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## **Food Waste at Carleton**

### **Introduction**

Students in Jennifer Everett's Environmental Ethics class were required to choose a topic and create a public project revolving around the idea of sustainability. One of the categories was food waste. The people in our group chose this topic because we were aware of how much food is wasted here at Carleton College; either we had friends who had worked in one of the dining halls, or we had worked there ourselves, and knew the relative quantity of food that is thrown out. Because of this awareness, our group wished to convey this same knowledge to others, particularly other Carleton students.

Ultimately, it would be our goal for Carleton to produce zero food waste as a first step in creating a more sustainable campus environment. We hoped to initiate this by raising awareness about student food waste through a demonstration. In this demonstration, we publicly collected and weighed all uneaten food from students' trays in both Burton and East dining halls. From this, we hope that Carleton students will realize how much food they waste, and the implications of such habits. The demonstration was then followed by the posting of tips on how to reduce food waste, as well as the publicizing of the food waste statistics.

It is our hope that this project has created a behavior change in some students that will result in less food waste, or at the very least, made them aware that the food they throw out does not simply disappear. In addition, we hope that some of the information and data gathered in this project will help with future sustainability projects, including the possible placement of a composting system on Carleton's campus.

## **Methods**

Our group first began by getting in contact with Joe Winegardner, the General Manager of Dining Services, and Dan Bergeson, the Director of Auxiliary Services and Special Projects, in order to discuss our project plans and objectives with them. It was important to talk to them first in order to get their permission for the project. They were both enthusiastic about the goals of our project and helpful in creating a more plausible execution plan. We had originally considered asking them to have the dish-room workers set aside all the food waste at a given meal so we could come in later and weigh it. After discussing the logistics of this with them as well as some other methods, we decided on having members of our group and volunteers scrape plates and weigh the food throughout each meal. We discussed locations of public waste demonstrations and they took us through the dish-rooms to get a sense of how our weighings would work. They also discussed with us which meals during the week attract the most students and various other statistics about food flow through the dining halls. This helped us to decide when we would do our tests and how many volunteers we would need.

We then put together a schedule of when we wanted to do our weighings, starting at dinner on Sunday, October 23 at dining East (the LDC). The schedule then switched off meals at Burton and the LDC in order to get numbers from both dining halls (see appendix A). A public waste demonstration would be done at dinner in Burton on Monday, October 24 and one at the LDC on Tuesday, October 25. At least one member of our group would be at each dish-room weighing and that we would all come to the public demonstrations. Our tests would be completed at dinner on Wednesday, October 26. We then attempted to get volunteers to help us scrape plates more efficiently from SOPE, MPIRG, WHOA house, and our environmental ethics

class. We obtained the scale from Jen Everett after failing to be able to get one from the biology department or the Recreational Center.

At our tests our group got to wear fun plastic aprons, plastic gloves, and hairnets. For scraping food my weapon of choice was the spoon, but many other group members preferred the fork. We scraped all the food as it came by into garbage cans. Once the weight seemed to be around 20 lbs we weighed the bag. We used a bathroom scale by weighing ourselves first then weighing ourselves with the bag of garbage and subtracting out the human weight. In the LDC we hauled the garbage out back to the dumpster, but in Burton we usually tipped the food down the disposal. Our group did not include banana peels, apple cores, or the like. However, at our public demonstration at the LDC we ended up including chicken bones because it was difficult to separate them and keep up a pace that was quick enough not to irritate passing students; thus the numbers for that night are influenced by the presence of non-edible bones.

After our initial weighings we decided to do follow-up tests at dinner at the LDC on Tuesday, November 1 and at Burton on Wednesday, November 2.

## **Results and Discussion**

See Appendix A for food waste data.

After collecting all of the data and comparing the amount of food that was wasted to the amount of people who ate at the dining hall that night we were able to see that on average people at the LDC waste about .09-.1 kg/person (.2-.24 lbs/person) of food a meal, whereas at Burton students wasted on average about .06-.08 kg/person (.16-.18 lbs/person). These numbers are very interesting because that means that on average there was 10% more food waste per person at the LDC than at Burton. We think that this could be because more food is self-served at Burton than at the LDC. Also meals that come in big portions such as stir crazy and soups were

commonly wasted. Also huge contributors to food waste were items that automatically come with meals such as French fries or tator tots that come with meals from the grill or rice and beans served with many of the Spanish meals. Any meal that the students did not serve to themselves were the most likely not to be completely eaten, for example there was a higher portion of main meals only halfway eaten than salad, bread, cereal or sandwiches. This could be because when students make their own part of their meal they are more likely to only take the food that they know they like and to take a portion that is consistent with how much they can eat.

