

# THE UNIVERSITY OF BRITISH COLUMBIA FOOD SYSTEM PROJECT

SCENARIO 5:  
PROMOTING EDUCATION, AWARENESS &  
PARTICIPATION IN COMPOSTING AT UBC

GROUP 27  
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## **ABSTRACT**

We begin with an introduction to the University of British Columbia Food System Project and to Scenario 5. We then define the problem within our scenario. Next, we identify the value assumptions and biases found within our group and its members. This provides basis for us to reflect upon the UBCFSP's Vision Statement and Guiding Principles, which we then do.

By establishing our position in relation to the UBCFSP and Scenario 5, we are able to define our group's role in approaching this problem. To address the problem of lack of awareness and participation in composting at UBC, we conduct research of secondary sources and informal interviews to identify the existing tools used to promote composting at UBC. From there we develop an inventory of tools and their respective indicators.

After identifying the tools used to encourage awareness and participation in composting at UBC, we assess the effectiveness and barriers of certain tools through a case study at Gage Residence. We begin by outlining the history of the composting program at Gage Residence and then use a surveying method to measure the indicators of certain tools.

We discuss our methodology and results, and identify the limitations of our survey. Most importantly, we discuss the conclusions that the survey yields, including the effectiveness, barriers and ways to overcome the barriers of the tools we studied. We then offer our recommendations and reflect upon our participation in the project.

## **INTRODUCTION**

Over the past five years, the Faculty of Agricultural Sciences at the University of British Columbia has embarked upon an in-depth study focused on determining the sustainability of the University of British Columbia (UBC) food system. "The UBC Food System Project (UBCFSP) is a collaborative, community-based action research project involving multiple partners and collaborators" (UBCFSP V.). The 2006 UBCFSP is being conducted within seven scenarios. Our scenario (#5) revolves

around “Promoting Education, Awareness and Participation in Composting at UBC” (UBCFSP V.)

The establishment of and participation in an effective campus-wide composting program is a vital element in launching a sustainable food system, and therefore a sustainable community, at UBC - both now and in the future. There is a close link between an individual’s relationship with their food and their relationship to the environment, especially in regards to composting. Ultimately, this relationship affects the sustainability of the planet.

Composting offers many benefits to the environment. These benefits include: resource efficiency, regeneration of poor soils, suppression of plant diseases and pests, reduction and/or elimination of the need for chemical fertilizers, the promotion of higher yields of agricultural crops, and the creation of useful products from organic waste that would otherwise have been landfill. Composting helps to amend contaminated, compacted and marginal soils. Where applicable, composting can also provide cost savings of at least 50 percent over conventional air, water, and soil pollution remediation technologies (EPA). The production of beneficial microorganisms (mainly bacteria and fungi), which in turn break down organic matter to create humus (a rich nutrient-filled material), helps soils retain moisture and increases the nutrient content in soils. This whole process is established through and encouraged by composting (ibid.)

## **PROBLEM DEFINITION**

UBC is the first Canadian university to build an In-vessel Composting Facility on its campus in order to further its goals toward developing a sustainable, environmentally sound campus (UBCWCM). This In-vessel Composting Facility has the capacity to compost 4-5 tonnes per day of leftover food, plant waste, and paper products (ibid.). Thus, as UBC produces over 12 tonnes of waste per day and “35% of that waste stream is made up of compostable” materials (WasteFree UBC), UBC has the potential to reduce its waste significantly through composting. The Composting Facility also produces soil that can be used on campus, for farms and gardens, decreasing the

amount of soil and fertilizer UBC would otherwise need to buy (UBCWWM). In addition, increasing composting on UBC campus would reduce fuel emissions as the volume of soil and waste sent to and from UBC would decrease.

UBC Waste Management aims to increase composting on campus, but has thus far encountered problems with awareness of and participation in composting at UBC (UBCFSP V.). While many UBC students say they are concerned about sustainability issues, there is very low awareness of actual sustainability-promoting programs in place at UBC (UBCSO). However, though awareness of such programs is necessary, campus participation and involvement is the ultimate goal.

Our role in addressing the problem of lacking awareness and participation of composting at UBC is to assess the effectiveness and the barriers of the existing tools used to encourage campus awareness and participation in composting. Upon completion of these tasks, we will propose strategies to increase the effectiveness and to reduce the barriers of such tools.

