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1.0 Introduction

1.1 Purpose

We are piloting a paper towel composting program in the bathrooms on the first and second floor of Haggard Hall for six months, starting December 2010. Composting will significantly decrease the amount of waste that this campus sends to landfills. We are focusing specifically on compost because according to the AS Recycle Center, 72% of Western's waste is already recycled and the majority of the remaining portion is compostable. A major expense for the university is the purchasing and disposal of paper towels. An essential part of this compost program is educating the general public about compost and waste reduction on campus. By increasing informational signs around composting and trash bins, students will be better able to sort their waste and further decrease the amount of waste sent to the landfill. The main purpose of this project is to increase composting on campus through composting paper towels in bathrooms and increasing signage pertaining to composting on campus.

1.2 What is Composting?

Composting is the decomposition of plant remains and other once-living materials to make an earthy, dark, crumbly substance that is excellent for adding to houseplants or enriching garden soil. It is the way to recycle biodegradable waste like food, soiled paper, and yard waste. Composting is a critical step in reducing the volume of garbage unnecessarily sent to landfills for disposal. Western has already taken significant steps toward increasing compost options on campus. There are several composting bins around campus including: Arntzen hall, the Atrium, Zoe's Bagels, and all dining halls. There is currently a dorm composting pilot in Birnam Wood. The custodial services on campus empty the compost bins at the recycle center and Sanitary Services takes the compostable waste to Green Earth Technologies in Lynden.

1.3 Significance to Western Washington University

Western Washington University is committed to reducing the campus' waste stream. Paper towels contribute a significant amount to Western's waste stream to landfills. Paper towels are easily compostable but Western isn't currently composting its paper towel waste. Making the transition from landfill to compost is a minor change with major benefits. However, there are many elements to consider when starting a new waste reduction program including cost, labor and organization. Significant costs to consider are the biodegradable waste bags that line the compost bins. A roll of 100 bags costs \$90. The extra work to the custodial staff of Haggard Hall would be minimal. The routines of the custodial staff would change minimally. The majority of the work would go to the recycle center whose projected increased workload would require daily emptying the bins of paper towels in the four pilot bathrooms. Western is committed to reducing the waste stream that goes to the landfill. By redirecting paper towels, one of the major compostable wastes at Western, we will be helping the university reach their zero waste

goals.

According to the Associated Students (A.S.) Air and Waste Management Association's (AWMA) latest campus waste audit:

- 15.14% of Western's waste is garbage
- 36.78% of Western's waste is recyclable
- 48.08% of Western's waste is compostable

In restrooms this percentage is significantly higher, 72.05% of restroom waste is compostable.

According to the Office of Sustainability, diverting waste to compost is 20% cheaper than sending waste to a landfill

2.0 Methodology

Although composting paper towels makes sense as far as reducing Western's waste stream and the costs associated with trash, it is still a challenging project to implement. Determining how other schools and places have developed composting programs, our team researched the small steps others took to actualize their projects. We looked at Western's own Recycling Center to understand how they operate since they will be instrumental in our efforts to compost paper towels on campus. We also researched University of British Columbia, Vancouver and the University of California, Berkeley to get a better idea of what has worked for other institutions. Knowing that Western Washington has already experimented with composting paper towels and has a successful food waste program, our team has reviewed WWU's waste audits, the paper towel pilot in Arntzen Hall, and looked at various other university programs. The Association for the Advancement of Sustainability in Higher Education, as well as the Office for Sustainability at WWU has provided us with much of the following information and resources. Through interviews, case studies, and further research we have compiled the details of our project.

2.1 Internet research

WWU RECYCLE CENTER

Every day, the Associated Students Recycle Center collects 3,800 pounds of recyclables from Western's campus. In order to further their goals of reducing WWU's waste stream, increased composting through paper towel compost would make a significant impact. The University pays for waste disposal by the "tip" not by weight. The cost of "tipping" a trash bin is more expensive than compost since the rate for organic material disposal is lower than inorganic material and compost can be more compacted at the A.S. Recycle Center. The university saves 20% on

disposal costs by composting rather than sending the waste to a landfill. The main hurdle for the Recycle Center in terms of paper towel compost is the increase in work. This is also a concern for custodial services which is facing budget cuts.

2.2 Contacts & Meetings

In order to set our pilot project in motion, we contacted WWU's Recycle Center, Custodial Services, Facilities Management, the Office of Sustainability, and the Library. Student interviews were also conducted to learn about current projects at other institutions. Seth Vidana, instructor of this course, as well as director of the Office of Sustainability, was instrumental in determining the feasibility of our project. Michael Smith from Custodial Services provided information on the Arzten Hall pilot project and gave us permission to move forward on a pilot project in the Haggard Hall Library. We received a lot of positive feedback from Custodial Services and the Recycle Center, which is necessary for paper towel composting to be implemented. The biggest hurdle appears to be making sure that people only put paper towels in the composting bins and that the Recycle Center can and does pick up the bins every single day.