### **Recommendations**

It's not all bad news. There is a lot that students, and even dining halls, can do differently to cut down on food waste. Realizing this is a problem is of course the first step, so you are well on your way simply by reading this report. Other simple steps students can take to cutting down on their food waste are things like taking smaller portions when the option is given, and what we like to call "grazing." This is where a student walks through the entire dining hall before taking any food to decided exactly what he or she wants, and maybe trying little bits of something to determine whether or not a dish meets standards if there is uncertainty, as you can always go back for seconds. If serving yourself isn't an option, ask the worker to give you a smaller portion. Also, many students only like parts of a given food, but leave the rest, like muffin bottoms or pizza crusts. Finding a friend to sit with who likes eating these "less desirable" parts of your food also drastically cuts down on food waste.

There are also many things that dining hall employees can do differently to cut down on the amount of food that is thrown away. As mentioned above, more food seems to be thrown away when students are not allowed to serve themselves their desired portion sizes, and when "extras" are added on to other dishes, such as French fries or tater tots with burgers. We believe

that giving students more freedom to choose what they want and how much of it will drastically cut down on food waste, but unfortunately, this alone will not solve the problem.

In order to truly make a difference in this endeavor, students must be conscious of their food waste and the affects it has at all times, or even after all this project, nothing will change. During our public demonstration in Burton, when we were right by the door and everyone could see us on their way into the dining hall, there was far less food waste than we normally measured. The reason for this drastic decrease, we believe, is that students were actually held accountable to their peers for wasting food, which led many to be embarrassed or feel bad. Upon seeing us measuring food while entering the dining hall, many students made remarks regarding the fact that they would be sure to not waste any food that night because of our presence, and we systematically responded by telling them they should do that every night, but that particular comment was typically met with very little appreciation or agreement.

Even though people wasted considerably less food when there were people watching, we are skeptical that this experiment actually made a difference in the behavior of the average Carleton student. After our public demonstration days, when we told students of how much food was being wasted, waste numbers went right back up the following night to where they had previously been. Though disappointing, this is not the end. Now that we have these impressive numbers to work with, there are many things we can do. First of all, we plan to publicize our project and the amount of food that was wasted in just these few days. If we can show people the affects their wastefulness actually has on the community and the environment, we hope that more people will take care in the dining halls.

Another goal is to use the statistics that we gathered to further other projects, specifically getting a composting system here in the dining halls. Though this has been an issue that many

groups have worked on unsuccessfully in the past, it is not something that should be given up on. With composting going on now in campus houses, and the new compost at St. Olaf, this project is making head-way, and can definitely work in the future. (See appendix D for more information on composting at Carleton.)

**Appendix A – Figure 1: Weight(lb) and mass(kg) of food waste per meal in East and Burton Dining Halls.**

**Sunday, October 22, 2005**

LDC dinner            58.968 kg (130 lbs)    581 people    .1 kg/person (.22 lbs)

**Monday, October 23, 2005**

Burton breakfast    13.154 kg (29 lbs)    208 people    .06 kg/person (.14 lbs)

LDC lunch            48.99 kg (108 lbs)    641 people    .08 kg/person (.17 lbs)

Burton dinner        39.92 kg (88 lbs)    527 people    .08 kg/person (.17 lbs)

**Tuesday, October 24, 2005**

LDC breakfast        16.33 kg (36 lbs)    323 people    .05 kg/person (.11 lbs)

Burton lunch         30.84 kg (68 lbs)    443 people    .07 kg/person (.15 lbs)

LDC dinner            69.63 kg (153.5 lbs) 624 people    .11 kg/person (.25 lbs)

**Wednesday, October 25, 2005**

Burton breakfast    canceled                NA

LDC lunch            70.76 kg (156 lbs)    656 people    .108 kg/person (.24 lbs)

Burton dinner        42.87 kg (94.5 lbs)    609 people    .07 kg/person (.16 lbs)

**Tuesday, November 1, 2005**

LDC dinner            52.62 kg (116 lbs)    590 people    .09 kg/person (.2 lbs)

**Wednesday, November 2, 2005**

Burton dinner        41.05 kg (90.5 lbs)    499 people    .08 kg/person (.18 lbs)

## Appendix B: Project Proposal

Carleton's Sustainability Initiative:  
Student Food Waste Data Collection  
11/15/05

Julia Twichell  
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Brittany Larson

Anne Burmaster  
Courtney Dewart

### Vision Statement:

We strive for zero food waste at Carleton. Huge amounts of energy from around the world go into growing, processing, cooking, and serving food. When students overconsume food and throw out the surplus that they do not eat, they are wasting huge sums of global energy. We want to raise student awareness about this waste and teach them to consume smartly and sustainably. We envision a dining system where students eat everything they serve themselves, and where any food not eaten will be composted and reused to fertilize Carleton grounds. In this way, all food entering Carleton will contribute its energy to the well-being of the college.