## **IDENTIFICATION OF VALUE ASSUMPTIONS**

Coming from various educational backgrounds (Dietetics, Food & Resource Economics, Global Resource Systems, Food Science, Food Market Analysis, and Nutritional Sciences), our group places emphasis on different priorities in sustaining the food system through composting. These include environmental health, education/awareness, economics, family values, social values, program efficiency and sense of community care. The majority of members in this group take on a weak anthropocentric position in regards to how the UBC food system can be made more sustainable, particularly in regards to composting. Our programs are rather diverse in content; however, all group members have participated in the Land, Food and Community series, which also contributes to our understanding of and appreciation for the relevance and connections of composting within the sustainability paradigm. Because we have varied interests and specializations within our group, some group members differed on which principles were most important in

regards to composting and the sustainability paradigm. We feel that, because our position is weakly anthropocentric, adopting more ecocentric ideals may be a positive move in helping to ensure that composting remains and increasingly becomes an important priority in UBC's food system. Our group recognizes that in order for composting to become an important priority in helping to sustain the food system, it must be taught, encouraged, be easily accessible, effective and cost efficient.

## **VISION STATEMENT**

The UBCFSP partners collaboratively developed a vision statement for the project in the form of 7 guiding principles:

- 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, processing, 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
- (UBCFSP V.)

As a group, we agreed that these principles didn't accurately capture the full spectrum of sustainability. Though emphasis on social and environmental elements of sustainability is present within the principles, we feel that economic sustainability has been overlooked. We feel that a further emphasis on economic feasibility and sustainability is necessary. Having an economist in the group may have contributed to our arrival at this conclusion; however, the Land, Food & Community series and the application of the sustainability paradigm provided a background for each of us to understand that sustainability must encompass social, environmental and economic factors.

Our group also felt that the use of the word 'local' presents a conflict. The term local can be applied to many scales, and is therefore ambiguous. In addition, conflict may also rise from the application of these principles, as food that is ethnically diverse may not be able to be produced

locally. Approximately half of our group members are from overseas, and therefore our group's conceptions of local and ethnic diversity are understandably broad.

Lastly, our group found that the UBCFSP approach is lacking in practical application and perhaps too idealistic. Though a clear vision and guiding principles are necessary, without room for pragmatic application these ideals are meaningless. Again, our educational backgrounds in science and economics contribute to our position on practical application.

## HISTORY

To assess the history of composting at UBC, our group compiled an inventory of the tools and indicators used to promote awareness and participation in composting at UBC. We feel that this step is crucial to assessing the effectiveness and barriers of these tools as it identifies the indicators that would need to be measured to complete the assessment.

<b>TOOLS</b>	<b>INDICATOR</b>
<ul style="list-style-type: none"> <li>WORKSHOPS – backyard &amp; worm bin composting</li> </ul>	<ul style="list-style-type: none"> <li>number of attendees</li> <li>number of referrals</li> <li>number of positive responses</li> </ul>
<ul style="list-style-type: none"> <li>NEWSLETTER – ‘The Rind’</li> </ul>	<ul style="list-style-type: none"> <li>distribution numbers</li> <li>number of distribution modes, advertising revenue</li> <li>responses</li> </ul>
<ul style="list-style-type: none"> <li>COMPOST CONSULTING</li> </ul>	<ul style="list-style-type: none"> <li>number of clients</li> <li>number of referrals</li> <li>number of positive responses</li> </ul>
<ul style="list-style-type: none"> <li>BROCHURE – Guide to Organics Collection, In-Vessel Brochure, In-Vessel Brochure list, Collection list</li> </ul>	<ul style="list-style-type: none"> <li>distribution numbers</li> <li>surveys to indicate efficacy</li> <li>number of outlets for distribution</li> </ul>
<ul style="list-style-type: none"> <li>GREEN BINS</li> </ul>	<ul style="list-style-type: none"> <li>frequency of pickups</li> <li>volume of collected matter</li> <li>number of bins</li> <li>spatial distribution</li> <li>proximity to food consumption areas</li> <li>proximity to garbage cans</li> </ul>
<ul style="list-style-type: none"> <li>SORTING STATIONS</li> </ul>	<ul style="list-style-type: none"> <li>number of stations</li> <li>proximity to food consumption areas</li> <li>frequency of pickup</li> </ul>

	<ul style="list-style-type: none"> <li>• volume of collected matter</li> <li>• spatial distribution</li> <li>• proximity to garbage cans</li> </ul>
<ul style="list-style-type: none"> <li>• POSTERS- In-Vessel Info Poster, Organic Waste Composting Poster, Recycling and Composting Poster, Composting Poster and Compost Paper Products Poster</li> </ul>	<ul style="list-style-type: none"> <li>• number of posters</li> <li>• number of positive responses</li> <li>• survey to indicate efficacy</li> <li>• numbers of location of posting</li> </ul>
<ul style="list-style-type: none"> <li>• TOURS- In-Vessel Composting Facility tours</li> </ul>	<ul style="list-style-type: none"> <li>• number of visitors</li> <li>• number of referrals</li> <li>• number of positive responses</li> </ul>
<ul style="list-style-type: none"> <li>• Organics Collection Program training</li> </ul>	<ul style="list-style-type: none"> <li>• number of attendees</li> <li>• number of referrals</li> <li>• number of positive responses</li> </ul>
<ul style="list-style-type: none"> <li>• Composting Presentations and Lectures</li> </ul>	<ul style="list-style-type: none"> <li>• number of attendees</li> <li>• number of referrals</li> <li>• number of positive responses</li> </ul>
<ul style="list-style-type: none"> <li>• Student Composting Projects facilitation</li> </ul>	<ul style="list-style-type: none"> <li>• number of projects completed</li> <li>• level of support from facilitators</li> </ul>

