REDUCING WASTE AT GRAB N' GO

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ABSTRACT

The dining halls at Smith College generate approximately 1/3 of the institution's total waste stream. A large proportion of this fraction is due to the Grab n' Go system that two dining halls, Hubbard and Chapin, currently practice during weekdays. Grab n' Go uses large amounts of packaging and is an area where many improvements could potentially be made to increase the sustainability of Smith dining. This project sought to investigate possible measures that could be taken in the future in order to reduce the amount of waste that is produced by Grab n' Go. The results of the interviews, observations, and survey that were part of this investigation suggest that although Dining Services is on the whole making significant efforts to reduce waste, there are still a few improvements that can be made. At the present moment the biggest sustainability challenge for Grab n' Go is to find a cost-effective way of properly disposing of the thousand or more plastic containers that are used every weekday. These containers are compostable and have the potential to be a much more environmentally-friendly option than traditional plastics; however, this potential is not realized because they are not properly disposed of and instead end up in Northampton's landfill where they are unable to break down. Significant challenges stand in the way of properly composting these containers at the present time. There are many additional smaller changes that can and are being made to decrease the amount of waste that is produced by Grab n' Go. Dining Services is already very aware of the waste that it creates and is taking steps to reduce this amount. Student behavior is thus where much future improvement needs to be made.

INTRODUCTION

Smith students lead busy lives. On any given day there are many students who do not have the time to sit down for a meal during lunch hours. For this reason, two dining halls on campus offer "Grab n' Go" lunches. As the name implies, these locations provide food that is prepackaged and ready to be transported off to wherever the busy student is headed next.

The dining hall in Hubbard House currently serves Grab n' Go breakfast sandwiches between the hours of 11am and 1pm Monday through Friday. Food options at a typical Hubbard Grab n' Go meal include a hot sandwich, yogurt, a side salad, cereal, bagels, cottage cheese, and a limited selection of fruits. Chapin House also has Grab n' Go dining and serves a traditional lunch menu between the hours of 10am and 1pm

Monday through Friday. Typical options at Chapin include two or three varieties of cold sandwiches (with both meat and vegetarian alternatives), an entrée salad, side salads, at least one type of baked good, yogurt, potato chips, fruits, vegetables, and a side dish such as pasta salad, couscous, taboule, or three bean salad. Students are allowed one entrée per visit to Grab n' Go and are limited to a strictly enforced total of five items.

Almost all of the items that are available at both Grab n' Go locations are packaged in either wax paper, plastic, or foil. The only items that are not packaged are the "hand fruits" such as apples, oranges, bananas, and pears. Cups are not provided at Grab n' Go and students are expected to bring their own travel mugs or reusable water bottles if they want to take a beverage.

The cutlery and the plastic containers that hold the entrée salads, side salads, cottage cheese, sliced fruit, side dishes, and cereal at Grab n' Go are all made out of a corn-based biopolymer that is manufactured by NatureWorks LLC. When exposed to the right combination of environmental conditions, biological processes cause this biopolymer to break down at rates similar to those of naturally compostable materials (NatureWorks 2009), thus these containers have the potential to greatly reduce the impact of Smith's Grab n' Go dining system.

Grab n' Go is very popular at Smith College and every weekday large numbers of students visit both Hubbard and Chapin to get pre-packaged meals. All of this packaging that gets used and thrown out every weekday creates a huge amount of waste. Food waste from the dining halls generates about one-third of Smith's total waste stream (Dombkowski, personal communication) and the Grab n' Go houses contribute a significant amount to this portion.

The objective of this project was two-sided. First of all it was an investigation of some possible changes that could be made to reduce the amount of waste that is generated by Grab n' Go dining. Secondly, this project sought to come up with ways to make the manner in which this waste is generated more environmentally-friendly. It is important not only to decrease the quantity of waste that is produced, but also to reduce the impacts that this waste has on the environment.