### Goals:

Fall 2005:

- ♦ To raise awareness about student food waste through demonstration. We want to weigh food in front of students so they come face-to-face with their own wasteful contributions. We want students to think about waste and reconsider their individual role in society. We also want to inspire students to waste less food; however, we realize that this may be beyond the reach of our demonstration.
- ♦ To provide students and administration with the statistical information they need to understand the scale of food waste. We will measure food waste in the dining halls at every meal for four days, plus two extra dinners, to generate statistics that show how much food students throw out. We hope this knowledge will inspire students to waste less.

2005-06 academic year:

- ♦ To generate data that can be used, in the future, to help convince the administration of the need for a composter for dining hall wastes. We realize that even with students actively trying to waste as little food as possible, items such as fruit peels, bones, and the surplus of cooked food will need a sustainable place to be thrown out. Composted food turned to nutrient-rich soils could be a natural and less expensive replacement for fertilizer.

### Process:

1. Meet with dining hall managers, Joe Winegardner and Dan Bergman, to discuss weighing food in the dishroom and in two public demonstrations in front of tray drop-off stations.
2. Prepare for the demonstrations. Make posters to publicize our demonstrations. Go to various environmental groups to recruit volunteers to help weigh food in the dishroom. Gather materials such as a scale and waste bins.
3. Complete food weighings and hold demonstrations during the beginning of 7<sup>th</sup> week of fall term. Demonstrations should be fun, and should involve positive interaction with students about the study. Behind the scenes food weighers will be as helpful as possible to the dining staff.
4. Publicize our data using trifolds in the dining halls and in a paper.

5. Continue on-going discussions with anyone who will listen to keep the subject on people's minds.

Ethical Issues:

1. The institution of Carleton is morally responsible for the well-being of this planet, just like every other institution should be. Since this is the case, Carleton is responsible for a consistent drive towards greater sustainability and towards shrinking its ecological footprint.
2. Every individual involved in Carleton has a responsibility to contribute to campus sustainability through personal action and through inspiring others to play a part. Our food waste group fits in here as both trying to set an example through personal action against food waste, and through helping others learn about the problem of waste so that they will also learn to take an individual part in lessening waste.
3. A public demonstration carries some risks. The demonstrators may come off as "experts" imposing on others what is "right." People may feel put upon to act a certain way, and may end up being more opposed to lessening food waste than before. People may not want their food measured. People may not like being embarrassed in front of others if they feel their plate is too full. This could turn people against sustainability. Nevertheless, we feel that a demonstration is the only way to reach people. We think that most people understand food waste, because excess has long been a major problem in America. Therefore, our demonstration may not reach some people, but hopefully the majority will understand our message to be informative, not blaming.

Resources:

[Provide a list of sources that discuss Carleton's and/or other campus efforts to deal with the subject of your project.]

## **Appendix C – List of Contacts**

### *Food Waste Group Member Contacts:*

Julia Twichell, '08 – twichelj  
Amanda Smith, '08 – smitham  
Anne Burmaster, '08 – burmasta  
Courtney Dewart, '09 – dewartc  
Brittany Larson, '08 – larsonb

### *Faculty and Administration Contacts:*

Jennifer Everett – jeverett, Professor of Philosophy  
Joe Winegardner – jwinegar, General Manager of Dining Services  
Dan Bergeson - dbergeso, Director of Auxiliary Services and Special Projects  
Phil Camill – pcamill, Associate Professor of Biology

### *Beyond Carleton:*

<http://www.stolaf.com/green/composter/index.html>

Nan Jenks Jay - jenksjay@middlebury.edu, Director of Environmental Affairs at  
Middlebury College

### *Green Organizations on Campus:*

EAC  
Green Network  
SOPE  
Mpirg  
Greenhouse  
Farmhouse

### *Thanks To Our Volunteers:*

Matt Kirby  
Bessie Schwartz  
Dana Kraus  
Erica Prochaska  
Meredith Klekotkla  
Andrew Blum  
Mathias Bell  
Aaron Cross  
Emily Legrand  
Jess Schoenleber  
Beth Bennett  
Adam Sponseller  
Cayce Hill

