

Love Food, Hate Waste

Food Waste Activity Report
November 2009

University Dining Services
University of California, Davis
dining.ucdavis.edu/sustainability.html



**University
Dining Services**
UC DAVIS

University Dining Services is committed to actively engaging in procedures, policies, and practices that foster a sustainable food system at the University of California, Davis.



Love Food, Hate Waste

Educational Activity Guidelines

Background:

Each American wastes an average of 1lb of food each day.¹ This is a staggering number and accounts to nearly 30 million tons of food wasted each year in the US alone. Of our total waste stream – 12% of it is wasted food. Only 2% of this food is recycled into compost; the other 98% is wasted, buried in a landfill which creates methane gas.² Landfills are now the third largest source of man-made greenhouse gas in the U.S.

In 2007, 36.2 million people went hungry. In Yolo County, over 42 thousand people go hungry each year.³ According to the United States Department of Agriculture, if we rescued just 5% of the food that is wasted in America, we could feed 4 million people.

In order to prevent food from being wasted in all-you-care-to-eat dining facilities, it is important to educate the consumer as to the impact their food waste has on the environment. It is also important for consumers to understand the depth of hunger issues Americans still face in order to encourage the consumer to produce less waste.

Purpose of Activity:

To educate students and guests in the Resident Dining Rooms about the impacts of food waste on the environment, the ever growing issue of hunger and food access in America, and the recycling of food waste into compost.

Supplies Needed:

- 3 trash bins
- Roll of bio-bags
- Gloves
- Aprons
- 2 sieves/strainers
- 4 large plastic containers
- 2 medium tables
- 2 large tables
- Scale
- Large bowl or bin
- Butcher paper and pens

Set-up:

Arrange three trash bins in front of dish-return area. The center bin will be for 'inedible' food waste. The two outside bins are for 'edible' food waste.

Put one medium table at each entrance to the dish return area. Place two plastic containers on each table. Place a sieve/strainer in one of the plastic containers.

¹ http://www.nytimes.com/2008/05/18/weekinreview/18martin.html?_r=2&oref=slogin

² <http://www.epa.gov/waste/consERVE/materials/organics/food/fd-basic.htm>

³ <http://yolofoodbank.blogspot.com/2009/12/54000-people-in-yolo-county-struggle-to.html>

Label the plastic container with the sieve/strainer 'liquid waste' and the other plastic 'napkins'. This is where the liquid waste and napkins will be collected.

Arrange 2 large tables outside of the dish return area in a visible area. These tables will be used to display whole plates of food returned to the dish return. Make a sign that say something to the extent, *'All of the food you see on this table was returned to the dish-return. This is wasted food. After the food goes to the consumer and is returned, this food cannot be saved to feed other people. It is wasted.'*

Post the butcher paper up in the dish return area and have markers available for students to write down their comments and thoughts about the activity.

Activity:

As guests enter the dish return area, assist them in sorting out their waste.

- Liquid waste can be dumped through the sieve, cups placed on the dish return belt when emptied
- Napkins can be placed in the plastic container labeled 'napkins'
- Edible food waste can be dumped into the two outside bins
- Inedible waste can be dumped into the center bin
- Trash, recyclables and empty plates and silverware can be placed on the dish return belt

Collect any obviously full plates of food returned to the dish return and display on the table outside the dish return.

Empty the bins frequently, weighing the bags as you pull them out of the bins. Keep track of edible food waste and inedible food waste separately. Also keep track of liquid food waste by ounces or gallons.

At the end of the activity, leave the table display and butcher paper for the next meal period, as well as a display of the final weight (not including the displayed food) of all edible food waste collected.

Take pictures during the event. After the event, post the pictures and the final results (including the weight of the food displayed on the table) up in the dining rooms for the rest of the week. Use the *'Math Behind the Numbers'* to calculate out and display how much virtual water, fossil fuels, carbon dioxide was wasted, and also how many days this food waste could have fed a family of four.

Love Food, Hate Waste Results

Segundo and Tercero Food Waste Activity Results

*University Dining Services
University of California, Davis*

Segundo Dining Room

Lunch, Wednesday, November 18th

Meal count = 1,464 guests

Waste collected during meal period...

- **281lbs of edible food waste = 3.07oz per person** (*based on meal count*)
- 5lbs of inedible food waste
- 21 gallons of liquid waste = 1.85fl oz per person

281 pounds of food waste collected is also...

- 107 thousand gallons of virtual water, wasted
- 70.25 gallons of fossil fuel, wasted
- 1,405 pounds of CO₂
- Enough to feed a family of four people for 19 days

Tercero Dining Room

Dinner, Thursday, November 19th

Meal count = 972 guests

Waste collected during meal period...

