

**Increasing Education, Awareness, Participation, and Effectiveness in Composting on
Campus**

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THE UNIVERSITY OF BRITISH COLUMBIA FOOD SYSTEMS PROJECT

Scenario 7:

Increasing Education, Awareness, Participation, and Effectiveness in Composting on Campus



Group 8 (is great!)

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Abstract

Since the inception of the In-Vessel Composting Facility and the implementation of compost bins at different food outlets across the UBC campus, barriers to effective composting include a serious lack of consumer awareness about composting and the existence of such programs, as well as a lack of continuity between the existing prompts and campaigns. A literature review of past UBCFSP papers indicated a need to overcome these obstacles, which was accomplished by conducting a pilot project at Caffé Perugia. With permission from Caffé Perugia management, new prompts were design to create continuity between composting campaigns on campus and in the café, and a waste audit was conducted to see if composting weight increased. Over the two week audit, compostable material increased by nearly 20%, indicating that the prompts successfully improved consumer awareness. Recommendations have been compiled and addressed to UBC Waste Management, UBC Food Services, Caffé Perugia, and future AGSC 450 colleagues with the hope that they will continue to assist in increasing awareness about composting on the UBC campus.

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Introduction

The UBC Food Systems Project conducts a food system sustainability assessment and explores ways that the UBC Vancouver Campus can move toward the goal of food system sustainability (UBCFSP Executive Summary). Since 2001, over 700 students in the Agricultural Sciences Land, Food and Community III course (AGSC 450) as well as a number of community partners have been researching the barriers to food system sustainability at UBC and developing recommendations to overcome these barriers. Using Community Based Action Research (CBAR), “a collaborative approach to investigation that seeks to engage ‘subjects’ as equal and full participants in the research process” (Action Research, Ernest T. Stringer p. 9, 1999), this project has to date engaged much of the UBC campus community and implemented tangible projects that have improved food system sustainability and security at UBC.

The UBC Food Systems Project recognizes that “campuses can be considered significant contributors to waste streams” (FSP, 2007). Indeed, each year on campus, 1900 tonnes of compostable waste is produced, up to 70% of UBC’s waste, yet very little of it currently is (UBCWM). In 2004, the University invested in an In-vessel composting facility that has the capacity to compost up to 5 tonnes of waste each day (UBCWM). Much of the UBC Food Systems Project research has focused on ways to increase awareness and participation composting on campus.

Problem statement

Since its introduction on campus, the In-vessel composting facility has faced a number of challenges in successfully integrating into the UBC food system. One of the

main problems faced by the In-vessel Composting facility program was contamination of the compost bins with items that break the machine. Non-compostable materials such as milk cartons, plastic bags, and wooden chopsticks are often found in the compost bins and must be manually removed from the mass of compost before the In-Vessel can be used (UBC Waste Management (UBCWM)). Contamination occurs due to improper sorting of waste, which can be accidental due to a misunderstanding of what can and cannot be composted, or even due to vandalism.

A second challenge faced by the In-vessel composting facility is the lack of consumer awareness that results in low participation in composting on campus. Additionally, according to Josie Midha, manager of Caffé Perugia, many UBC Food Services Staff believe the composting pick-up times are too infrequent (Personal Interview, April 4, 2007); conversely, in an attempt to be more economically viable, the UBC Waste Management will only increase pick-up frequency if the waste volume in the bins increases (Group 2, 2006). Overall, these issues stem from a lack of consumer awareness on campus about the importance of composting and the existing composting program (Group 2, 2006, Group 17, 2006 and Group 5, 2006).

Recognizing these challenges, our group believes that improved compost bin usage must be coupled with increased awareness and the adoption of a unified, concise and informative advertising campaign in all food outlets on campus. Using Caffé Perugia as a pilot project, we partnered with Josie Midha to design and implement a poster campaign intended to improve the awareness of the importance of composting, composting locations within the café, and compostable materials. The design for the poster is grounded in the principles of Community Based Social Marketing (CBSM), and

draws from past research conducted by many of the Food Systems project partners including past AGSC 450 students and Social, Ecological and Economic Development Studies (SEEDs) projects. This paper describes the process we went through in developing a concise marketing campaign for Caffé Perugia and outline ways this project can be further applied to additional UBC food service outlets.

