings and learn about proper waste sorting practices through a "do you know?" style quiz.

Prep Screen



Logging Waste through the ENABLE System



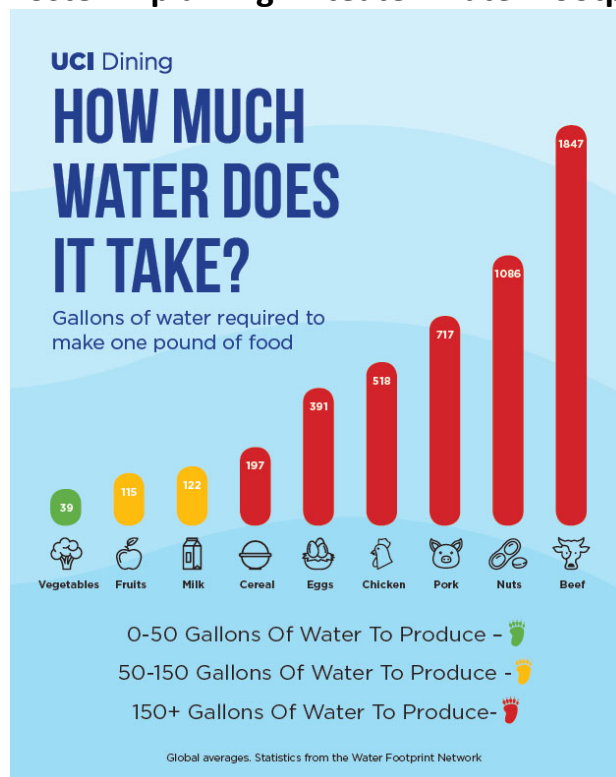
Oil Chef Filters for Fryers
















Waste Reduction Operations in the Dining Room:

In the food serving process, further waste reduction techniques are implemented. A "pick your portion" approach is implemented allowing for samples, half portions, and full portions. Adopting a tray less system reduces water consumption by not having to wash trays and waste production by encouraging students to take what they can consume. Feedback mechanisms allow students to provide input on what they do or do not like. Within the dining halls, the Anteater Water Footprints campaign educates students on food items that require the most water to produce and helps them become more conscious of their choices (shown in the pictures below). Front of house awareness campaigns such as Wiping out Waste take place twice a quarter to demonstrate to students how much food is wasted in a single meal period. The students receive feedback and see their progress regarding food waste elimination.

Poster Explaining Anteater Water Footprints



Anteater Water Footprints on Menus

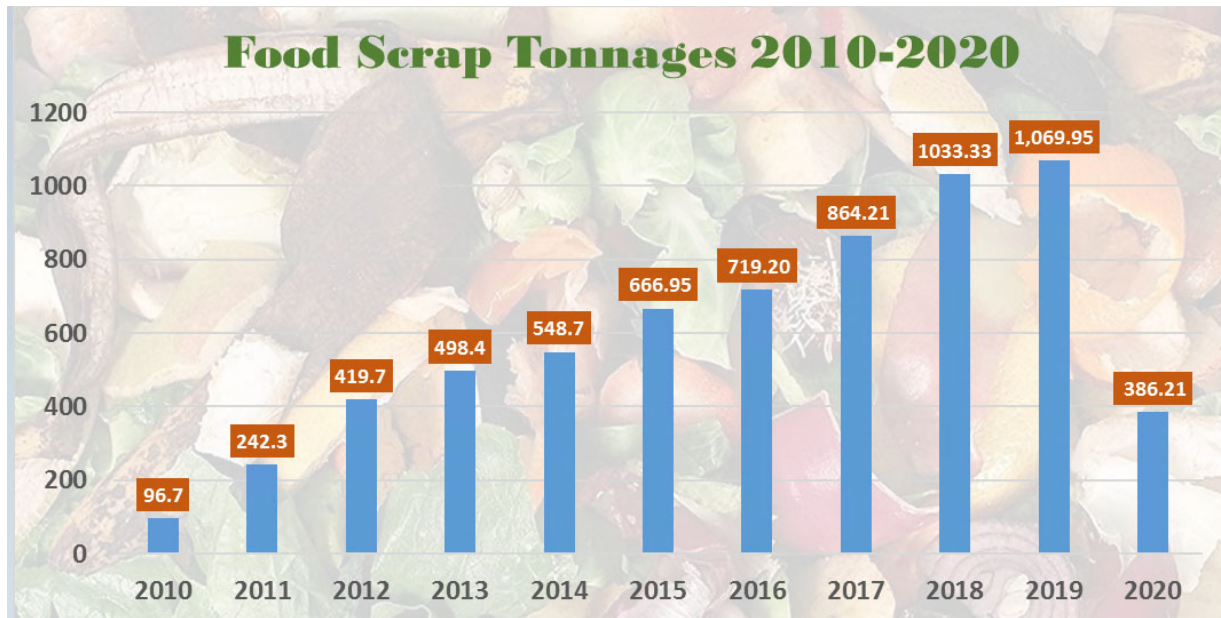
WELCOME TO BRANDYWINE		EMBER (left side)	
GRUBB	Cheeseburger		380 Cal
	Grilled Chicken Sandwich		385 Cal
	Crispy Chicken Sandwich		560 Cal
	Hot Dogs (contains pork and beef)		310 Cal
	 Beyond Burgers		290 Cal
	 French Fries		210 Cal
 Vegetarian  Vegan		2,000 calories a day is used for general nutrition advice, but calorie needs vary. Additional nutrition information available upon request.  High  Moderate  Low	

