

Feasibility of Student-Run Composting At McElroy Dining Hall

**Boston College, Chestnut Hill, MA
GE 580, Environmental Studies Senior Seminar
May 1, 2014**



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INTRODUCTION

The disposal of food waste in the United States imposes highly significant costs on the environment. In 2012, 21% (roughly 35 million tons) of food waste was disposed in landfills, making food waste the single largest contributor to the national waste stream (EPA, 2014). When food waste rots and decomposes in the landfills it produces large amounts of methane gas, which is leached into the atmosphere; landfills are the second largest anthropogenic related methane emissions in the United States (EPA, 2014). Considering that methane is the most potent of greenhouse gasses (GHG) contributing to global warming—and that landfill methane emissions are the 9th largest source of GHG emissions—minimizing food waste in landfills would have a felt environmental impact globally (Bloom, 2011). Effective composting procedures are a proven way to reduce food waste going into landfills. Composting turns what was once considered waste into valuable, nutrient rich soil. The benefits of composting include but are not limited to: waste reduction, GHG reductions, soil enrichment, and economic benefits for both producers and consumers of compost (EPA, 2014).

Boston College (BC) needs an effective student run composting system to decrease the amount of food waste currently being sent to landfills and to promote sustainable practices on campus. Composting is consistent with the mission of the department of Sustainability at BC. In order for the BC Sustainability department to achieve their mission statement, which states that, “Boston College recognizes that there are limits to the world’s resources. To ensure the quality of life for future generations, Boston College seeks to demonstrate leadership in environmental stewardship and sustainability, living the motto ‘ever to excel.’ The university is committed to conserving resources and reducing the impact that its services and activities place on the environment.” A pre and post consumer composting system is necessary at all dining halls (BC, 2012).

BC Main Campus has two large dining halls: Corcoran Commons known by students as ‘lower’ and McElroy Dining Hall. Boston College Dining services attempted a front of the house, student-run composting between 2008-2010 in both dining halls. The program failed because students incorrectly used the composting bins for non-compostable waste. The misuse of the bins contaminated the compost, rendering the compost bins trash. The numerous open garbage bins were also messy and people complained about them being aesthetically unappealing. As a result of the high rates of contamination and messy appearance, BC has taken

composting entirely behind the scenes. All dining halls on campus participate in pre-consumer composting. Pre-consumer food waste is produced in the preparation of meals and is a requirement of BC dining employees. Since the failure of the student-run post-consumer composting program, only Lower dining hall does post-consumer composting. Students have no role in the composting process, or any other waste disposal process. Students place all of their waste onto a rotating wall where it goes behind the scenes for BC Dining employees to sort into the appropriate bins. Because students at BC are not responsible for any of their own waste disposal at the two major dining halls, many are unaware of recycling and composting efforts on campus.

A student-run composting system is a do-it-yourself system that requires students to take initiative on disposing their waste in an environmentally friendly way. This means that students would use clearly labeled recycling, composting and waste bins appropriately. This type of system would take what is currently being done behind the ‘wall’ at Lower and bring a similar system to McElroy dining hall. The collection receptacles would be specially designed to help educate and guide in the composting efforts. A student-run composting system is dependent on student compliance, which is created through education about the importance of composting and the proper disposal methods, clear labeling of bins and consistency.

OBJECTIVES

The main goal of the research project is to assess the feasibility of a student-run composting system in McElroy dining hall. Our objectives are as follows: To gain an understanding of the student bodies’ opinions and knowledge about composting, to understand Boston College’s current composting practices and efforts, and to understand what practices are common in efficient student-run composting systems.

METHODS

We have utilized four main methods in our research on composting at Boston College: 1. Communication with advisors, 2. Analysis of data provided by advisors, 3. Survey creation, distribution and analysis and 4. Research of other universities with composting systems.

Throughout the semester we have worked with our mentors Robert Pion, Director of Sustainability and Megan O’Neill, Associate Director of Restaurant Operations to analyze food

waste practices and efforts at Boston College dining halls. We focused on the two largest dining halls, Lower and McElroy, to compare practices and assess the feasibility of a post-consumer composting system at McElroy. We decided to focus on McElroy because currently there is no post-consumer composting system in place, despite being the second largest dining hall on campus, serving 4000 meals daily (BC Dining, 2014).