METHODOLOGY

This project took several different approaches to the investigation of the waste that is generated by Grab n' Go dining at Smith College. These different methods included: interviews with employees of Smith's Dining Services and Facilities Management departments, an analysis of the numbers of students who swiped into all the dining halls for lunch throughout campus, a small-scale survey of the students who visited Hubbard for Grab n' Go, and observations of student behavior in both Hubbard and Chapin's dining halls.

During my interviews with staff members I sought to get an idea of the changes that have been made to the Grab n' Go system since it was first instituted in 2004, to learn about possible changes that are already being considered for the future of Grab n' Go dining, and to discuss the feasibility of several new ideas.

During my interviews I spoke with Pat Mahar, an area manager for Dining Services. She provided me with spreadsheets of the numbers of students who visited each dining hall throughout the day during two randomly selected weeks. Dining Services automatically tallies these numbers whenever the dining halls are open by recording the

number of students who swipe their OneCards to get in the door. The numbers that I had available to me were broken down hour by hour for the weeks of November 25 through December 1, 2007 and February 17-23, 2008. In my analysis I ignored the numbers for February 20, 2008 because this was Rally Day and as part of Smith tradition afternoon classes are canceled on this day and the houses that normally serve Grab n' Go during lunch hours instead serve a traditional sit-down meal. While analyzing the numbers for every weekday excluding Rally Day, I looked for trends and patterns in the numbers of students who visited each dining hall on campus between the hours of 11am and 1pm during weekdays. Although some of the dining halls are open for lunch outside of this timeframe, I chose to look specifically at these two hours because they represent the times when both Hubbard and Chapin are open for Grab n' Go.

During two weeks in April I also conducted a small-scale survey of the students who came to eat at Hubbard for lunch during the week. These surveys were printed on scrap paper and left on the tables during Grab n' Go hours for students to fill out on a voluntary basis as they ate lunch. The target population for this survey was originally the students who come to Hubbard for lunch, but do not take their meals to go and instead sit in the dining hall and eat. The survey questions, which are reproduced in Appendix A, sought to investigate the motives behind this particular behavior. The answers to some of the questions can be generalized to the larger student population of Grab n' Go eaters.

To further understand the behavior of students who get their meals from the two Grab n' Go sites on Smith campus, and to get a better idea of the motives behind the particular group of students who sit down to eat their Grab n' Go lunches in the dining halls of Hubbard and Chapin, I also carried out observations of students that came to

these two locations during lunch hours on weekdays. As a resident of Hubbard house and an occasional student worker during Grab n' Go, I have made many informal observations of student behavior during meal times. I am also in frequent contact with Hubbard House's dining staff, who have shared some of their observations and opinions with me. The semi-structured observations that I carried out in Hubbard and Chapin's dining halls were meant to supplement these informal observations. For my first observation I visited Hubbard's dining room between the hours of 11am and 1pm on Tuesday April 7, 2009. I visited Chapin between the hours of 12 and 1pm on Wednesday April 8, 2009. During these observations I made special note of how many students were sitting down to eat their meals at a given time as well as how many of them were studying, sitting alone, or chatting with friends. These observations were meant to provide a picture of how students utilize Grab n' Go and the dining halls during weekday lunch hours.

RESULTS

This section contains only the quantitative results of my investigation. Most of the qualitative information from interviews is outlined in the discussion section.

1. DAILY NUMBERS

Analysis of the hourly counts of students who visited each dining hall proved that, of the nine locations that are open for lunch on weekdays, Chapin is the most frequently visited, with an average of 332 students per lunch period. Hubbard was the fourth most popular, with an average of 192 visits (Figure 1).

2. STUDENT SURVEY

A total of 55 students responded to the survey, 11 of which were residents of Hubbard House. Responses to the question of where students eat lunch during the week when they are not at Hubbard showed no clear trend; no other dining hall was mentioned much more than the others and students appeared to eat lunch at a variety of other locations all over campus.

The survey responses suggest that most students who sit and eat their Grab n' Go lunch at Hubbard do so because it is located within close proximity to the academic building where they have class either right before or right after lunch (Figure 2).