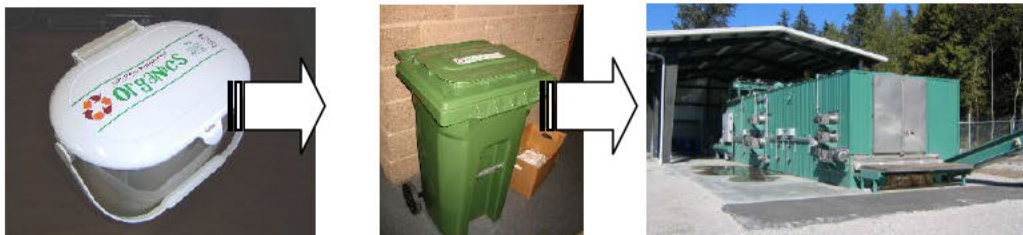
## HISTORY OF COMPOSTING AT GAGE RESIDENCE

The Walter H. Gage Residence, (Gage) is located at 5959 Student Union Blvd. Westbrook Mall. It was originally constructed in 1972, and renovated in 1984 (Library). The residents at Gage are mostly upper-year undergraduates. The development is made up of three 17-storey towers, and tucked in behind the towers are 95 studio and 64 one-bedroom units. Gage is located beside the amenities of the Student Union Building, the Student Recreation Centre, pools and the bus loop. Within the towers, each floor is divided into four units where common facilities including the kitchen, bathroom and living room are shared. In total Gage can house up to 1419 beds. It is also widely used by conference groups in summer. The complex includes a 17-storey tower, a single floor Common Block and 3, 4, and 5-storey low-rise apartments (Library). Construction of a new housing complex adjacent to Water Gage began in March 2005 and will continue through December of 2006.



Composting at Gage began in 2001 with an independent program consisting of a three-bin backyard composting system (En-Gage). The bin was wooden, and placed outside over grass or soil so that soil organisms could migrate into the compost bin over time to help decompose the organic waste (UBCWWM). This project was largely unsuccessful because there was a lack of clarity regarding who was responsible for turning the compost, and it was not properly maintained (En-Gage).

Within the past three years, Gage residence has become involved with UBC's Composting Program. Participating in UBC's Composting program means that Gage residence has been added to a list of collection sites that includes: Totem and Vanier cafeterias, Ponderosa Cafe, International House, Scarfe, AERL, the Forest Science Centre, MacMillan, Sage/Koerner's, Green College, David Lam, Brock Hall and UBC Childcare Services (UBCWWM). Residents collect organic waste in small containers in their kitchens. Containers are available for each of the quads, and a fine is levied if the bins are not returned at the end of the school year. The students are then responsible for emptying their containers into a communal green bin located in the basement of the residence complex, and UBC Waste Management collects the communal bin every week (ibid.). The large green bins are then taken to the In-Vessel composter. UBC Waste Management and a student group called 'En-Gage' have been working together to provide composting information and guidance to students living in the Gage Residence (En-Gage).



## **METHODOLOGY AND JUSTIFICATION**

Our group began approaching Scenario Five by analyzing secondary sources. We reviewed some course readings, materials from AGSC 450 course's WebCT site, and electronic and written material from UBCFSP partners and stakeholders. A lot of information was provided by the UBC Waste Management website. In reviewing this secondary literature, we found that UBC Waste Management offers many consulting services to help develop composting systems, provide training, and monitor small-scale projects. They provide information about composting through worm bin and backyard workshops and produce a compost newsletter called "The Rind".

One of the projects that UBC Waste Management is involved with is the Organic Collection Program. The goal of this project is to increase compost materials for utilization. Participants in the program will place green bins around campus that collect Organic Wastes. Collection sites on campus include the Totem and Vanier cafeterias, Ponderosa Café, International House, Scarfe, AERL, the Forest Science Centre, MacMillan, Sage/Koerner's, Green College, David Lam, Brock Hall and UBC Childcare Services (UBCWMM). Private residences on campus are also involved in this program. These residences include Hawthorne Greens and the Promontory (*ibid.*).

Recently, upper-level undergraduate residences at UBC such as Gage Towers have also become involved with the composting program. Our group decided to explore the awareness and participation of composting at Gage Residence. We chose this area because they are densely populated with students who cook many of their own meals. Also, this population was chosen because occupants at Gage are not first year students. We made the assumption that they are more likely to be pre-exposed to some composting campaigns. Therefore, we can evaluate the awareness levels and the effectiveness of available resources.