Our mentor Robert Pion provided data from *Save That Stuff*, a subcontracted waste management company that manages BC's recyclables and compost. The data shows the compost tonnage of each of BC's dining halls. A tour of Lower dining hall provided information on how Lower dining hall manages food waste and composting with both pre and post-consumer composting.

In order to have a clearer idea of the feasibility of a student run composting system in McElroy dining hall, we created a survey targeted specifically at the population who eats most regularly at McElroy. The survey asks them basic questions about their familiarity with composting, their interest in increasing and participating in composting here at BC and the importance of education in sustainable practices. Surveys were conducted in the McElroy Dining Hall twice; once during peak lunch and once more during peak dinner hours. Our study group consisted mainly of freshman and sophomores who fall between the ages of 18 and 20 and eat regularly at McElroy. The surveys assessed the student population's general knowledge and attitude towards composting. The short survey generated a total of 221 responses, which were collected for analysis.

In order to devise a plan for establishing a successful student-run composting system in McElroy Dining hall, we researched three other colleges of similar size and student body type in order to analyze what practices would be most beneficial for BC. Data was mainly collected through accessing university websites. We focused on three universities of varying and comparable sizes to that of BC so we could then draw comparisons to other composting programs within dining halls. The three universities are: Northeastern, University of Mass, Amherst (UMass Amherst) and University of California, Davis (UCD). Northeastern University is of comparable size to BC and has had an extensive food waste management program in all of its dining halls, where students are actively involved in the program. The UMass Amherst campus is home to over 25,000 students and has implemented an extensive food waste management program in its dining halls that has been successful. UC Davis is larger than Boston

College, similar in size to UMass Amherst, and has a successful pre-consumer and post-consumer composting program with a large student initiated educational component.

RESULTS

Data Collection from BC Dining and Save That Stuff

Looking at BC’s composting summaries from September to November 2013, 55% of BC’s waste is MSW or municipal solid waste, leaving only 45% left to be recycled. Of that 45%, food waste comprises 6%, a significant number in the large scheme of things.

Over the past three years the total tons of food waste composted increased from 261 tons in 2011 to 297.32 tons by 2013 (Figure 1) suggesting BC’s investment in the practice of composting. All of the dining halls practice pre-consumer composting. Lower is the only dining hall that practices post-consumer composting due to the infrastructure that allows dining staff to sort student waste properly. The 2012 summary from *Save That Stuff*, McElroy Dining Hall composted a total of 47.52 tons that year, all of which was from pre-consumer composting. In the same year, Lower composted a total of 124 tons, accounting for almost half of the total amount of food composted in 2012.

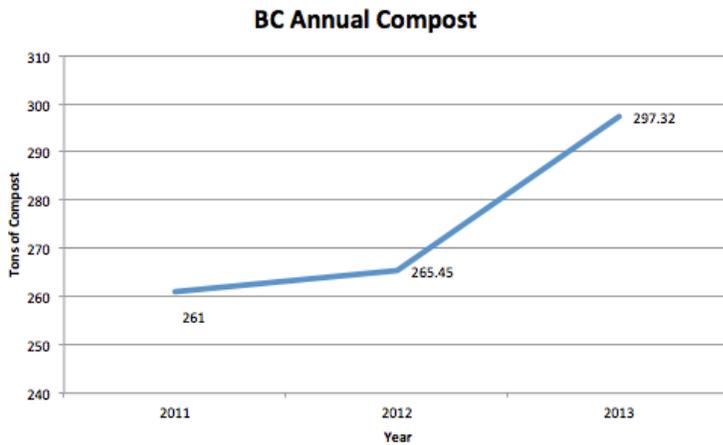


Figure 1: Annual compost collected in from 2011-2013. (SaveThatStuffinc., 2013)

Survey Data

There are a total of 221 responses from the surveys conducted in the McElroy Dining Hall. The participants were all students. The results from the survey show that 56% of the student participants were female and 44% were male. The majority age group from the participants was in the age group of 19-20.

The results from the survey indicate that a majority of the participants are somewhat aware of the term composting. 53.6% of the participants stated that they understand what composting is and how to do it correctly, while the remaining 46.4% either does not understand how to compost or are completely unaware of the concept. (Figure 2) While 53.6% of the students indicated they understood how to compost, only 33.5% had composted before. The remaining 66.5% have either not composted or are unsure if they have done composting.