Group paradigm and vision statement reflections

Our group members come from a variety of cultural and geographical backgrounds including people from British Columbia, Alberta, Oregon, and Hong Kong. In addition, we represent the diversity of programs contained within the Faculty of Land and Food Systems, and thus often hold different viewpoints with regards to visions for a sustainable UBC food system. We present both idealist and realist viewpoints with regard to the UBC food system: some members support visions of an achievable sustainable utopia while others focus more on working for sustainability within the system as it currently stands. Despite these differences, we are united by our interest in food and our food system, whether our attention is focused on food production, food processing, food consumption and nutrition, or food as an integral part of a community. While working on this project, we came to support the idea that the way in which our society views waste – as garbage unless it is recyclable or compostable – is backwards; we should really see waste as recyclable or compostable unless it is garbage. This definition is supported by the waste management figure, stating that 70% of daily waste at UBC is compostable via our in-vessel composter (UBCWM).

After reviewing the two versions of the vision statement crafted by the UBC Food Systems Project stakeholders, our group found that while we agreed with the principles of each statement we also saw room for improvement in both. We feel that while certain values or ideas are implicit in the vision statements, they may not be explicit enough for people who are not already involved in and passionate about sustainability at UBC. For example, we feel that the plain language version does not describe what is meant by ecological sustainability; those unfamiliar with the practices of sustainable agriculture may not truly understand what this would look like in the vision of an ideal UBC food system. Our group also saw that even the plain language vision statement contained some jargon that might make it less accessible to the general population of UBC. For example, even the phrase “ecologically conscious” (UBCWCM) is complex and subjective, and while it may hold certain standard meanings in the UBC Food Systems Project community, it may have different definitions elsewhere. This problem could easily be remedied with an expansion on what this phrase means as the project stakeholders see fit.

Overall, we felt that both versions of the vision statement could be improved by adding value statements regarding consumption and energy use. After becoming immersed in the waste management system at UBC, we feel that optimizing the sustainability of the UBC food system through programs like recycling and in-vessel composting is important. But it is treating the symptoms of an unsustainable system. To address the underlying causes of these problems, focus should be brought to spurring reductions in consumption. While reducing overall resource consumption may be another implicit value for project stakeholders, it is not explicitly listed in the vision statements. Finally, we saw a large disconnect between the academic and plain language

vision statements. Our group aligned more closely with the academic version, which may be in part to our strong background in sustainability at UBC. Overall we thought the UBCFSP ideals were not elucidated as successfully in the plain language vision and had somehow been lost in translation from the academic version. See appendix A for Seven Guiding Principles.

Research methodology

To better understand why composting is inefficient at UBC as a whole, a series of research was conducted to gain background information through a review of primary and secondary sources. The primary sources included a comprehensive investigation of the waste system at Caffé Perugia and working closely with the manager of the café, Josie Midha. Secondary sources included UBCFSP past papers, most notably the 2006 Scenario 5: Increasing Education, Awareness, Participation and Effectiveness in Composting on Campus. Secondary sources also included the series of recommended resources as stated in the 2007 UBCFSP scenario 7 pg.17-18, which were reviewed to gain an understanding of the composting system at UBC, Community Based Action Research, and successful marketing strategies.

The group decided to focus on improving composting awareness through advertising at one specific UBC food services location with the hope that results from this project could be applied to other UBC food venues. The target population for this project is broad – including faculty, staff, students, and other consumers purchasing food at Caffé Perugia – which we felt was necessary in order to raise awareness about composting in the UBC community as a whole. Our group chose to use Caffé Perugia as the site of this

pilot project as they are equipped with a composting bin, are in a fairly isolated location, and have a wide variety of customers. Caffé Perugia is suited to a waste audit as the amount of compost generated is moderate and of manageable quantity. In addition, compost generated comes almost entirely from items sold within Caffé Perugia, allowing for a more accurate assessment of the new composting signs, which were put up in the same area.

The pilot project included redesigning compost advertising materials and reorganizing their display locations that were thought ineffective. A waste audit was conducted to determine if the change in posters created a measurable increase in amount of compost produced, and an interview with Caffé Perugia's manager was held to understand the usefulness of these efforts. Before beginning the waste audit, the group designed new posters and evaluated where they should be placed for optimal effectiveness based on existing materials from the Sauder School of Business paper, "Compost Social Marketing Plan for UBC Food Services" (CSMP, 26) and past AGSC 450 groups. These specific placement recommendations will be evaluated in greater detail in our discussion section.