Indication of awareness and effectiveness of the composting program at Gage can be determined by performing formal/informal surveys, interviews or facilitating focus groups. Due to

time constraints, our group decided to conduct an informal survey sampling about 35-40 students. We obtained a consent form from the AGSC 450 class and we had to ask for permission from the Life Residence Manager to perform the survey.

Each member of our group surveyed at least five participants at Gage Residence. Time and location were non-specific. We believe random sampling can collect data that can be relatively more applicable to the general public. Our group came up with a list of questions that would provide some qualitative findings and quantitative data. From the quantitative questions, we could obtain actual numbers of participants who compost and some economic indicators (fees associated with composting service). On the other hand, we were able to identify existing barriers, come up with recommendations and test residents' knowledge on composting.

By the end of survey, we hoped to obtain some new information including, but not limited to, the following:

- ❖ Percent of residence who can identify the materials that can/cannot be composted
- ❖ Percent of residence who compost
- ❖ Percent of residence who are willing to pay for composting services
- ❖ Percent of residence who will opt in/opt out of composting services
- ❖ Identify barriers to composting
- ❖ Identify where residents obtain their resources about composting.

## **RESULTS AND ANALYSIS**

### *General Background on Composting:*

From the survey done on March 22, 23, 26 and 28, we collected data from 37 people. In order to assess their general knowledge on composting we asked questions #1-6 (see A1.). Out of the 37 responses, there were only 2 people who had never heard of composting. Within those who had heard about composting, friends and family (47%) were better sources of composting information than UBC (14%) (Figure I).

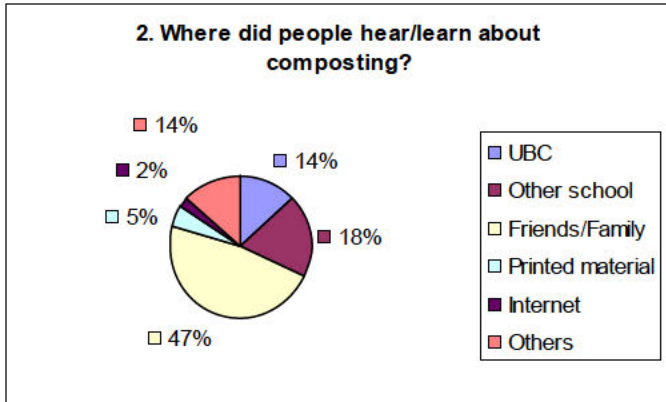


Figure I

When people rated their own understanding of composting, most people believed that they have a fairly good or very good understanding. However, when we asked them to identify compostable materials from a list of items, many of them identified incorrectly. Only 5 out of 26 people who said they have fairly good or very good understanding had correctly identified all. Within those 5 people, only 3 of them belong in the “very good understanding” category (Appendix I).

In terms of composting practice, only 26% of the participants have never composted, and of those that do compost, most have done it for more than two years (Figure II).

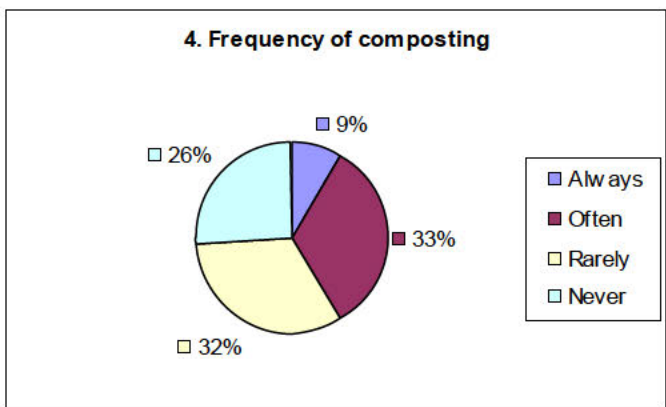


Figure II

*General Background on Composting at Gage:*

After assessing participants’ general knowledge about composting, we narrowed our survey to those who are living in Gage. We found that 7 out of 37 people that we investigated were not

residents of Gage, and more than half of the residents have lived there for only less than a year. In addition, within those who are residents of Gage, 19 people were aware of a composting program at Gage but only less than half of them are currently participating or have ever participated in the program. For those who do not participate, they mainly feel the program is inconvenient and have no time to do it. However, those who participate in the program believe that composting has positive environmental impacts. Overall, people who do participate in the composting program think that the program is somewhat convenient and only 28% of the people disagreed (Figure III).