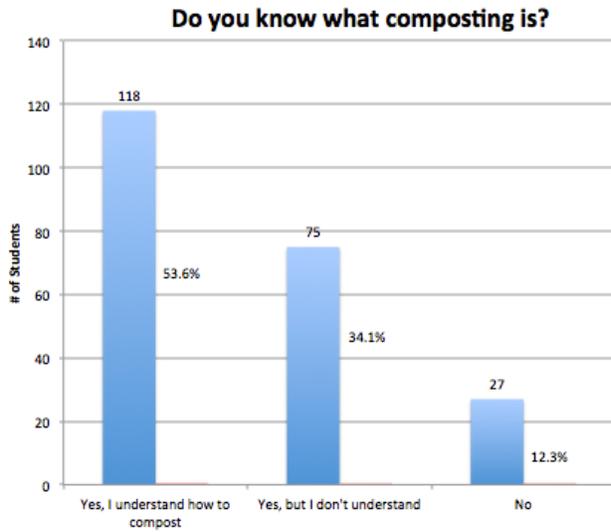


Figure 2: Survey response to question, Do you know what composting is? (Survey, 2014)

As for composting practices on the BC campus, a majority of the participants indicated that they are unsure or are unaware of BC’s composting practices. 88.2% of the participants were either unsure or completely unaware of BC’s composting practices. The remaining 11.8% knew that BC composted. When asked if composting should be more prevalent on the BC campus, a majority, 57.3%, of the participants indicated that it should be more prevalent, while 39.4% were indifferent to the matter. The remaining 3.2% of participants stated that composting should not be prevalent at BC. Many of the participants stated that they are unsure about the importance of composting to BC or (“and” kind of implies correlation) if composting was a concern for them. 69.3% of the participants stated that they are unsure about the importance of composting as a concern for BC, while 20.6% stated that it was important and 10.1% stated that it was not an important concern. As a personal concern, 48.6% of the participants indicated that they were unsure of the importance of composting for them, 27.1% stated that it was not an important concern, and the remaining 24.3% stated that composting was a very important concern for them.

Results from the survey also showed the students' attitude towards a student-run composting program. As for participation in a student-run composting program, 50.2% of the participants responded maybe, 30.4% indicated that they would be willing to participate, and 19.4% of the participants showed no interest in participating. The survey also showed the participants' opinions on the success of a student-run composting program at BC. 36.8% of the participants stated that the program would be somewhat successful while 3.3% stated that the program would be very successful. 31.1% of the participants noted that they were unsure of the success of a student-run program, 25.4% stated that the program would be somewhat unsuccessful, and the remaining 3.3% stated that the program would be very unsuccessful.

The participants were asked about the importance of sustainability as a part of university education. 41.8% of the participants indicated that sustainability should be a mandatory part of university education, 39.5% of the participants were undecided about the issue, and 18.6% of the participants stated that sustainability should not be a mandatory part of university education.

University research

Northeastern University:

Northeastern University is a private non-profit research university located in Boston, MA with undergraduate enrollment of 16,685 (Northeastern University Statistics, 2014) Northeastern is one of only 16 colleges to be named on Princeton Review's Green Honor Roll. There are only five 3 Star Certified Green Restaurants in Massachusetts and two are on the Northeastern campus. Northeastern earned an "A" for food and recycling on the College Sustainability Report Card, the only independent evaluation of campus and endowment sustainability. The University serves fair-trade coffee, cage free eggs, and local produce. Northeastern began student-run composting in 2007. All pre- and post- (delete these for consistency) consumer food waste is composted by all four dining halls and catering services. Annually, over 700 tons of food waste is collected for organic composting. The diversion rate of campus waste, including recycling, solid waste and construction, totals 63.5%. (Green Plan, 2012)

University of Massachusetts, Amherst:

The University of Massachusetts at Amherst began composting in 1996 but recently brought composting from behind the scenes to the front. Since implementing the new program,

the dining halls have diverted about 40 tons of food waste in the last year to composting. The post-consumer composting program also reduced waste in one of the campus' main dining halls by 1200 pounds per day (Recycling Works MA, 2013).

University of California, Davis:

University of California, Davis (UC Davis) is a public, four-year university, with an enrollment of 24,324 undergraduate and 7,102 graduate students. UC Davis is located in Davis, California. It has 4 dining facilities, all of which do pre and post-consumer composting as of November, 2008, which has yielded 881 tons of organic material to the composting facilities to this date (University California, Davis, 2009).