The group conducted two three-day trials with and without the compost posters by following the nine basic steps to performing a waste audit as recommended by the New South Wales Department of Environment and Conservation (NSWDEC). See appendix B for NSWDEC Steps. First, Caffé Perugia's manager was contacted regarding the proposed audit, and with her cooperation and support the audit was initiated. A baseline amount of compost was determined by measuring the weight (in pounds) of compost currently produced at Caffé Perugia each day. Weight was measured at the same time

each day, first by holding the compost bag and weighing a group member on a conventional personal scale and then by subtracting the person's weight from the total measurement. In the second week, redesigned posters were placed next to both cash registers in the café, as well as above the waste station. The waste audit was conducted in the same manner as the audit for the first week and measurements were recorded.

Findings

Review of secondary sources

After reviewing action research methods, the group found that the key components to improving a behavior such as composting include identifying barriers to success and creating prompts to overcome those obstacles (McKenzie-Mohr 4). Review of past UBCFSP papers and the Sauder School of Business CSMP paper revealed that lack of awareness is clearly the largest barrier to participation in composting on the UBC campus (CSMP 2006).

In the past, different posters and campaigns have been created to address this low level of awareness. However, the materials created by many groups involved in UBC composting lacked continuity and clarity, which became a barrier to their effectiveness. Based on research, the group found that successful prompts should encourage positive behavior, be attention grabbing, and be uniform (McKenzie-Mohr, 4; CSMP 2006).

Site survey of Caffé Perugia

After visiting Caffé Perugia for the first time, the group found that there were already many tools in place to encourage composting. Well-designed waste stations that had side-by-side bins for garbage, recycling, and composting waste were conveniently

located near one of the café's two exits. Signs located above the waste station and tent-cards located on the dining tables provided composting facts. These prompts included information about the in-vessel, what materials can be composted, and the importance of composting. However, there was little continuity between these materials, as they were each provided by different stakeholders and carried no standard formatting or logos.

Communication with Caffé Perugia management

In our first few meetings with Josie Midha, she expressed her concerns with the current composting system at her café and pointed out opportunities for improvement. Josie identified the need for more continuity between the composting materials and had a strong desire for clearer signs above the waste station indicating which site-specific items could and could not be composted. Josie also expressed her frustration with how frequently the compost had to be discarded, as leaving it in the café bin attracted fruit flies that are unfavorable to any food venue.

Josie acted as a liaison between the group and Caffé Perugia's staff to ensure everyone was aware of and involved in the project. Throughout the entire process, Josie was very receptive to our ideas and was eager to participate in the group's efforts to improve composting at Caffé Perugia.

Waste Audit

The data collected during the waste audit is illustrated in Table 1 below.

Table 1: Pounds of compost at Caffé Perugia before and after implementation of new prompts

	Baseline measurements			After new posters installed		
Date	Wednesday 3/21/07	Thursday 3/22/07	Friday 3/23/07	Wednesday 3/28/07	Thursday 3/29/07	Friday 3/30/07
Compost Weight (lb)	5.0	3.0	4.5	6.0	3.5	5.5
Average compost weight (lb)	4.2			5.0		

Clearly, the amount of compost created increased during the second week audit when the new signs were posted. The average compost weight increased by nearly 20% when the new signs were implemented, rising from 4.2 pounds the first week to 5.0 pounds the second week. For both weeks, the group observed that there was no difference in the content of waste being composted. The content consisted mainly of paper products including plates, coffee cups, napkins, and checkered tray liners. A low level of contamination was also observed in both weeks, as the group found the occasional milk carton and plastic utensil in the compost bin.

Discussion

Overall, this project proved to be very successful, both in terms of the waste audit results and the strong relationship formed between our group and the manager of Caffé Perugia, Josie Midha. This discussion will examine the effectiveness of our poster design and poster display locations, the results of the waste audit, and the increase in composting awareness that arose from the relationship built between our group and Caffé Perugia.

Effectiveness of poster design and location

When designing the posters, our main goal was to remedy the barriers to success. We achieved this goal by creating posters that were eye catching, uncluttered, personalized for Caffé Perugia, clear, concise, and flexible enough to be used as templates for other venues (CSMP 2006, McKenzie-Mohr, 4). We also created a sense of continuity between our posters and the existing “Get Caught Composting” campaign by using their slogan as the heading of our poster. By creating signs based on materials extracted from our secondary resources, the group hoped that the repetition would increase awareness more effectively than the competing pre-existing signs. Customers were exposed to our signs as they purchased their food and later discarded their waste; the continuity between the signs at the cash register and the waste station made customers more aware of the overall message to compost their organics.