Other findings of the survey include: respondents ate a Grab n' Go meal in Hubbard house an average of 2.39 days per week; 40% took cereal as one of their five items; 67% claimed that they do not use their complimentary Smith water bottle on a regular basis; and 78% were in favor of getting a tupper ware container at central check in instead of a water bottle. The implications of cereal, water bottles, and tupper ware to for the reduction of waste at Grab n' Go are explained in the discussion section.

3. Observations

In my observations at Hubbard House, I found that the proportion of the total number of people passing through the line and taking cereal as one of their five items was lower than the proportion of survey respondents who took cereal. According to my observations, only about 20% of the students who get a Grab n' Go meal from Hubbard take cereal as one of their five items, as opposed to 40% of survey respondents who did the same.

Similar numbers of students sat and ate their meals in Hubbard and Chapin on the days when I carried out my observations. An average number of 24 students were sitting in Hubbard's dining hall between noon and 1:00 on April 7, 2009. Of this total, an average of 71% were chatting with friends at any given point in time and 12% were studying or doing school work. In Chapin an average of 27 students were sitting at the dining tables eating their lunches while I was there. An average of 85% of these students were chatting with friends and 15% were studying or doing schoolwork.

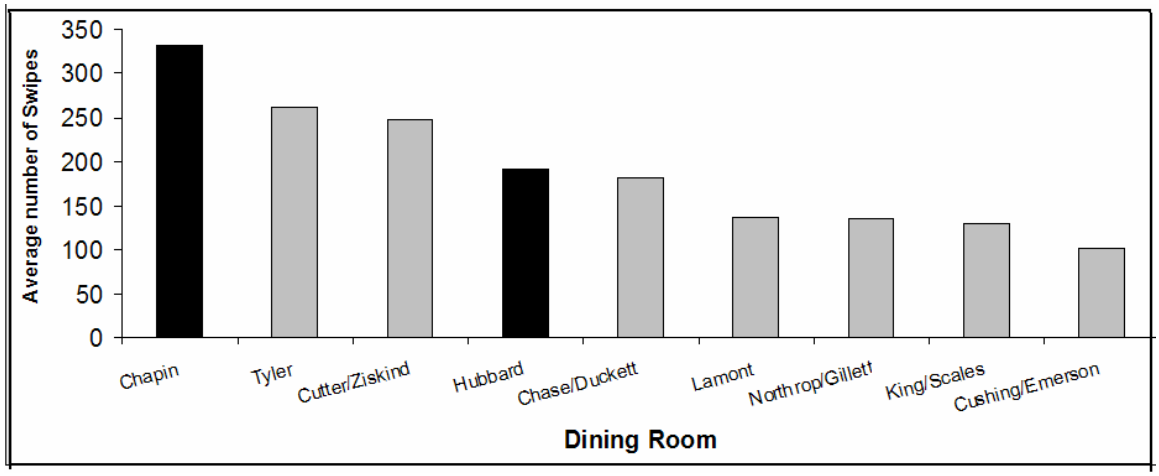

FIGURE 1: Popularity of dining halls during lunch hours.

The bars in this figure represent the average number of visitors per lunch period, measured as the number of card swipes, between the hours of 10am and 1pm during the weekdays of November 26-30, 2007 and February 18-19 and 21-22, 2008. The two black bars mark the two Grab n' Go houses on campus. All of other dining halls serve traditional sit-down lunches.