DISCUSSION

Current Dining Efforts and Save that Stuff Data

At BC, sustainable initiatives have largely been supported and implemented by the Sustainability Director, Robert Pion, and the higher management in dining services. After talking with dining staff in both McElroy and Lower, there was a shared and strong sentiment to do a better job with composting by increasing total tonnage of composted material as well as increasing education about their current practices. The ideal for zero waste over the course of the next ten years was even expressed (Meg O'Neill, April 8).

After comparing Lower Dining Hall and McElroy Dining Hall, it is apparent that in order for BC to increase its composting efficiency and become more sustainable, a post-consumer composting system would need to be implemented in the McElroy dining hall. The large gap in composting efforts between the two major dining halls at BC is largely a problem of facilities. In Lower, the kitchen has been designed to have a sorting room so that staff are in charge of making sure food waste is sorted into the appropriate bins, preventing contamination (Megan O'Neill, April 8). However, the facilities in McElroy Dining Hall lack the infrastructure to support a space for staff managed composting (Robert Pion, January 31). Therefore any composting system implemented in McElroy would have to be student-run, meaning students would be responsible for separating their compost, recycled goods and trash before leaving the cafeteria.

A student-run composting system would be dependent on the education and willingness of the student body to participate in self-sorting practices. The biggest obstacle in running a

student-run composting program is the behavioral component of the student body (Megan O’Neill, April 8). Management of food waste is more difficult to systematize, especially when there is not an environmental mindset among the student body. Prior to our investigation, it was unclear what percentage of the student body knew what composting was or why it was important and relevant to environmental concerns.

Robert Point provided us with the data from Save That Stuff, which supported his statements about the amount of composting currently being done, (Figure 3). This information shows us that while McElroy and Lower dining serve roughly the same capacity of students, lower produces almost triple the compost. We believe this is due to their post consumer composting efforts. With a post-consumer composting system at McElroy it appears the composting percentages could be similar.

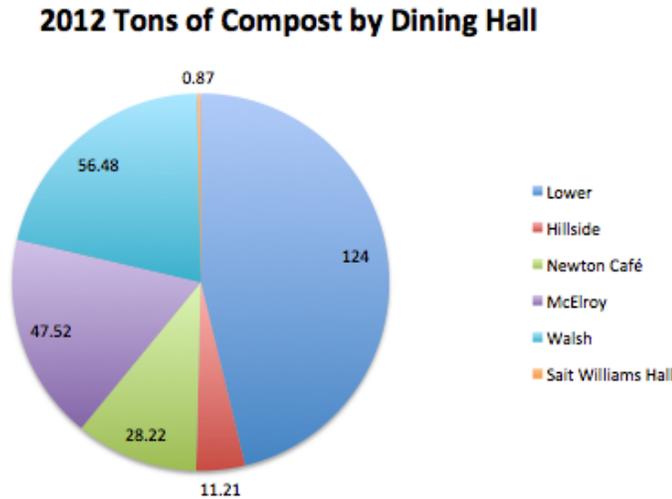


Figure 3: Total percentage of compost collected from Boston College dining halls by Save That Stuff in 2012. Walsh is not a dining hall; it is the building that houses Boston College catering. (SaveThatStuff, 2012)

Survey Results Discussion

The results of the survey present compelling data. As anticipated, 100% of the responses were from current BC students and the vast majority (92.7%) of responses were students age 18-20, which is the typical age of Freshmen and Sophomores at BC. The answers to the first substantive question on the survey, Do you know what composting is? provide informative data. 54.6% of students surveyed said, yes they knew what composting was and how to compost. This statistic shows that there is a considerable amount of students that have had exposure to

composting, which suggests that a transition would not be unfamiliar to over 50% of the students dining at McElroy. 34.1% of the students knew what composting was but did not understand how to do it. The fact that they were aware of what composting is provides a solid foundation upon which to take the next step towards learning how to compost. Only 12.3% had never heard of composting before. This 12.3% would need to be informed about and taught how to compost.

The following question asked if students had done composting before. This produced lower numbers, 33.5% saying they had actively participated at one time. The 31.1% difference between students who said they knew what composting was and how to do it between those who had experienced composting simply reveals that people can understand how to do something without having personal experience. 52.8% had never composted before and 13.7% were unsure. It would be necessary to have an education component to inform this 66.5% how to properly compost.