Waste Reduction Operations Post-Consumption:

In collaboration with Waste Management, food waste from campus dining halls is diverted from local landfills and instead collected and transported to a processing center in Orange and emulsified into an engineered bio slurry. This bio slurry is then brought to a local sewage treatment facility in Carson to be anaerobically digested. Through the digestion process, biogas mainly composed of methane is created and can be used as a source of power similarly to natural gas. This power source helps to run the Los Angeles County Sanitation District's Joint Water Pollution Control Plant. Through UCI's food waste to biofuel program, 100% of campus food waste is diverted from landfills and instead helps to fuel facilities that create recycled water (purified wastewater) used for landscape irrigation. As a result, potable water is saved for human consumption.

4. Planning steps & timeline to implement:

- UCI's Food Waste Reduction Program started in 2010 and has expanded to include 26 food service locations on campus (including dining halls, food courts, retail, and coffee shops).
- When this program first started in 2010, it diverted about 97 tons of food waste. Through the years, the food waste reduction program has expanded dramatically.
- In 2014, UCI surpassed 500 tons of food waste for the first time ever.
- In 2019, nearly 1,070 tons of food waste was diverted.
- Overall, these efforts have translated to not only reusing of resources but also substantial reduction in our university's carbon footprint.
- Although our focus every year is to reduce food waste, our ability to increase the collection of food waste increases as we added new food locations throughout campus to our program.



5. Resources and stakeholders involved

These food waste minimization processes are cost-neutral.

- UCI Facilities Management, Refuse & Sustainability Departments
- UCI Dining

6. Describe the Results of this campaign component

- a. General results (*ex: attracted attention of campus president, campus paper did a news story on the event, etc.*)

In 2013, UCI's food waste reduction program was commended and honored by former United States Environmental Protection Agency Deputy Administrator Bob Perciasepe. UCI participated in the EPA's Food Recovery Challenge, which asked organizations to reduce food waste through food waste prevention, donation, composting or anaerobic digestion. UCI has also consistently been recognized as one of the most sustainable campuses due to its zero-waste program and diversion rates.

- b. Specific measurable impact figures, if applicable (*Ex: Reduced contamination rate 13%, Gathered 316 pledges to recycle more, etc., 250 people engaged, etc.*)

Diverted 1,069.95 tons of food waste in 2019; 386.21 tons in 2020

Carbon footprint reduction of 512 MT CO₂e in 2019; 369.5 MT CO₂e in 2020

7. What would you do differently in the future?

Designate a food waste compacter rather than using two cubic yard bins as they require more movement with trucks, resulting in a little more labor costs than a compacter would.

8. What advice would you give to another college that wanted to do a similar effort?

Stakeholder involvement from the very beginning of the program is very important towards its success in the long term. Meet often to fully explore and understand the goals and needs of each stakeholder.

9. Photos and Graphics

Here is a link to several of UCI Dining's sustainability initiatives, as well as a thorough handbook of all of UCI Dining's sustainability programs:

<https://uci.campusdish.com/Sustainability/WhatWeAreDoing>

Turning food waste into fuel

UC Irvine's partnership with Waste Management of Orange County gives campus-generated food waste a new purpose.



1. Dining hall

After UC Irvine students finish their meals at a dining hall, they drop off uneaten plates of food to the dish drop area.