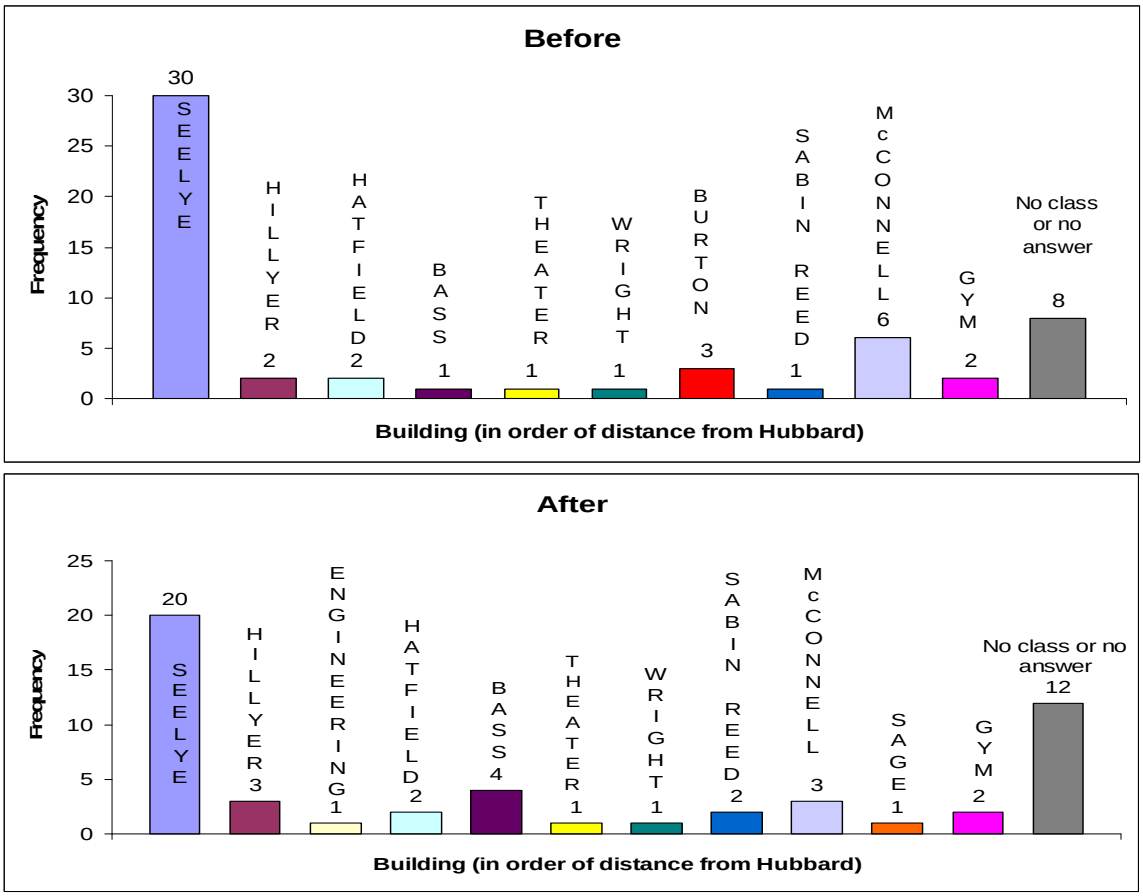

FIGURE 2: The convenient location of Grab n' Go dining halls.

This figure shows the location of academic buildings where survey respondents reported having class before and after sitting down and eating their Grab n' Go meals at Hubbard. Academic buildings are ranked in order of their proximity to Hubbard, with Seelye Hall being the closest at 0.02 miles and the gym being the farthest at 0.25 miles.

DISCUSSION

Smithies love Grab n' Go and the freedom that it offers. As is shown in Figure 1, the two Grab n' Go locations are very popular during lunch when compared to the other dining halls on campus. There are many reasons why this is the case. First of all, Grab n' Go allows students to eat on the run when they have a meeting to attend or are rushing off to a five college class during the normal lunch hour. Food that is pre-packaged also means that students are not confined to the dining halls. They can take their food back to their rooms and finish work for their next class. They can take it to the living room of

their own house or to another location and meet up with friends. If the weather is nice, many students can be found eating their Grab n' Go lunches outside. Even if a Smithie does not have somewhere to be during her midday break from classes, she can still benefit from a Grab n' Go lunch. The two Grab n' Go locations are also very centrally located on campus and are very close to many of the academic buildings. As the results of the survey suggest (Figure 2), the convenient locations of Hubbard and Chapin likely play a large role in their popularity.