The next two questions, ‘Do you know if BC composts?’ (Figure 4) and ‘Would you like composting to be prevalent at BC?’ (Figure 5) show an interesting sociological perspective of the students. Only 11.8% knew that BC currently was composting, while 88.2% did not know if BC composted. On its own, this statistic is problematic for promoting sustainability at BC because the composting that is being done is not appreciated or generating campus awareness. In conjunction with the 57.3% of students that wanted composting to be more prevalent, this shows a 45.5% discrepancy in what students are aware of and what they want to know. This is significant to our study of the feasibility of a student-run composting system because it shows explicitly that the majority of students want to see composting in their dining hall. The remaining responses show 39.4% are indifferent to the prevalence of composting while 3.2% say they would not like to see it. This shows that those who are indifferent or did not want to see composting potentially do not understand why composting is relevant or important.

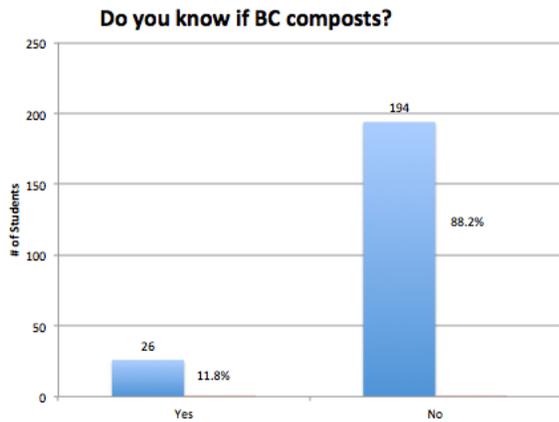


Figure 4: Survey response to, do you know if BC composts

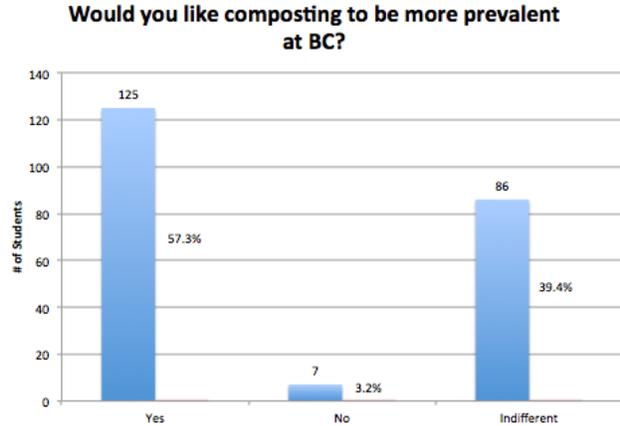


Figure 5: Survey response to, would you like composting to be more prevalent at BC? (Survey, 2014)

The next question turned out to be a faulty question. It asked, ‘Is composting an important concern for BC?’ When administering the survey multiple students asked for clarification on the question. The question *could* have been asking them two different things depending on one's interpretation. First, if they thought composting was an important concern of the BC administration or student body as a whole. Second, if the question meant do you think composting should be important to BC. Our intention with the question was to see if they thought it was important for BC to compost. While the data set is not accurately responding to the intended question, it is worth discussing because of a pattern that we saw in answers. Many students who responded to the question ‘Is composting an important concern for BC?’ saying, ‘not important’ answered the next question, ‘Is composting an important concern for you?’ saying, ‘very important’. This shows that they were misunderstanding the first question (which we realize was poorly asked) (don’t think we need this, if we already said it was faulty), these answers reflect that composting is important to many individuals on campus but they believe that it is not an important concern of the administration or the culture at BC. 69.3% of students said they were unsure if composting was an important concern of BC, 10.1% said ‘not important’ and 20.6% said ‘very important’. In answering ‘Is composting an important concern for you, 24.3% responded, ‘very important’. This is an important number in our data set as it shows directly that nearly a quarter of the students surveyed express that composting was very important to them but with the way McElroy is set up, they have no composting options. This leads us to believe that given the opportunity to compost these students would act truly to their expressed values and

compost. 27.1% responded 'not important' while the majority, 48.6% said 'unsure'. The 'unsure' responses demonstrates the lack of knowledge needed to have an opinion on if it is personally important or not.

The most directly relevant question that was asked was, 'Would you be willing to participate in a student-run composting system'. 30.4% responded 'yes', 19.4% said 'no' and 50.2% said 'maybe'. The survey did not provide a description of what a student-run composting system would be. We believe this accounts for the large portion of students who responded 'maybe' and the rather large percentage that said 'no' they would not participate. It seems that if there was a clear description of what a student-run composting system was, and it showed the small contributions necessary from each person, more would have said 'yes' than 'no' or 'maybe'. Students were varied in their response to how successful they thought a student run composting system would be, not one answer stood out from the rest. However, the highest percentage 36.6% answered, "somewhat successful". Again, this is reflective of the uncertainty about what a student-run system is.