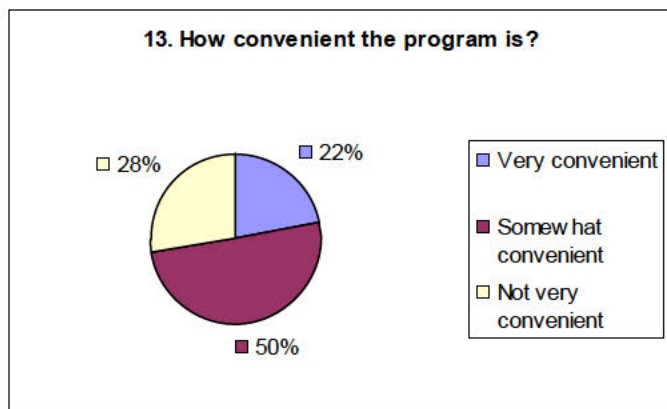


Figure III

According to the survey, (Question 14-21) regarding possible indicators that might help in improving the efficiency and convenience of the composting program, we asked if a door-to-door pickup service could be a possible solution. Interestingly, although most people think that a door-to-door pick up would improve the convenience of composting, most of them choose not to opt-in if there was to be a \$10 pickup fee added to their residence fee. According to a correlation test between question 15 and 16 (see A2), if this \$10 fee was automatically included in their residence fee, most people would choose not to opt-out of this fee (Figure IV).

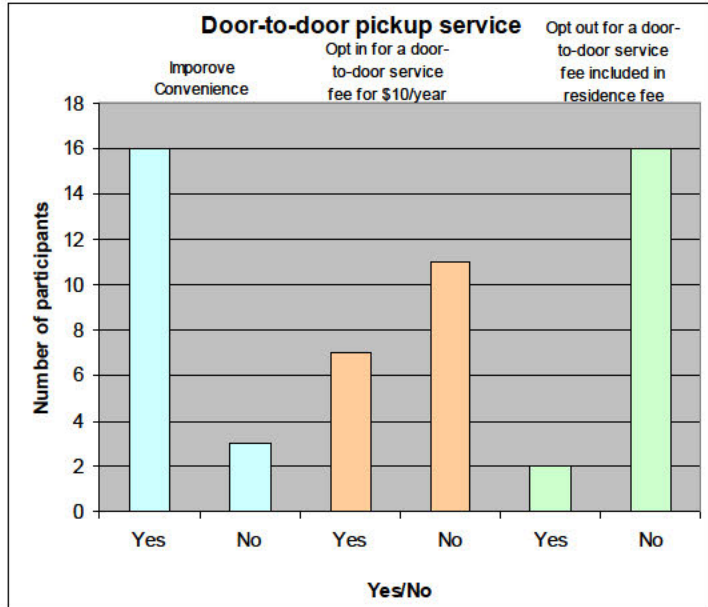


Figure IV

Furthermore, if residents were given the choice of how to collect compostable waste, they seemed to prefer the use of bins to biodegradable bags (Figure V). However, more research still needs to be done before we can conclude this to be true. Further examination on the major barriers to composting is needed.

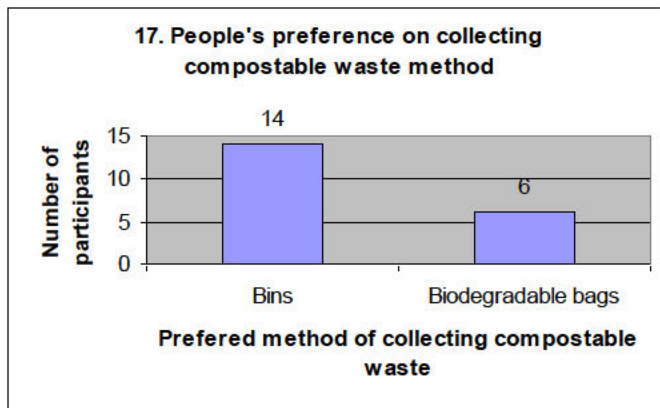


Figure V

In order to create more positive reinforcement for the composting program at Gage, we asked residents to choose between a refundable deposit for a composting bin and a fine for a lost or damaged composting bin. Figure VI shows that 55% of the responders prefer a refundable deposit;

however, according to the t-test (see A2,) this percentage is not significantly different from the other percentage. This question should probably be asked again in a future survey, with a larger sample size, to obtain a more accurate result.