## **Appendix D – Information on Composting**

Many different student groups have tried to convince Carleton to start composting in the past, yet somewhat unsuccessfully. In 2004, SOPE started a composting program for campus housing, which is an amazing first step, but progress on this issue cannot stop there. Many groups and individuals have looked into joining up with St. Olaf, their compost being large enough to handle trash from both schools. However, this has not happened for a couple of different reasons. We are not completely clear on the details, but for some reason, as far as this compost goes, our trash is “foreign” trash, and if we were to mix it with St. Olaf’s, this compost would be considered a commercial compost. After Carleton facilities offered to pay the extra costs of this, sharing the compost is still currently not an option, for reasons that I am not completely clear on. To check the status of St. Olaf’s compost, contact facilities here at Carleton, specifically Richard Strong.

Other problems associated with composting our dining hall waste here at Carleton are economic issues, and placement issues. Where will the compost go? How will we pay for it? Thus far, these questions remain unanswered, but this is no reason to stop here. Schools both smaller and larger than us have done it, so there must be a way! Traditional composting is great, but there are also other compelling options to look into. Living Tubs, for example, is another form of composting that is much cheaper and much more manageable than traditional composting, and is something that should be looked into in the future.

**Appendix E – “No Food Left Behind” Article written by Amanda Smith for the Carl, published 11/4/05.**

Things I learned this week: cold bean paste plops off of a plate in a single hunk, Malt-o-Meal sticks to the bowl and refuses to come out, people mix various goops together to create truly bizarre concoctions. Three wraps on one tray with only one bite taken. Entire bowls of soup. Completely unidentifiable paste hand-brewed by, well, someone. A stack of donuts. Plate after plate after plate of seemingly untouched Stir Crazy. I scraped all this and hundreds of pounds more off of plates and into the trash. Where did it come from? You. Me. That guy that sits behind you in bio. The girl with the weird hair. The kid with the tattoo. That guy over there, the girl next to him, and the rest of us. We waste massive amounts of food every day and my partners and I set it as our task to find out exactly how much.

We scraped plates at breakfast, lunch, and dinner at both LDC and Burton for over three days. We did two public demonstrations, but unbeknownst to you, we were stealthily hiding in the back, ever watching, ever scraping, and ever weighing, on many other occasions. We found that at any given lunch or dinner during the week at the LDC over 600 people stuff their faces with all sorts of dining hall delicacies, but leave over 100 lbs of food behind to be hauled back to the dumpster. Sunday night: 130 lbs left behind by 581 students. Tuesday night: 154 lbs haphazardly abandoned by 624 students. Burton, even with its smaller attendance numbers managed to fill up bag after bag of food waste, reaching approximately 90 lbs at any given dinner.

Many of you saw us frantically scraping your food scraps into garbage cans when we did our public demonstrations. I hope you peered inside the bucket and examined the gooey, wet, heap piling ever higher, becoming ever more disgusting. We emptied the buckets after about 20 lbs or so accumulated and started over so it might be hard to think of what 150 lbs of food might look like. Think about your plate when you're done with dinner. Let's say you have some salad scraps left over, maybe a bite or two of dessert, some meat, a big heap of mashed potatoes. Now scramble that all up. Mix it with your neighbor's food. Splash some milk on there for good measure. Alright, now multiply that by 150. Make you a little queasy? I hope so. It makes me queasy and I spent a good part of my week staring at it.

When we did our public demonstrations we certainly got some interesting responses. One person curtly asked, “So what? Are you trying to make me feel guilty?” Yes. Yes, we are. Good guess. I mean, shouldn't you feel at least a little guilty as you throw away food? Don't you feel even a little twist in the pit of your stomach that you are so privileged that you can unceremoniously throw away food when there are people who don't get enough to eat in a day? I know I do. I shudder at the thought of leaving food. And apparently I'm not alone. As we scraped dishes people often said to us, “I ate every scrap of food on my plate tonight because you're here.” Well, why didn't you do that last night? Are you going to do it tomorrow night? You're embarrassed because someone is watching; maybe you fear that they are judging you? If you feel guilty doing something when you are being watched, shouldn't you reconsider doing it when no one is around? Actions are not good or bad just because someone is watching; the act is still the same even when no one is around.