The final question asked generally, 'do you think it should be mandatory for students to learn about sustainable practices in their university education?' By asking this question we hoped to understand the students feelings towards sustainability practices as a whole. We were not specifically asking if composting education should be a part of undergraduate education because then responses would be partial to how they felt about only one element of sustainability. The responses show that 41.8% feel it should be mandatory, 39.5% were unsure, and 18.6% didn't think sustainability practices should be a mandatory part of undergraduate education. At BC, there is a mandatory core curriculum that all students must complete to get their degree. This curriculum includes two courses in the natural science and two courses in social science. (BC, 2013) In asking this question, we had envisioned a sustainability component being incorporated into the core curriculum, therefore not asking students to take an additional class. However, this was not made clear in the survey. Regardless, the data is valid because it shows students honest feelings toward what they want for their education and for their peers, which provides meaningful evidence in how well received education about composting would potentially be.

University Research Discussion

Northeastern:

Year after year Northeastern has been praised for its efforts in sustainability. The University's commitment to sustainable practices includes efforts that focus on serving fair trade coffee and cage free eggs, supporting local produce, and eliminating waste through composting and recycling. Northeastern's "Be Green" composting initiative began in 2007 at all four of its campus dining facilities. 100% of pre and post-consumer food waste is collected and composted by all the dining facilities and catering services. Annually over 700 tons of food waste is collected for organic composting. A third party company, Recycling Works, picks up the composting waste from campus. Northeastern dining halls also use a long list of compostable products including but not limited to plates, soup cups, napkins, to-go containers and bags, straws, sleeves and coffee lids. (Green Plan, 2012)

The program, which has become known as "Compost Here", is largely student run, with all post-consumer composting being done by students. Composting bins are placed near all tray - drop locations in dining halls, along with trash and recycling bins. The "Newly designed composting bins have led to increased and more consistent composting campus-wide" (Green Plan 2012). Proper, clear, and consistent signage is a key aspect of the Northeastern composting and similar positive results could be seen on the BC campus if similar bins were used in dining halls.

"Compost Here" also owes much of its success to the educational components of the program. In order to spread the word about composting, Northeastern created the Peer Volunteer Composting Team. The team brings a peer-to-peer education aspect to the program to ensure that knowledge of composting practices spreads across campus. The "Peer Composters" stand and monitor the bins during peak hours of operation in the dining hall. The volunteers are there to encourage their peers to scrape their food scraps into the compost bins, and also to answer any questions students have about composting. The combination of a clear, consistent composting message across campus, with peer-to-peer education have made Northeastern's "Compost Here" program amazingly successful. Northeastern is a university that is very similar to BC. They provide a role model for what BC's composting effort could look like. Educational aspects such

as the “Peer Composter” program, combined with clean signage would be key aspects to a successfully run student-composting program at BC. (Green Plan, 2012)

University of Massachusetts Amherst:

The University of Massachusetts at Amherst (UMass Amherst) piloted a post-consumer composting program in one of its main dining halls, the Blue Wall Eatery. This dining hall serves up to 7000 meals per day (Recycling Works MA, 2013). The composting program that was piloted aimed to divert food as much food waste as possible to be reused on farms in Amherst, MA. Composting is an important issue for UMass Amherst because it complies with the university’s commitment to sustainability.

Pre-consumer and post-consumer composting has been a part of the culture at UMass Amherst since the 1990’s. However, the program has encountered many problems. A surge of interest from dining staff and students made the push towards improving post-consumer composting. Having a good foundation in a composting culture made the transition of bringing composting from behind closed doors to the forefront very easy (Recycling Works MA, 2013).

In order to implement the Blue Wall Eatery composting project, the UMass Waste Management staff set a few concrete goals. Some of these goals included: install compost bins at retail dining locations, install easy-to-read signage, and host events to promote awareness about the issue (UMass Dining, 2014). The program was successful but also encountered the same issue that BC did in their attempt at a student-run composting system, which was contamination of the compost bins. In response to this, bin monitors were established in order to guide students on throwing out food waste correctly.