Besides the popularity and convenience factors, there are a few other reasons why Smith will not get rid of Grab n' Go any time soon. Numbers are one big reason. Having food pre-packaged so that students can pick it up and head off to another location allows the dining halls to serve more people than they would normally be able to if the majority of the students did not leave to eat elsewhere. According to Pat Mahar, an area manager for Dining Services, having Grab n' Go meals in Hubbard and Chapin between the hours of 11am and 1pm on weekdays allows the dinging halls to serve more students than they would otherwise be capable of.

Economics also play an important role in the dining system. There are obviously costs associated with the purchase of all the wax paper, plastic wrap, plastic containers and cutlery that are required for Grab n' Go and there is an additional cost for the disposal of all the waste that is produced. However, there are also some hidden ways in which Smith actually saves money by having Grab n' Go style lunches. For example, when no dishes are used to serve food, Smith does not have to purchase as much soap or pay to for the electricity required to run the dishwashers for an extra hour or two. Smith also does not have to pay wages for the two student workers that are normally hired to

wash dishes during meal times (Tierney Richi, personal communication). Also, according to Kathy Zieja, the director of Dining Services, before Smith offered pre-packaged food, students would occasionally remove china from the dining halls and not return it. Custodians have apparently reported finding dishes in the trash when students took them from the dining halls to eat in other locations and threw them away rather than make the effort to return them. Occurrences of such instances are much less frequent now that Grab n' Go allows students to take food out of the dining halls (Zieja, personal communication).

Although Grab n' Go is here to stay, it still produces large amounts of waste and thus there is much room for improvement within the system. Many students suggested with their survey responses and in general conversation with me that Smith could possibly reduce the waste generated during Grab n' Go by using a half-and-half approach and serving both pre-packaged food and regular meals at the same time, thus allowing the students who sit and eat in Hubbard and Chapin's dining halls and living rooms during lunch to use china and not waste paper and plastic. This, however, is not a feasible solution for many of the same reasons stated above, including the cost of dishwashing. The kitchen and dining staff that work during Grab n' Go are also so busy preparing enough food for the large numbers of students that come through that they simply would not have time to serve two separate styles of lunch and clean dishes at the same time. This fact was confirmed both by many of my interviews and by the observations that I did in the two houses. The dining staff are extremely busy during Grab n' Go hours. Hubbard gets a rush of students for about 10-15 minutes immediately after classes get out, with most of the students coming from nearby Seelye Hall (Figure 2). The day that I

was observing at Hubbard, the dining staff had to refill the buffet trays with sandwiches three times in five minutes because so many students were coming through at once. The sandwich trays in Chapin were also empty for most of my observation period. As soon as more sandwiches were brought out, they were immediately taken by the waiting students. Speed is the name of the game during Grab n' Go which would make it impossible for the dining staff to juggle both pre-packaged and traditional sit-down meals at the same time.

One member of Hubbard's dining staff pointed out that closing the seating areas during the hours of 11am and 1pm would greatly decrease the amount of unnecessary waste that is produced by Grab n' Go. The idea being that if students were forced to take their meals to a different location they would be discouraged from getting lunch from Grab n' Go unless they were really in need of a portable meal. Based on my observations, this does not seem like a useful solution. There are not many spaces on the Smith campus where students can gather and relax outside of their houses and the campus center, which gets quite crowded and noisy during lunch. From what I inferred from my observations, the dining halls provide an important place for students to meet up with friends and relax in between classes. Even though these students are creating more waste than they would if they ate in another dining hall, denying them a place to sit and relax before heading off to their next class is not a solution.