In addition to the posters’ content, placement proved to be vital to their success. According to the Sauder School of Business CSMP, effective posters should be located at eye-level, highly visible, and posted near the cash registers where consumers are most likely to read them (CSMP,12). It is also important to ensure that there is no competition between posters for the composting program and any other posters (CSMP, 5). Our poster placement satisfied these recommendations, and based on the results of the waste audit these strategies proved to be effective. The only difficulty that arose over the course of the project was that one sign on the back of a cash register fell off and employees were slow to replace it. It is possible that this may have negatively affected our waste audit results. Optimally, signs should remain posted at all times.

Reflection on waste audit setup and results

The 20% increase in the weight of compost created at Caffé Perugia indicates the success of the posters we designed. Our waste audit was consistent in that the compost was weighed on the same days over the course of two weeks at the same time each day. However, despite the overall success of our audit, there were a few areas that could be improved for future audits. First, Josie informed the group that the compost bins are typically emptied 2-3 times a day, but due to time restraints and convenience, we weighed the compost only once a day. For this reason, the bins were more full than usual each time we arrived – almost overflowing – which may have possibly deterred consumers from composting. This could have been avoided by gaining more information on Caffé Perugia's waste flow prior to starting the audit, and by emptying the compost bins more than once a day. Secondly, we briefly assessed the content of the compost bin at each weighing to evaluate the level of contamination. Approximately, the same type and amount of contamination existed in both weeks of our audit. For this reason, the group found that the redesigned prompts were more effective in encouraging people to compost their waste, and that they had no effect on the content of waste that was composted; however, contamination was low to begin with. For future waste audits, both compost and contaminants should be monitored to gain a more accurate understanding of how much compostable waste was truly created. Future groups should make sure to sort through the compost bins, separate the compostable material from the contaminants, and weigh each separately. By recording the weight of contaminants versus compost, more precise measurements would be obtained.

Reflection on management communication

The support we received from Josie was positively overwhelming and proved to be key to the success of our project. Her willingness to be involved and to allow us to use Caffé Pergia as our pilot plant created an ideal situation to implement our ideas. In an interview with Josie, she communicated that it was because we approached her in a professional manner and allotted ample time to complete this project that she was more willing to be involved. She also stated that because we were organized and straight-forward with our proposal that she did not feel she would be taking on any additional responsibility – this was key to creating a solid relationship between our group and management. Josie continued to say that the most important element of creating a successful composting campaign is, “to get the employee team or who ever to buy into it. Composting should be convenient, easy, and manageable without too much re-training involved” (Personal Interview, April 4, 2007). Josie also emphasized that her personal awareness has increased, which according to the Sauder CSMP is an important key to creating change in an establishment like Caffé Perugia. (CSMP, 4). In this project, Josie Midha emerged as a champion, which has been noted as a vital component to long-term waste management reform (RRFB). Josie made an effort to involve and motivate her staff and committed to make the composting system at Caffé Perugia a long-term success.

Recommendations

UBC Waste Management

- Since 70% of UBC waste can be composted or recycled (UBCWM), we recommend installing bins that represent this ratio. This would mean decreasing

the number of garbage bins and increasing the number of compost/recycle bins. This would encourage a paradigm shift towards one that sees waste primarily as recycling and compost over simply garbage. This recommendation is further strengthened by the comments of Andrew Parr, director of UBC food services, who noted that his suggestion to the UBC administration would be to have a composting facility accompanying every garbage bin on campus (Lecture March 7, 2007).

- Make composting more convenient by placing the bins in strategic locations. For example at Caffé Perugia, there are two exit points but only one has a composting station. Placing a compost bin at the other exit would be more convenient for customers and thus increase composting.
- Collaborate with Food Services to build a universal campaign on campus. Have AGSC 450 students draw upon previous research conducted by the UBC food systems project to design and administer the campaign. For example, the marketing campaign we designed in collaboration with Caffé Perugia could be adapted to suit the needs of all UBC food services outlets.

UBC Food Services

- Eliminate all Styrofoam containers and find alternatives to plastic utensils. Generally minimize the volume of non-compostable materials.
- Emphasize compost marketing and repetition: put composting propaganda on trays and in other spaces that will increase customer awareness.

- Enhance customer awareness of negative externalities such as the increased waste involved in take-out packaging.
- Explore the implications of employing a surcharge or ‘green-charge’ as done in Totem, Vanier, and Agora. Expand the reusable container discount program currently offered at Caffé Perugia and many other UBC food service outlets by ensuring that the program is widely publicized.