- **267.2lbs of edible food waste = 4.4oz per person** (*based on meal count*)
- 52lbs of inedible food waste
- 11 gallons of liquid waste = 1.44fl oz per person

267.2 pounds of food waste collected is also...

- 102 thousand gallons of virtual water, wasted
- 67 gallons of fossil fuel, wasted
- 1,366 pounds of CO₂
- Enough to feed a family of four people for 18 days

Combined Waste Counts:

Combined counts from Segundo and Tercero Waste Activities

Combined meal count = 2,436 guests

Waste collected during meal period...

- **548.2 lbs of edible food waste = 3.6 oz per person** (*based on meal count*)

- 57 lbs of inedible food waste

- 32 gallons of liquid waste = 1.68 fl oz per person

548.2 pounds of food waste collected is also...

- 208 thousand gallons of virtual water, wasted

- 137 gallons of fossil fuel, wasted

- 2,741 pounds of CO₂

- Enough to feed a family of four people for 37 days

The math behind the numbers...

The equivalents you saw above are based on the following rough calculations...

The US Dept. Of Agriculture estimates that the average person in the United States eats .5 lbs of meat, 1.6 lbs of dairy products, .2 lbs of fats and oils, .8 lbs of fruits, .7 lbs. Of vegetables, .5 lbs of grains, and .4 lbs of sugars per day for a total of 4.7 lbs. of food per day.

Ref: <http://www.usda.gov/factbook/chapter1.htm>

1 cup of coffee needs 140 liters of water.
1 liter of milk needs 1000 liters of water.
1 kg of wheat needs 1350 liters of water.
1 kg of rice needs 3000 liters of water.
1 kg maize needs 900 liters of water.

- * The production of one kilogram of beef requires 22 thousand liters of water.
- * To produce one cup of coffee we need 140 liters of water.

Americans consume around 6,800 liters of virtual water every day.

Ref: <http://www.gdrc.org/uem/footprints/water-footprint.html>

The typical American diet requires the staggering equivalent of 400 gallons of oil each year.(1) That, in turn, generates, nearly as much planet-warming carbon dioxide as the average U.S. car creates.(2)

(1) Food, Land, Population and the US Economy. Pimentel, David and Giampieto, Mario. Carrying Capacity Network, 1994.

(2) Average US car driver emits 10,959 pounds of CO2 annually, according to the US EPA. Average US diet requires 400 gallons of oil x 22 pounds of CO2 per gallon = 8800 pounds of CO2.

ref: http://redwood.sierraclub.org/articles/December_04/FoodClimateCrisis.htm

The math:

The average person eats 4.7lbs of food a day

A family of four needs ~15lbs of food a day to survive

Americans consume approx. 6,800liters = 1800 gallons of virtual water every day.

Wasting 1lb of food wastes an average of 380 gallons of virtual water.

Americans consume on average approx. 1 gallon of fossil fuel each day – this is the energy needed to produce the food they eat.

Wasting 1lb of food wastes an average of approx .25 gallons of fossil fuel

Americans consume on average approx. 24 pounds of CO2 each day – this is the CO2 generated through producing food for the average American diet

Wasting 1lb of food wastes an average of approx. 5 pounds of CO2

Student Feedback

GRAFFITI BOARD RESPONSES

Segundo Food Waste Activity

Americans waste 27% of food produced in the U.S. Why do you think this is?

- lack of appreciation
- we have more than enough food than we need
- because of larger than enough portion sizes becoming the norm at restaurants
- it doesn't taste good
- because if you stay stuff like this, people are tempted to put whole plates of food in the dish return
- people put more on their plates than they will actually eat
- people don't think of the starving kids in China
- because we think we can
- because people are uninformed about the impact their choices make
- Because many people don't care about waste. They just eat what they want. America is based on individuals and selfishness
- It was made here.
- Because the US is too fat.
- No flavor in the food.
- Eyes bigger than your stomach
- Spoiled abundance

What can you do to help decrease food waste in the US?

- put out different sized servings so people can take big or small portions, depending on their needs
- eat all your food
- stop charging \$9 per meal
- don't get more food than you can eat.
- More accurately determine portion sizes and your hunger level
- Think about it
- Wait until you are finished with your first plate before getting seconds
- Have a starving kid with me at all times
- Eat everything
- Eat things you enjoy

Tercero Food Waste Activity

Did you know that 27% of food produced in the US is wasted?