Before implementing the composting program, the Blue Wall accounted for about 3000 pounds per day in waste and after implementing the program this value has been cut down to about 1750 pounds per day (Recycling Works MA, 2013). The nearly 50% reduction in food waste going to landfills can be attributed to two main things; the ability to compost via new clearly labeled composting bins and the increased education and awareness about composting. Educational component comes from both the monitors at the bin and student initiated programs such as the annual composting workshop, which involves and educates the campus community (UMass Dining, 2014).

University of California Davis:

Composting at UCD has been given serious attention and value, both by the administration and the student body. In 2001 a pilot project began funded by the Associated Students of the University of California (ASUCD), Davis in order to support organic farming on the campus' Student Farm (University California, Davis, 2009). Now, University Dining Services (UDS) diverts nearly 98% of all organic matter including kitchen scraps (pre-consumer) and uneaten food (post-consumer) from the university owned landfill. In 2007 they collaborated with Jepson Prairie Organics in order to plan a post-consumer composting initiative. In 2008 the initiative was fully realized in all four dining rooms on campus (University California, Davis, 2009).. Their ultimate goal is zero waste by 2020, meaning 100 percent of organic matter will be diverted from the landfill and that the pre and post-consumer composting would provide organic matter for the student farm (University California, Davis, 2009).

In order for these initiatives to be successful, a team collaboration was necessary. Some of these programs include R4 recycling, ASUCD Project Compost, UC Davis Dept. of Grounds, Prairie Organics and UDS. One of the initiatives adopted included tray-less dining to reduce food waste, energy use, water use and chemical use. Tray-less dining has effectively decreased resource consumption by decreasing food waste (University California, Davis, 2009). This is a practice that BC has also adopted with success. The training of dining employees on the importance of composting and how to sort for the different waste-streams was an integral part of the initiative. Moreover, supply management was enacted to reduce unnecessary and excessive packaging. UCD began using 100% post-consumer recycled materials that are recyclable, reusable or compostable, non-toxic and that use minimal natural resources. All dining halls have also eliminated plastic bags, and provide reusable canvas compostable bags when necessary. In addition, special events are required to have all biodegradable utensils, plates, cups and napkins in order to help educate students about waste streams and environmental impact contributing to landfill mass (University California, Davis, 2009).

Although UCD does most of its sorting behind the scenes by faculty (similar to Lower's successful post-consumer composting), the reason their composting initiative was successful was because they dedicated 2 hours of training per quarter to new and existing staff about the waste

sorting system (University California, Davis, 2009). For the student body, appropriate signage was placed all over campus to guide them in making the right choices on their own. UC Davis provides many different online resources that help direct and involve students in sustainable practices on their campus. The student housing website has a Waste Diversion Guide that details the proper separation of waste for interested students (University California, Davis, 2014A).

Although students do not monitor the bins in the dining halls, student involvement is integral to the success of the composting system. ASUCD Project Compost is a student-run, student-funded unit of the student association comprised with student staff, interns, and volunteers. They offer free composting workshops on backyard composting, composting on campus and worm composting and on the campus. They make presentations to clubs and classrooms, as well as table at various events. The action portion of the club consists of compost pickups to be taken to the student farms (University California, Davis 2014B).

The Campus Center for Environment (CCE), students led two-credit courses in sustainable living, and three-unit seminar classes are held every semester with weekly seminars on environmental and sustainability issues in order to make education accessible to the student body (University of California, Davis. 2014C). The R4 program is committed to recycling and, preparing student to integrate the ideas and practices of waste management with the environmental foundation they receive on campus. R4 is responsible for managing all recycling on campus, and directing students with the correct disposal practices (University of California, Davis. 2011). The Project Compost lists a very extensive resources section, with links to different sustainable and composting programs at similar universities all over the country. This list can be found here at this website: <http://projectcompost.ucdavis.edu/resources/>.

RECOMMENDATIONS:

From our survey and research it's clear that in order for a student-run composting system to be successful in McElroy dining hall, there would need to be three contributing factors: 1. Proper and clear signage and bins 2. Bin monitors 3. An educational component. All of the successful programs at other schools were reliant on student participation. Not only would student participation ensure a successful post-consumer system in McElroy, but it would also

help to promote an environmental consciousness on campus, setting the foundation for further sustainable action on campus.