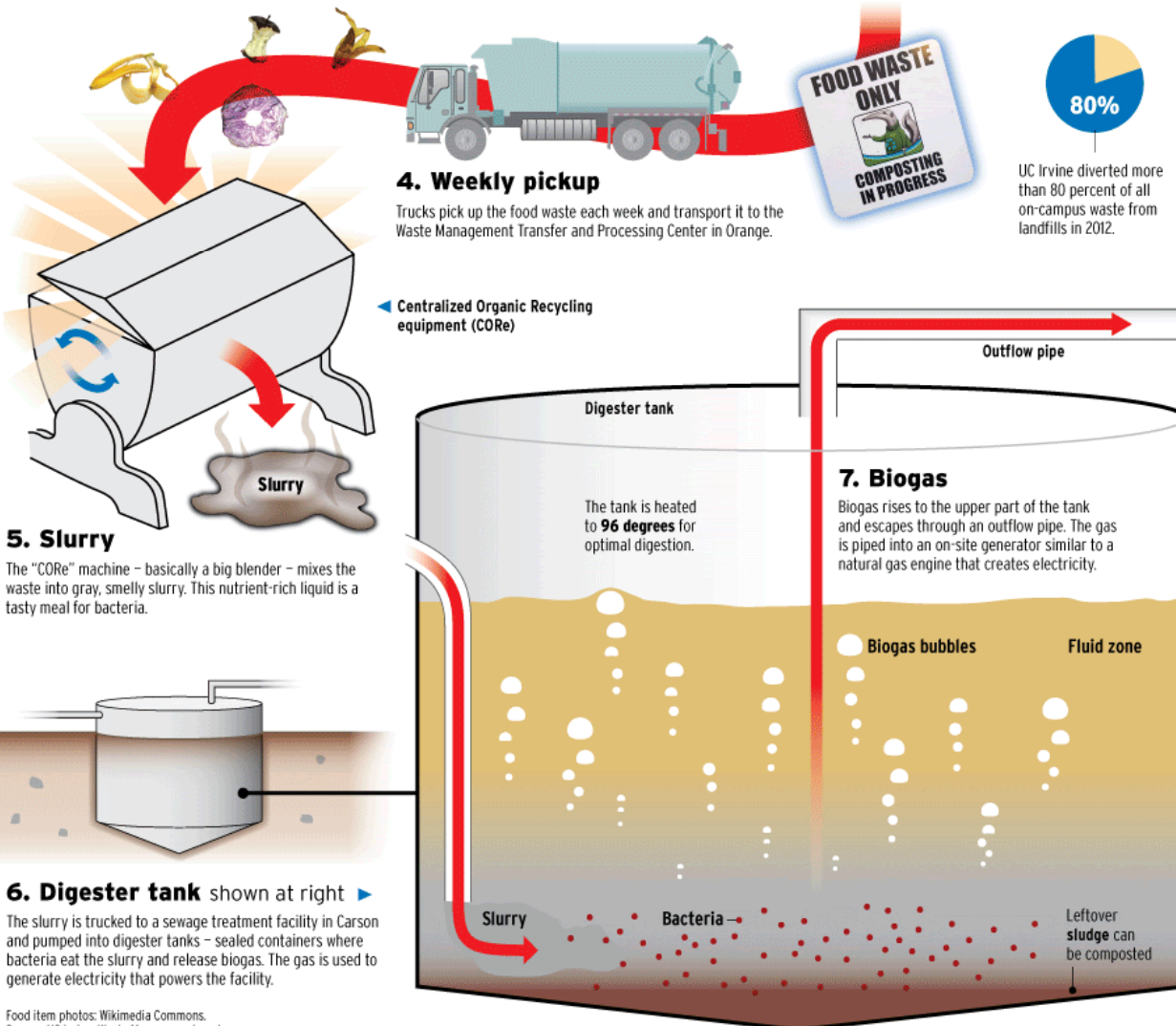
2. Dish drop

A conveyor belt transports food waste to the back of the kitchen, where employees take the plates and place food and other waste materials into color-coded bins.



3. Waste bin

Food waste bins are emptied into a large, metal composting container at the back of the dining hall where it remains until a scheduled pickup.



Food item photos: Wikimedia Commons.
Source: UC Irvine, Waste Management, and
Los Angeles County Sanitation Districts

Photographs above by Leonard Ortiz, Reporting by Anna Iliff, Graphic by Maxwell Henderson / The Register

Infographic featured in the Orange County Register's article "Food scraps fuel UC Irvine power project" reported by Anna Iliff, Graphic created by Maxwell Henderson

Supplemental Documents:

1. Article in the OC Register featuring UCI's Food Waste to Biofuels Program:
<https://www.ocregister.com/2013/11/25/food-scraps-fuel-uc-irvine-power-project/>
2. KCET SoCal Connect TV show that featured UCI's Food Waste to Biofuels Program:
<https://www.kcet.org/shows/socal-connected/clip/a-great-use-for-uc-irvines-garbage>