- I know it's so sad. Save the food!
- 27%?!?!?!?!?
- Oh no!
- No, I didn't know that!
- Don't eat so much!
- Finish it!
- Don't waste food!
- Don't put the food on display [referring to the sample plate area]. It wastes hella much.
- I said the same thing to them last year [referring to above comment]. Take pictures instead of that you just keep reusing.
- I try to never waste food an rarely do.
- We are UC Davis students – and we know that Berkeley is no competition to us when it comes to saving food and composting. That's right! Go Aggies!
- Wasting food is not cool!

Each person wastes 1lb of food each day in the US. How can YOU decrease your food waste?

- take one dish at a time, you can always go back. Besides, what is the rush?
- Eat all your salad!
- Eat everything. The DC is super amazingly amazing!
- Get only food you will eat!
- Eat your sundae! You are wasting food!

Waste Audit Observations

Throughout the activity, several observations were made as to what was being wasted by the students. Here are those observations and also some recommendations on how to reduce this waste.

Observations:

- Whole plates of food were being returned to the dining room with little to no food being eaten.

Recommendations:

- heavily promote and encourage students to use the 'Try-a-Taste' program if they are unsure about the entrée provided
- create more educational signage to be displayed for food waste and how much a plate of food is worth in energy, carbon, fossil fuels, and food to feed hungry Americans

- A majority of the waste was created in pre-plated entrees with sides included on the plate.

Recommendations:

- Pre-plate entrees with and without the sides so guests can choose their preferred plate
- Pre-plate entrees in different portions – ½ portions and full portions
- Pre-plate entrees with and without the 'meat' topping, ie. salads, pastas, etc.
- Educate on portion size at POS
- Do taste-tests for quality control purposes for each entrée served throughout the meal period, not just during one time of the meal

- Mongolian BBQ platform waste was very high and common.

Recommendations:

- Provide smaller bowls for students to fill at the Mongolian BBQ
- Educate on portion size at POS
- Do a taste-test for quality control purposes for items coming off the Mongolian BBQ grill throughout the meal period, not just during one time of the meal

- A large amount of napkins were being wasted; some students were taking way more napkins than they needed.

Recommendations:

- Education on taking only the number of napkins you need
- Table Tents to remind students that the napkins, although containing some post-consumer recycled content, still come from trees and other natural resources, and require energy and carbon dioxide production to produce
- Consider implementing the Sodexo Napkin Express program; do not have napkins available at the dining room tables, have them available at couple of distinct locations around the dining room

- Many plates were returned to the dishroom with 'garnishes' and 'fixings' untouched and uneaten.

Recommendations:

- Take a look at what garnishes we are providing, and possibly relocating the garnishes and fixings to a self-serve area, so students who want said garnishes and fixings can serve themselves

- Several semi- or completely-full cups of beverage were discarded. A lot of ice was discarded as well.

Recommendations:

- Take a look at our ice-dispensers. Is there any way to control how much ice comes out per 'push'?
- Education on how to reduce waste from beverages and why it is important
- Education on how to reduce use of ice to reduce waste of water and energy

- A high volume of non-compostable, non-recyclable waste was from the individually wrapped cracker products available at the soup platform.

Recommendations:

- Switch to a bulk cracker station, where students use tongs to grab as many crackers as they want
- Serve the bulk croutons instead of the individually wrapped crackers

Overall Recommendations:

- Implement a daily waste audit program in the back of the house (pre-consumer) and the dishroom (post-consumer) to help us understand what is being wasted
- Using the data from the recommended daily waste audit, take a look at quality of the products being wasted and implement menu/recipe changes for products with a high waste
- Using projections and data collected from FoodCo, ensure majority of entrees being served have a high acceptability rate
- Audit dining program to include other forms of waste as well, not just food waste. Take a look at the following items:
 - Ketchup bottles
 - Napkins
 - Stir-sticks
 - Individually packaged ice creams
 - Individually packaged sweeteners

Pictures of Activity



Pictures of Activity



This report and activity has been brought to you by:



Sustainability and Nutrition Office
University Dining Services at UC Davis

Written by:

Danielle Lee
Sustainability Manager

Activity Coordinated by:

Danielle Lee
Sustainability Manager

Kyle Peiper
Director, Segundo Dining Room

Michael LaShure
Director, Tercero Dining Room

University Dining Services Sustainability Interns:

Lazzuly Mello
Anne-Elise Krug
Nancy Guardino
Genna Lipari

Special thank to:

Linda Adams
Sustainability and Nutrition Director

Managers and staff of Segundo and Tercero Dining Rooms