One Hubbard-specific change that could be made to reduce the amount of plastic that is used during Grab n' Go would be to no longer make empty containers available for cereal. Over the course of an academic year this has the potential to save quite a bit of plastic. If 20% of the students who get lunch from Hubbard take cereal as one of their

five items, and if an average of 192 students visit Hubbard's Grab n' Go each day, then almost 3,000 containers could be saved in one semester alone if empty containers were no longer made available. Instead of having these containers available at Grab n' Go, one idea for the future is to replace the reusable mug or water bottle that students receive at central check in at the beginning of the year with a tupper ware type container that is the size of a serving that would be provided at Grab n' Go. Students would then be expected to bring these containers with them if they wanted cereal, just as they are now expected to bring a water bottle if they want a beverage. These containers could also be used in any other dining hall, thus eliminating the need for extra packaging and freeing students to make a Grab n' Go meal out of the options that are provided in any dining hall, as long as they can remember to take their tupper ware with them. The small survey that I carried out suggests that students are very receptive to this idea, with about 78% indicating that they were in favor of replacing the water bottles that Smith provides with tupper ware.

Hubbard House alone goes through about 600-650 plastic containers every single weekday (Mahar, personal communication). These containers, as well as all the forks, knives, and spoons that Smith provides at Grab n' Go, are theoretically compostable if they are exposed to high temperatures and enough oxygen so that biological processes can take place. When disposed of in a landfill, where conditions are dry, cool, and low in oxygen, the biopolymer in these containers will not break down. These products were meant to be disposed of in an industrial or municipal composting facility where they are kept warm, well-aerated, and constantly moving in order to facilitate break down (NatureWorks 2009). All of the containers that Smith students use and throw away end up in Northampton's landfill where none of them will ever break down. In order for

Smith to properly dispose of these containers, there would first have to be some way of collecting and separating them from the rest of the waste stream. This would be complicated by the fact that Smithies take their Grab n' Go lunches and disperse throughout campus, thus making it difficult to collect the containers in a centralized location. Once collected, the containers would have to be stored in a sanitary manner until enough of them accumulated to make it worth transporting them all the way to the nearest appropriate facility, which according to the NatureWorks website is in Springfield, Massachusetts (NatureWorks 2007). Because these containers are so small and light, and because only a small fraction of the total would likely be collected, it would most likely take a fair amount of time before enough of them could be gathered to make it cost efficient to drive them all the way to Springfield (Dombkowski, personal communication).

While proper disposal of these containers will not likely take place in the near future, Smith College does have a new and evolving system for composting some of the food waste that is created by other dining halls. Food waste is currently collected twice a week from five dining halls on campus and taken to a small farm in nearby Westhampton, Massachusetts (Dombkowski, personal communication). It is estimated that Smith composts about 13-14,000 pounds of food waste per month during the academic year (Guzowski, personal communication). Since the start of this program, Smith's entire waste stream has been reduced by 200 tons per year from food composting alone (Dombkowski, personal communication). Smith is planning on expanding this program to include at least one other dining hall in the fall, but because there have been many false starts in the past, and because this farmer is new to composting, Smith is

moving ahead slowly and cautiously (Guzowski, personal communication). There are currently no plans to include Grab n' Go houses in the composting program, although Dining Services has expressed interest in developing the capacity to compost Grab n' Go containers at this farm, or at a similar nearby location (Mahar, personal communication).

CONCLUSION

Smith College's Dining Services has already made several steps towards reducing the amount of waste that is generated by Grab n' Go, while still attempting to meet the needs of the student population. The Grab n' Go system has been continuously evolving since it first began in 2004. Many types of packaging have already been eliminated throughout the years, including the plastic water bottles that were once available at Chapin, disposable cups at both locations, and extra wax bags at Hubbard. Recently, Hubbard Grab n' Go has also started to replace sliced fruit in plastic containers with hand fruit twice a week. Every semester, small steps such as these are made to cut down on the amount of packaging that is used during Grab n' Go. Although Smith currently does not have a system in place to compost the NatureWorks products that are thrown out, Dining Services is aware of how much extra waste this produces and is currently looking for ways to develop the capacity for proper disposal. The containers that Dining Services currently uses appear to be the best option for the present time and they have out performed similar products that were used in the past (Mahar, personal communication). According to the NatureWorks website, these containers also use 62-68% less fossil fuel resources and produce less greenhouse gases in the manufacturing process than traditional plastics (NatureWorks 2009), therefore, even if they are not properly

composted, there is still some environmental benefit to using these containers over regular plastics.