Caffé Perugia

- Install a compost bin by the coffee station opposite the current waste station to facilitate composting of coffee waste products such as cups, sugar packages and cardboard sleeves.
- Raise awareness of current waste minimization initiatives like the reusable take-out discount. While such ventures are potentially effective, a lack of customer awareness mitigates their effect considerably.
- Actively discourage the use of take-out containers through informative signage and verbal communication. Many customers ask for take-out when they plan to eat in the lobby just outside of the restaurant; they could easily use compostable containers (e.g. paper plates and trays).
- Continue to train and educate staff on the importance of composting and the ways that the café contribute to the sustainability of the UBC food system.

Future AGSC 450 Colleagues

- Using the Caffé Perugia pilot project as a model, collaborate with other UBC food service outlets to create better signage for composting.
- Attempt to personalize trusting relationships with UBC FSP partners; doing so greatly facilitates both project implementation and feedback.
- Maintain continuity with past projects to increase time-use efficiency and strengthen projects already in place. Critically evaluate ideas and recommendations from past groups to filter out ones that are ineffective.
- When performing a waste audit, research the flow of waste beforehand. Compost bins may require emptying 2-3 times per day; a bin being allowed to overflow due to a lack of attention will not only poorly reflect on AGSC 450 classes as irresponsible (fruit flies) but will negatively affect audit results.

Connection to the Global Food System

When describing the connection between the composting scenario and the broader food system, we are inclined to look only at the economic and environmental impacts involved with waste and less so at the social aspects. Indeed, the huge production of waste contributes to many environmental problems including increased gas emissions due to long trips made from the collection of waste to landfills, and contamination of soil and groundwater due to leakage of toxic compounds (Christenson and Cozzarelli, 2003). Many waste management models have been developed in the last few decades to address these problems, but very few capture all three sustainability factors (Morrissey and Browne, 2003). These models were also only concerned with dealing with waste once

generated and did not suggest ways to minimize or prevent waste (Morrissey and Browne, 2003).

One of the biggest problems we face at UBC, which models the same problem we see in the global food system, is the disconnection between people and food. Michael Pollan in his book *Omnivore's Dilemma* describes the same problem several times and states that “how and what we eat determines to a great extent the use we make of the world – and what is to become of it” (Pollan, 11). In the same way, how we deal with our waste now determines greatly what the world will be like in years to come. This disconnection is due in part to the fact that our waste is so conveniently taken away (Clapp, 2002). In the homes, many people don't think twice about where their waste goes after they throw it in the garbage bin because each week the garbage truck comes and picks up the trash, never to be seen again. At UBC, the garbage truck and crew help keep the campus clean by emptying dumpsters and garbage cans, and the recycling crew and composting crew also pick up their respective colored bins (UBCWCM). Students often take this service for granted; they lack knowledge and concern for where their wastes go.

UBCWCM as well as this scenario play an important role in addressing this problem. In the past years, the development of plans and strategies to promote awareness and participation, reduce waste, and increase composting is one step towards creating a sustainable food system at UBC. The In-Vessel Composting Facility as well as the Organics Collection Program are examples of strategies that have been implemented. These programs have seen some success, but are still facing problems such as contamination of the green compost bins (UBCWCM). Again, the problem can be

remedied by raising concern and awareness of composting programs and the beneficial impacts composting, recycling, and reducing waste can make. Since the global food system likely face similar challenges as UBC, if we can create a successful closed-loop food system here that includes all three aspects of sustainability, our model may be applied to the broader food system. Other institution and communities can evaluate and refine our model to suit their goals and objectives for the sustainability of their own food system (Group 2, 2006).

Conclusion

University campuses like UBC are significant contributors to waste streams (FSP, 2007), and while most of this waste is compostable – 70% of waste at UBC can be composted – this level of organic recycling is not currently achieved (UBCWWM). It has been proposed that many people in the UBC community do not compost as much of their waste as they could due to a lack of awareness on what composting is, how it is beneficial, and which of their waste items can be composted. Thus, increasing awareness is imperative to changing improper waste disposal behavior on campus.