2.3 Program development

Our pilot program will implement a change in 1st and 2nd floor restroom trash cans within the Haggard Library buildings. This change will focus on a modification in waste receptacles from accepting all waste, to only organic waste; mostly paper towels, which already constitute the majority of waste in all receptacles within restrooms campus-wide.

Some changes will need to occur for this pilot to be successful. First, a swap from the existing garbage bags, to biodegradable "bio-bags", which the campus already uses in current compost bins. Second, a simple sign that lets users know that the receptacles now only accept paper towels. These signs were designed by Lindsey Crawford, graphic designer at the office of sustainability. Finally, Elizbieta Chala, the custodial manager for Haggard and Wilson, and her team will need to take the restroom waste to a 55 gallon compost barrel, provided by AS Recycle Center, which will be placed next to the main dumpster for Haggard and Wilson. The AS Recycle Center will pick up this barrel daily. The AS Recycle Center already has a method in place for compacting compost in order to reduce volume and which reduces costs associated with waste pickup.

The signs designed for our project are Figures 1 and 2 at the end of this report.

3.0 Case Studies

3.1 Case Study 1: These Come From Trees Stickers

Pete Kazanjy describes his movement as “the world’s first guerrilla public service announcement.” He created these small green stickers as a method of reducing paper waste. In an effort to cut down on paper towel in bathrooms, “These Come From Trees” stickers have been put on paper towel dispensers in bathrooms all around the country and even abroad! Kazanjy strives to make his an economical movement and has calculated that “20 cents worth of sticker can save a tree’s worth of paper towel each year, 100 pounds.” (<http://thesecomefromtrees.blogspot.com/>)

There are many programs around the world that have used these stickers and have proven results in paper towel reduction! Hunt Valley Elementary School in Fairfax, VA has calculated a 29% decrease in paper towel usage since one teacher put a These Come From Trees sticker on every paper towel dispenser in the school. The children have now been educated on the issue and in one year 18 trees and \$840 in paper towels has been saved. West Virginia University, Seton Hall University, the University of Alaska, and Tulane University have also brought These Come From Trees stickers to their campuses to increase awareness of paper waste.

3.2 Case Study 2: University of California, Berkeley

UC Berkeley is also in the process of piloting a bathroom paper towel composting program this fall. “Paper towels are the main source of waste in residence hall bathrooms. Aside from using a reusable towel, the next best alternative is to compost all of the paper towels that we use. Wet paper=perfect compost. Fall 2010 starts Unit 1 composting in all the dorm-style bathrooms. If this goes well, we hope that this will be provided in all of the units.” (<http://rsp.berkeley.edu/projects.html>)

3.3 Case Study 3: University of British Columbia, Vancouver

<http://www.recycle.ubc.ca/compostmain.htm>

Composting has taken control at the University of British Columbia in our neighboring city Vancouver, Canada. Campus Waste Management reaches out to nearly seventy locations including all food locations, many offices, and residence halls. The composting main page states, “Participation is usually coordinated by enthusiastic individuals or groups at the sites.” There is even a sorting station for composting and recycling in the basement of the Student Union building that is open to public usage.

UBC composts everything on their own campus where 1900 tons of compostable waste per year is converted into rich and healthy soil that is then used in campus landscaping and gardening. This not only cuts down on the amount of waste generated by the campus but also reduces the transportation required to move the waste or compostable material to proper facilities. UBC is the first of its kind of any Canadian universities, making a conscious effort to minimize and properly dispose of all waste.

4.0 Research & Analysis

Waste in Arntzen Hall and Environmental Studies Buildings

Waste Type	Total Weight (lbs)	%weight of AH/ES	Total Volume (gal)	%volume of AH/ES	Waste Type
CI	17.55	18.71%	39.5	27.72%	CI: Compostable Items
FS	14	14.93%	3.5	2.46%	FS: Food Scraps
PC	6.5	6.93%	23.5	16.49%	PC: Paper Cups
L	13	13.86%	1.5	1.05%	L: Liquids
PL	12.5	13.33%	32.5	22.81%	PL: Plastic
AL	2	2.13%	4	2.81%	AL: Aluminum
GL	7	7.46%	3.5	2.46%	GL: Glass
PF	2	2.13%	3.5	2.46%	PF: Plastic Film
MP	9	9.59%	9.5	6.67%	MP: Mixed Paper
CD	0.25	0.27%	0.5	0.35%	CD: Cardboard
TN	0	0.00%	0	0.00%	TN: Tin
GB	10	10.66%	21	14.74%	GB: Garbage
TOTAL	93.8		142.5		