Ok, so you've convinced me that I should reduce my food waste, what do I do now? How can I change? Please, enjoy and take to heart some of the following eating tips:

1. Walk around the entire food serving area in order to get an idea of what you actually want to eat. Don't just jump on the first thing you see, and then get more and more as you are tempted by other edible delights. Figure out what you want most then just take that.
2. Just take a bit at first. You can always go back for more. Why get three wraps before you even know if you like them or not?
3. Ask for smaller portions. I know it would be nice to be able to serve ourselves exactly how much we want, but asking for a little bit works rather well. You can even ask for a specific amount. "Three potato hunks and one chunk of meat, please," works rather nicely.
4. Share with friends. If you don't like something ask your friends if they want it. Who cares about sharing germs?
5. If nothing looks appetizing, fall back on old tried-and-true meals of cereal, sandwiches (I highly recommend peanut butter and banana on lightly toasted wheat bread), and salads. Don't take a whole bunch of food that you know you don't want.

So, next time you wander through the dining hall in search of a scrumptious meal, please keep all this in mind. If you need the threat of someone watching over your shoulder, just know that I am always watching. I know who the wasters are and who the clean-platers are. When your mailbox or dorm room gets TPed and an angry message about being a waster is tacked to your door, you'll know who did it. As you walk to the tray drop-off center and you feel the hair rise on the back of your neck, and you feel as though you're being watched, feel confident that you are. No, but seriously it is really simple to not waste food, so why can't we all come together on this one? Let's all march forward in a united front against food waste! Our campaign slogan: **NO FOOD LEFT BEHIND!**

## Appendix F

### Try these Consumption Tips!

*Finding your perfect-sized, perfect-tasting meal is tough in a dining hall*



1. **Take SMALLER PORTIONS, if possible** in case you don't like what you have taken.
2. **Take SEVERAL TRIPS** until you feel full. This way you won't get too much food. You can always get more.
3. **GRAZE.** If possible, sample food before taking a portion to make sure you like it.
4. **ASK for smaller portions** at stations where you can't serve yourself. The dining hall staff won't bite!

**LITTLE KNOWN FACT!** Student consumption of food is what Sodexo uses to decide how much food to cook for a day. A common myth is that the dining hall cooks too much food and throws out a large excess of food. However, according to Sodexo managers, most of the food that ends up in the trash has been on a students' tray. We intend to find out just how much food that is, because if students can cut down the amount they throw out, Sodexo can then buy less food for cooking.

### Food Waste Study Results

*We weighed the amount of food students wasted at each meal over the course of 4 days, 3 meals a day.*

Goals:

- TO Motivate the student body to consider the amount of food they waste at each meal.
- TO Inspire students to cut down on their waste.

<i>Location/Meal/Date (Oct)</i>	<i>Waste (lb)</i>
LDC/Dinner/Sun 22	130
Burton/Breakfast/Mon 23	29
LDC/Lunch/Mon 23	108
*Burton/Dinner/Mon 23	88
LDC/Breakfast/Tues 24	36
Burton/Lunch/Tues 24	68
*LDC/Dinner/Tues 24	154
Burton/Breakfast/Wed 25	<i>cancelled</i>
LDC/Lunch/Wed 25	156
Burton/Dinner/Wed 25	95
LDC/Dinner/Tues 1	116
Burton/Dinner/Wed 2	91



**\*PUBLIC Demonstration** (remember when those annoying girls in dorky plastic aprons held up the tray drop-off and tried to make you feel guilty about wasting your food?)

### Discussing Our Results

We learned, over the course of this experiment, that it is difficult to change people's habits. However, we still wanted you to at least think about the implications of your own personal actions. It is important to learn that even individual action can make a difference.

During our public demonstrations, we got many similar reactions:

"Look at how little I wasted!"

"I'm so embarrassed!"

"Are you guys trying to make us feel bad?"

Yes, we were trying to make you feel *something*, whether guilt, embarrassment, or pride. We want you to start *thinking*, even if you haven't yet started doing. We hope that the longer you think about it and the longer it bugs you, the more likely you will start making little changes.

We also would like to use this data to get a composter for dining hall food waste in the future. This does not let you off the hook! Nevertheless, we realize that waste will be produced no matter what. A composter would be a great way to keep decomposable waste out of the landfills and make Carleton a greener college.

This project is brought to you by Jen Everett's *Environmental Ethics* class. Group members are Julia Twichell, Amanda Smith, Anne Burmaster, Brittany Larson, and Courtney Dewart.

Many thanks to everyone who helped us out!