Clear Signage:

The first aspect of our program is centered around clear and consistent signage on composting bins on campus. In 2008, when BC attempted student run composting in McElroy, yellow open top bins were placed right next to open top recycling and garbage bins, with only a white sheet of computer paper as signage. The lack of clear, direct signage and instruction resulted in students improperly disposing of waste, and contaminating the compost bins. In figure 6, we see a clear example of what a successful waste disposal systems look like at the University of Wisconsin Stout.



Figure 6: Waste Disposal System at University of Wisconsin Stout. (UW Stout, 2013)

Key features include different sized and shaped holes, different coloration, and large, clear imagery and instructions to inform students what material can be composted. The compost bin shows simple and clear pictures of what food waste should be scraped into the bin. Behind the bin is a more information, including a brief explanation of composting, why it is important, and what types of food waste can be composted. The bins serve to educate the student body about composting in a way that is very hands on, and causes students to actually learn about composting and why the effort is important. In the long term, if a student-run plan were to

spread to other dining halls, it will be vital for there to be consistency in the signage and bins if the system is to be successful.

Bin Monitors:

In conjunction with effective bins and signage, it is important that bin monitors are also present at the composting bins. Bin monitors not only offer support to the composting effort practically, by making sure students scrape their waste into the correct bins, but they also serve an educational purpose and are there to answer any questions students have about composting. The bin monitors will be present Monday through Friday during peak hours. Northeastern's successful composting effort known as "Compost Here" relies on a similar bin monitor program that places "Peer Composters" in dining halls during peak hours (Green Plan, 2012). The "Peer Composters" are key to a successful composting effort because they help to prevent contamination, while also educating the student body about composting. The only question left is who is going to be a bin monitor. While ideally dining staff would place an employee as a bin monitor, if they are not willing to support the plan, it will fall to environmental clubs and other volunteers on campus to fill the roles of bin monitor. One of the largest challenges with operating student-run composting in McElroy is the fact that the dining hall serves primarily Freshman, and every year a new class comes in. This 25% turnover means that every year a new class of Freshman will need to learn how to properly dispose of their food waste. Bin monitors will help to insure that year after year, BC Freshman continue to learn about and practice composting.

Education:

The final component of our plan has to do with environmental education on campus. In addition to having bin monitors who would also serve to educate about the necessity of composting, learning about sustainable initiatives on campus and their importance in light of today's climate issues should be implemented into our educational system. Some suggestions that we offer are having a presentation during orientation or a day dedicated to sustainability specifically on campus in every core science class or social science class. This could be taught by the instructor or by student volunteers in clubs such as EcoPledge, RealFoods, Outdoors

Clubs, or from representatives from the Office of Sustainability or BC Dining. It could even be something as simple as a 20-minute presentation made by students about composting and other sustainable actions on campus once a semester in different science classes. Finally, zero-waste events can be held on campus with the aim of educating about different waste systems and the importance of composting.

As seen at UC Davis, a collaboration of many different programs created a stronger, more interdisciplinary community of supporters, making the program more successful in the long run. In addition to implementing a sustainable component to the core curriculum, we suggest that students from the various clubs listed above should be enlisted to teach a lecture series on sustainability or teach one-credit courses on incorporating sustainable practices into everyday life. Not only would educational programs such as these serve to disperse the information about composting to the student body, making it more likely that they would participate correctly in a student-run system in McElroy, but it would also create a greener mindset on campus with the potential of spawning further environmental action involvement within our community.

The final component of education has to do with taking advantage of BC's media presence. Sustainability has become a buzzword in our culture today and BC should be capitalizing on the opportunity to advertise the great initiatives they already have going on here. The fact that BC already composts should be all over the university website so that incoming Freshmen know that BC is environmentally minded. Boston College should capitalize on social media, using their website and other platforms to get information out there by their current sustainability practices and ways in which students can get involved if they are interested in learning more. UC Davis's dining website offers a good example here:

<http://dining.ucdavis.edu/sus-recycling.html>.

In conclusion, the research from the three universities with successful student-run composting systems in conjunction with the apparent openness and desire for composting that was shown through results from our survey suggest that composting at McElroy dining hall would be a success. It appears that a student-run composting system would align with Boston College's sustainability goals as well as the student body's attitudes towards composting and sustainability. We strongly suggest that Boston College implement a student-run composting system that has clear signs, bin monitors, and an educational component. It is necessary that we

as a University and as a collective human population take steps towards a less wasteful and more sustainable future. Our project provides a relatively simple and concrete step for Boston College to take. We hope it heeds our recommendations.

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