It is unlikely that these containers will be properly disposed of in the near future, but in the meanwhile there are several small steps that Smith can take in order to reduce the amount of waste that is produced from Grab n' Go dining. Providing tupper ware containers at central check in at the beginning of they year would allow Hubbard alone to save almost 3,000 plastic containers in a semester and would encourage students to think about the impacts that they have when they use disposable rather than reusable containers.

The biggest way in which Grab n' Go can lessen its environmental impact would be to reduce the waste stream that it produces. This could be done by developing new ways to limit the amount of plastic containers that are used and by composting food waste. However, sustainability does not end with waste reduction. Smith needs to consider the impacts of the wastes that are produced. The NatureWorks containers that are used in the dining halls are perhaps better for the environment because they are made from a renewable resource, use less fossil fuels and produce less green house gasses than traditional plastics, yet if they are not disposed of properly, much of their theoretical benefit is lost. It is not only the manufacturing process, but the ultimate fate of these containers that needs to be considered when determining their environmental impact. Since Hubbard alone uses 600-650 containers every day (Mahar, personal communication), the two dining halls combined easily use over 1,000 containers every weekday. The environmental benefit of a corn-based biopolymer and compostability is

likely relatively small compared to the burden that is created by an extra 5,000 containers per week in the landfill.

There is much room for improvement in the Smith dining system and only a few of many relevant ideas have been outlined here. Dining Services is already very aware of the large volume of waste that is created by the dining halls and is consequently taking many steps to reduce this amount. Student behavior, however, is not improving as much as it could be. Unnecessary waste is produced at Grab n' Go every day by Smithies who do not need a meal on the run, who use extra containers, and who do not properly dispose of their waste. Dining Services is doing their part and now it is time for the students to step up and acknowledge the large role that they play in waste generation. Students are the ones who can have the greatest effect in reducing the amount of waste that is produced in the dining halls. Smithies can achieve this effect by avoiding Grab n' Go when possible, by not using unnecessary disposable containers, and by properly disposing of their wastes, which includes recycling materials that can be recycled and hopefully in the future rinsing out their NatureWorks containers and depositing them in collecting bins around campus.

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REFERENCES

NatureWorks LLC. 2007. "Food compostin facilities across the United States". [online] accessed 6 May 2009. http://www.natureworksllc.com/product-and-applications/ingeo-biopolymer/technical-resources/~/media/our%20values%20and%20views/end%20of%20life/composting/uscompostingfacilities_pdf.ashx

NatureWorks LLC. 2009. "Product and Applications: Fact or Fiction?" [online] accessed 6 May 2009. http://www.natureworksllc.com/product-and-applications/fact%20or%20fiction.aspx

APPENDIX A

The following is a direct reproduction of the survey that was distributed to students who sat and ate their Grab n' Go lunches in the dining hall of Hubbard House.

Hi! This survey is part of an effort to help make Grab n' Go more sustainable. Please answer the questions and leave the survey on the table so it can be collected later.
Thanks for your help!

1. About how many days a week do you sit at Hubbard to eat your Grab n' Go lunch? (Do not include days when you take the meal to another location).
   1 2 3 4 5
2. At what other dining halls do you eat lunch during the week?

3. Where (which building) and when did you have your last class before you came here to eat today?

4. Where and when is your next class?

5. Did you take cereal as one of your 5 items?
   Yes No
6. Do you regularly use the water bottle that Smith gave you at the beginning of the year?
   Yes No
7. Would you support Smith handing out tupper ware instead of water bottles next year?
   Yes No

Questions/Comments?

Feel free to email jbeaty@smith.edu