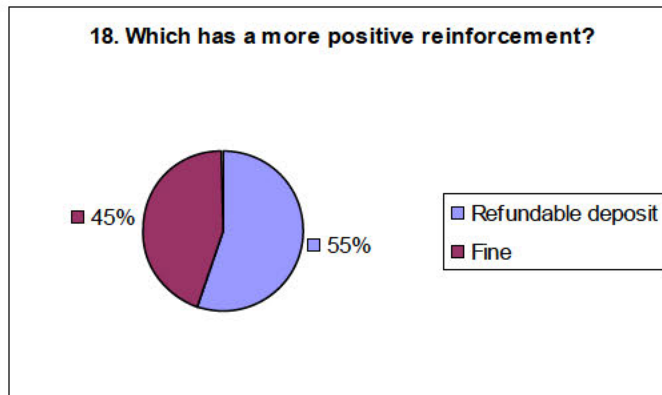


Figure VI

When we asked if setting up an information booth in the Gage lobby would be an effective way to increase composting awareness and participation, 30% of the responders believe that it would be very effective, 57% believe it would be somewhat effective and only 13% believe that it would not be effective (Figure VII). A similar result was found when we asked for suggestions for ways of increasing composting awareness and participation at Gage. Most people suggested that having an informational session, seminar, booth or activities would be an effective way. Other popular suggestions were brochures/email/mail/newsletter, more posters and more bins in each quad. Other less popular suggestions can be found on page A1 of the appendix.

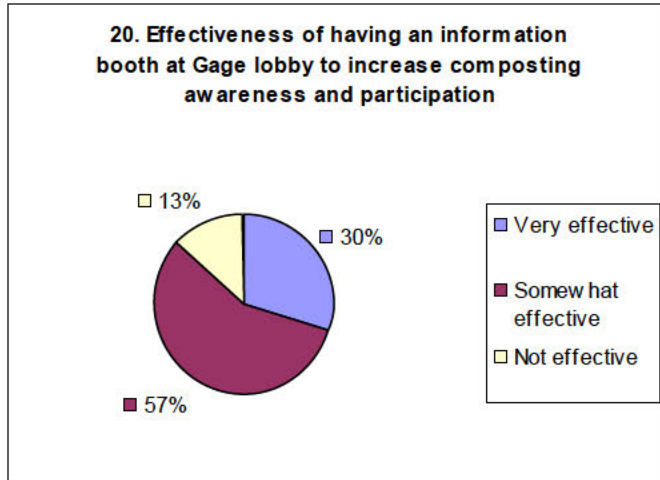


Figure VII

To end the survey, each responder was asked if they know where to get the composting information at UBC, and only 13 out of 37 people knew where to get the information. Out of these 13 people, most rely on internet sources while only a few said that they would ask the people from the Engage Committee.

*Comparison of Results with UBCFSP Group 2 (Studied First Year Students at Vanier Residence)*

Although our questionnaire is not the same questionnaire as the one used by UBCFSP Group 2, who did a survey at Vanier Residence, we were able to compare some results on general composting questions. Very similar to our results, most people said that they have good knowledge of composting. For example, during one of the stake-outs, 23 out of 28 people said that they have a good understanding of composting. In general, it may be true that people who eat at Vanier tend to know more about composting than people who live at Gage as, according to their 4 day observation on how people compost when eating in a café at Vanier, they found that most people do compost properly. Some of the common items that were composted improperly include chopsticks, plastic utensils and milk cartons. Chopsticks are a common mistake in both residences, whereas plastic utensils are not as common in Vanier as in Gage Residence.



During the interviews at Vanier, most people said that they learned about composting from posters. This is unlike the residents at Gage, as most felt they had learned or heard from friends and family. Furthermore, most people in Gage think that there is a lack of posters that provide information about composting; therefore, they suggested that more posters are needed. Other common internal and external barriers that have been suggested for not composting in these two residences are lack of knowledge about the program, laziness, inconvenience, lack of time and lack of bins. Some people even mentioned that smell and sanitation are problems. These barriers are essential information that should be examined in order to truly find ways to improve efficiency and participation in composting.

## **CONCLUSION**

Composting is a very important factor to consider when planning a sustainable community. With the majority of waste produced at UBC being made of compostable materials, the campus could save a lot of money by composting waste on campus rather than transporting the material to landfills. This action will also reduce fuel emissions and energy costs and thus is better for the environment.

The results from our survey show that the composting program at Gage is not too successful, but has promise considering the program has only been implemented recently. In approaching the issue of lack of awareness and participation in composting at UBC, we first established a role within the UBCFSP. By identifying our own values and biases, we were able to identify our position in comparison with the UBCFSP's vision. From there, we were able to develop an action plan for our project.

Our role in addressing the problem of lacking awareness and participation of composting at UBC was to assess the effectiveness and the barriers of the existing tools used to encourage campus awareness and participation in composting. We began with secondary research resources and

informal interviews to identify the existing tools. From here we were able to develop an inventory of tools and their respective indicators used to encourage participation and increase awareness of composting at UBC.

Once we had completed this inventory of tools and indicators, we chose to conduct a case study at Gage Residence to measure certain indicators, so as to gauge the effectiveness and identify the barriers of the corresponding tools. We began by conducting a more in-depth history of Gage Residence and its composting program. We chose to use a survey as our method of measuring the indicators for the tools that we wanted to test. We surveyed a total of 37 people at Gage Residence on March 22, 23, 26 and 28.