AH/ES	Total Weight (lbs)	% weight by Category	Total Volume (gal)	% volume by Category
Compost	51.05	54.4%	68.0	47.72%
Recycle	32.75	34.9%	53.5	37.54%
Garbage	10	10.7%	21.0	14.74%
TOTAL	93.8		142.5	

Arntzen and Environmental Studies Restroom Waste

Waste Type	Total Weight (lbs)	% _{weight} of AH/ES/restrooms	Total Volume (gal)	% _{volume} of AH/ES/restrooms
CI	81.55	51.68%	163.5	61.35%
FS	14	8.87%	3.5	1.31%
PC	6.5	4.12%	23.5	8.82%
L	13	8.24%	1.5	0.56%
PL	12.5	7.92%	32.5	12.20%
AL	2	1.27%	4	1.50%
GL	7	4.44%	3.5	1.31%
PF	2	1.27%	3.5	1.31%
MP	9	5.70%	9.5	3.56%
CD	0.25	0.16%	0.5	0.19%
TN	0	0.00%	0	0.00%
GB	10	6.34%	21	7.88%

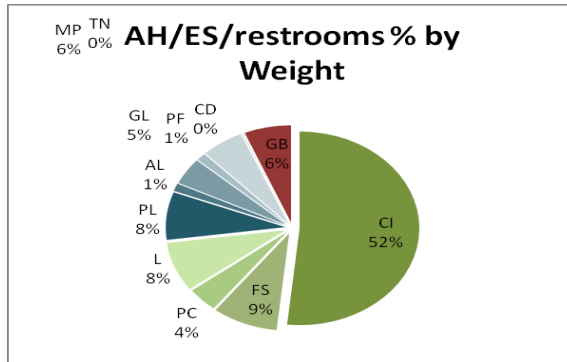
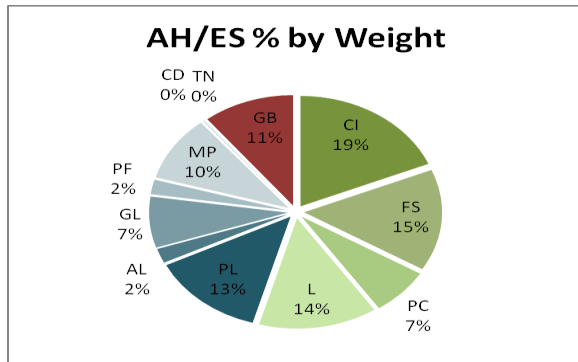
Waste Type

- CI: Compostable Items
- FS: Food Scraps
- PC: Paper Cups
- L: Liquids
- PL: Plastic
- AL: Aluminum
- GL: Glass
- PF: Plastic Film
- MP: Mixed Paper
- CD: Cardboard
- TN: Tin
- GB: Garbage

TOTAL	157.8	266.5
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AH/ES/restrooms	Total Weight (lbs)	% weight by Category	Total Volume (gal)	% volume by Category
Compost	115.05	72.9%	192.0	72.05%
Recycle	32.75	20.8%	53.5	20.08%
Garbage	10	6.3%	21.0	7.88%

TOTAL	157.8	266.5
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5.0 Conclusion

From this project we learned the difficulties of gathering and dispersing information on campus; especially with regards to a project that requires so much interdepartmental cooperation. As the quarter began to wind down we were getting the green light from everyone involved but nothing was being put into place. In order to see concrete results from a project such as this, one must be persistent and never assume that intentions will lead to action.

6.0 Future Works

We have a great many plans for how Western could further its Zero Waste goals. We would like to see more sorting stations and improved signage at all the sorting stations. We would also like to expand our paper towel compost pilot to all campus restrooms. The ultimate goal behind projects like ours is to improve waste sorting by making recycle and compost bins as available as trash bins. In order for this to happen we need to reduce the number of small trash bins by removing them from classrooms and make waste sorting the norm all over campus. For these projects to maximize success, education must play an integral role and be emphasized in future works.

7.0 Works Cited

Contacts

Nick Spring: Director of Outback Farm (360) 610-3700

Lucas Minor: Marketing for Campus Dining Services (360) 650-6625

Mike Smith: Academic Custodial Services (360)650-3932

Don Backenson: Manager of Custodial Services (360) 739-6651

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Richard Meyer: Recycle Center Manager (360) 650-3088

Tim Wynn: Director of Facilities Management (360) 650-3499

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Signs created by Lindsey Crawford, Office of Sustainability.



Figure 1.



Figure 2.