This project aimed to demonstrate that improving the advertising for compost in UBC food outlets by creating a unified, concise, and informative campaign can help achieve such an awareness increase. Drawing from past Food Systems Project partners' research and using Caffé Perugia as a pilot project, we designed and implemented a poster campaign grounded in the principles of Community Based Social Marketing. After performing a waste audit and interview of Josie Midha, manager of Caffé Perugia to determine the success of this pilot, our central findings were:

- Site-specific marketing is effective.
- Continuity between composting campaigns now and from future projects is possible, and will unify the efforts of many stakeholders in the UBC compost program to create a stronger overall advertising operation
- Establishing strong relationships with primary sources such as the management of UBC food service outlets is highly beneficial they are key players in the long term efforts to continual improvement of compost programs at food outlets they oversee
- Finally, effective pilot projects, such as ours, should be replicated in other UBC food service outlets to further positive change.

Works Cited

- Chan, C., Fu, L., Jackson, S., Lee, V., et al. (2006). The UBC Food System Project: Scenario 5: Promoting Education, Awareness & Participation in Composting at UBC. Group 17.
- Cheung, S., Flint, A., Greenwood, J., Lee, A., et al. (2006). The UBC Food System Project: Scenario 5: Promoting Education, Awareness & Participation in Composting at UBC. Group 27.
- Christenson, S. C. & Cozzarelli, I. M. "The Norman Landfill Environmental Research Site What Happens to the Waste in Landfills"? U.S. Geological Survey (2003). 05 April 2006 <<http://pubs.usgs.gov/fs/fs-040-03/>>.
- Clapp, J. "The Distancing of Waste: Overconsumption in a Global Economy." *Confronting Consumption* (2002). 155-176. Retrieved 24 March 2007 from: <http://www-rohan.sdsu.edu/faculty/dunnweb/rprnts.2005.10.10Clapp.pdf>
- McKenzie-Mohr, D. "Quick Reference: Community-Based Social Marketing." Retrieved March 4 2007 from <<http://www.cbsm.com/members/newused/CBSM.pdf>>
- Morrissey, A.J., and Browne, J. "Waste management models and their application to sustainable waste management." *Waste Management* (2003). 24(3):297-308. Retrieved March 24 2007 from: http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&list_uids=15016418&dopt=Citation
- Pollan, M. (2006). *The Omnivore's Dilemma: A Natural History of Four Meals*. New York: The Penguin Press.
- Sauder School of Business : Commerce 468 Marketing Applications group. December 2006. "Compost Social Marketing Plan for UBC Food Services."
- Stringer, Ernest. (1999). *Action Research Second Edition*. Thousand Oaks: Sage Publications, Inc.
- UBC Waste Management (UBCWM). March 2006. 10 March 2006. <<http://www.recycle.ubc.ca/index.htm>>
- "WRAPP Facts: Waste Audit Guide." New South Wales Resource Recovery Board: Departments of Environment and Conservation. Retrieved 20 March, 2007 from <<http://www.wrapp.nsw.gov.au/factsheets/factaudit.shtml>>

Appendix A

Seven Guiding Principles

“The **overarching goal** of a sustainable food system is to provide nutritious, healthy and safe food to the UBC community while contributing to the *protection and enhancement of the diversity and quality of the ecosystem and to improve social equity, whereby:*

1. Food is locally grown, produced and processed.
2. Waste must be recycled or composted locally.
3. Food is ethnically diverse, affordable, safe and nutritious.
4. Providers and educators promote awareness among consumers about cultivation, procession, ingredients and nutrition.
5. Food brings people together and enhances community.
6. Is produced by socially, ecologically conscious producers.
7. Providers pay and receive fair prices.

Appendix B

NSWDEC Steps

1. Plan the audit and define the study area.
 - Get management support
 - Define objectives
 - Organize people to do the audit
2. Collect Waste.
3. Sort the waste into different categories and record data.
4. Analyze data and write up report.

Get Caught Composting!



**Caffé Perugia wants you to know that
70% of UBC's waste is compostable,
including:**

- **Coffee Cups**
- **Paper pastry Bags**
- **Checkered Tray liners**
- **Paper Plates and Napkins**
- **ALL Food Waste**

Compost at the waste station



Get Caught Composting!



What to compost:

✓ YES	× NO
✓ All food waste	× Styrofoam containers
✓ Coffee cups	× Plastic coffee lids
✓ Paper pastry bags	× Wooden stir sticks
✓ Checkered tray liners	× Milk cartons
✓ Paper plates & napkins	× Plastic cutlery

Compost here!



Get Caught Composting!



You can compost most coffee waste!

- ✓ **Coffee cups**
- ✓ **Napkins**
- ✓ **Sugar packets**
- ✗ **Not lids and stir sticks**

Compost at the waste station!