Though the n-size for our survey was small, and some questions were answered incorrectly and some participants were in fact not residents of Gage Residence, we were still able to draw invaluable conclusions from our results. Our survey confirmed that there is a problem of lack of understanding surrounding composting practices within the Gage Residence population. Also, it indicated that only a minority of Gage residents participate in the composting program. In addition, our survey found that the information regarding how to compost was unclear. These findings imply that the composting program at Gage Residence is not effective enough.

In addition to gauging the effectiveness of the tools used to encourage composting at Gage Residence, our survey helped to identify barriers to the effectiveness of these tools. Overall, lack of time and lack of convenience were identified as the most major barriers to resident participation in the composting program at Gage Residence. In addition, unpleasant smells and dirty bins were identified as barriers. These barriers are common to a study conducted by Mackenzie-Mohr & Associates, where they found that:

- Those who do not compost find the activity to be unpleasant (odours, flies and rodents)
- Those who do not compost find the activity to be inconvenient
- Those who do not compost believe that they do not have the time to do so.

Our survey not only helped to test the effectiveness of and identify the barriers to composting tools at Gage Residence, but it also helped to identify ways to overcome the barriers and increase the effectiveness of the tools. Our survey indicated that additional informational activities and printed materials would be effective in increasing awareness and participation in composting at Gage Residence. Residents also agreed that a door-to-door pickup service would improve the convenience of the composting program at Gage. Furthermore, having a composting fee included in Gage Residence fees is a possible option for generating future revenue for the program as even people who do not compost answered that they would not opt-out of the fee.

## **RECOMMENDATIONS**

As a group, we came up with some general recommendations, drawn from our research, for Gage Residence and the current composting program there, as well as for the composting group Engage. UBC Waste Management, UBC Sustainability Office, UBC Housing and Conferences, and Campus and Community Planning could benefit from these recommendations as well. Also included are some specific recommendations for the UBCFSP AGSC 450 2007 class, which will hopefully aid in further research ideas and/or opportunities, and help to gather more information to add to the UBCFSP.

We recommend the following for Gage Residence, the Engage Program, and for other residences across campus:

- 1) Composting awareness, education and participation needs more promotion at Gage Residence, through UBC Waste Management (as part of the residence's Waste Management Program) and through the UBC Sustainability Office. Engage could also help out with this.
- 2) Development of a more solid and effective composting program at Gage, which could also encompass what Engage is trying to accomplish at Gage Residence (as Engage is discouraged by different barriers they've come across) is needed.
- 3) As it is right now, not many people know about the existing composting program at Gage. More posters are suggested for use in promoting composting. The posters should be positive and encouraging, clearly stating composting benefits and how to participate in a

composting program.

- 4) The composting program needs to be clearly explained on posters and/or in a pamphlet, describing *where* the composting bins are at Gage Residence, *what can* go into the composting bins, *when* the compostable material is picked up, and clarify where the compostable material goes after Gage – to the In-Vessel Composter (as the material that goes into this machine can be different from what can go into a backyard composter, leading to confusion).
- 5) Staff at Gage Residence need to be made aware of and educated about the composting program at Gage so that they can help answer questions brought up by the students, direct them to the composting bins, as well as help to encourage the students to participate in the composting program.
- 6) Perhaps a composting fee could be incorporated into the residence fees for Gage Residence, and for the different residences across UBC campus, providing the students with a composting bin for the year. If, at the end of the school year, the composting bins are returned, the fee will be refunded to the students.

Specific recommendations for UBCFSP AGSC 450 2007 class:

- 1) For UBCFSP research, arrange with the Resident Manager before doing any survey work at Gage Residence, or any other residence on campus, to ensure that conducting a survey within their premises is permitted.
- 2) UBCFSP should aim for working with individuals and groups at each of the collection sites to help with promotion of the UBC composting program, and with coordination.
- 3) UBCFSP should promote using biodegradable compostable bags (have a testing period) for next year and measure if there is an increase of participation in composting. If this is unsuccessful, or inappropriate, perhaps try to increase the number of bins, as a shortage of composting bins is an existing barrier.
- 4) If conducting a survey again, avoid open-ended questions, and include a list of barriers that were identified this year (2006) so that precise and more in-depth information can be gathered regarding the composting program and its progress.
- 5) For future surveying, it is probably wise to set up a table with a proper prop and some incentive to encourage people. At the same time, provide some kind of composting education as well, as this might help promote awareness and peak some interest in the program.
- 6) Perhaps design an informative and attractive poster, promoting and encouraging composting in a positive attitude, that could be potentially used as a template by UBC Waste Management and UBC Sustainability Office for future promotion/awareness of composting at residences across UBC campus.

## REFLECTIONS

From our survey at Gage Residence, we found that students are not very aware or educated about composting and its benefits. Most people find composting inconvenient, and it is very difficult to motivate people to start composting. To spark an interest in composting, participation in the program at Gage should be portrayed as a positive experience (from advertisement to participation). We think that the current composting program at Gage needs to be improved by possibly using more positive reinforcement, advertising, awareness and education initiatives. Opting out of fees for a pick up service appears to be both inconvenient and uncommon for people. Having a composting pick-up service will definitely reduce inconvenience, and help to make composting a more positive experience for the residents, thereby increasing participation.

Gage is just one small piece of the bigger picture. Composting in general is a very interesting and important component in the UBCFSP. Composting is a key element in sustainable waste management in the food system and community at UBC. People all over campus need to become involved in composting as a major step towards a sustainable food system. Getting people aware of programs is the first step, but getting people interested and motivated enough to participate is probably the *major* barrier to a successful and sustainable UBC composting program. Like recycling in the past, the separation of biodegradable waste into compost bins still needs more promotion and education before it becomes as common as recycling.

Composting is only one element in a sustainable food system encompassed by the UBCFSP. Composting and sustainable waste management make up only one part of the system we are trying to improve through action research. The action research methods used by the UBCFSP are also part of sustainable development. People involved and affected by issues have been given the opportunity to work towards actually changing real problems they identify in their own communities. This project demonstrated methods of Community Based Action Research that can be

applied to other community's food systems, and even other problems. Furthermore, UBC's improved food system can act as a model for sustainability in other communities and encourage them to seek environmentally, economically, socially, and culturally appropriate solutions to problems within their own food systems. The project is one small step in the process of working towards global equity. Reducing our ecological footprint on campus will help make scarce resources available for others, both now and in the future.

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# A1. SURVEY

NAME: \_\_\_\_\_ YEAR: \_\_\_\_\_

1) Have you ever visited a computing?  Yes  No (Please specify in question 7)

2) Where did you have a visit about computing?  School  Family  Friends  Family  Friends  Family  Friends  Family

3) Have you ever visited your understanding of computing?  Yes  No

4) How often do you compute?  Always  Often  Rarely  Never

5) For how long have you computed?  1-2 years  3-4 years  5-6 years  7-8 years  9-10 years

6) Identify any of the following that (LAMP) is not included:  Linux  Apache  MySQL  PHP  JavaScript  Java  Python  Perl  Ruby  C++  C#  JavaScript  PHP  Python  Perl  Ruby  C++  C#

7) Are you a member of a club?  Yes  No (Please specify in question 2)

8) For how long have you been at a club?  1-2 years  3-4 years  5-6 years  7-8 years  9-10 years

9) Are you aware of the computing programs at a club?  Yes  No (Please specify in question 2)

10) Do you currently participate in the program?  Yes  No

11) Have you ever participated in the program?  Yes  No

12) For what reasons did you participate in the program? \_\_\_\_\_

CONFIDENTIAL ON REQUEST PLEASE

13) How often do you participate in the program?  Daily  Weekly  Monthly  Quarterly  Other (specify)

14) What is your 20-30 year participation level in the community of this program?  Yes  No

15) If you do not participate in the program, why not?  No  No  No  No

16) If you do not participate in the program, why not?  No  No  No  No

17) If you do not participate in the program, why not?  No  No  No  No

18) If you do not participate in the program, why not?  No  No  No  No

19) If you do not participate in the program, why not?  No  No  No  No

20) If you do not participate in the program, why not?  No  No  No  No

21) If you do not participate in the program, why not?  No  No  No  No

22) If you do not participate in the program, why not?  No  No  No  No

23) If you do not participate in the program, why not?  No  No  No  No

24) If you do not participate in the program, why not?  No  No  No  No

25) If you do not participate in the program, why not?  No  No  No  No

26) If you do not participate in the program, why not?  No  No  No  No

27) If you do not participate in the program, why not?  No  No  No  No

28) If you do not participate in the program, why not?  No  No  No  No

29) If you do not participate in the program, why not?  No  No  No  No

30) If you do not participate in the program, why not?  No  No  No  No

THE END. THANK YOU!

## A2. STATISTICAL ANALYSIS

(x = Identified wrong)

	Very good (VG)	9												
	Fairly good (FG)	17												
	<b>Total</b>	26												
		3 (FG)	4 (FG)	5 (FG)	6 (VG)	7 (VG)	9 (FG)	11 (VG)	12 (FG)	13 (FG)	15 (FG)	16 (FG)	17 (VG)	19 (FG)
CANNOT	Chopsticks	x	x				x		x					
	Plastic forks													
CAN	Raw meat				x		x			x	x	x	x	
	Paper plates	x		x		x				x	x	x	x	
	Fruit													
	Coffee grinds											x		
	Cooked veg													
		20 (VG)	21 (FG)	23 (FG)	24 (VG)	26 (VG)	28 (FG)	29 (FG)	30 (FG)	31 (VG)	34 (FG)	35 (FG)	36 (VG)	37 (FG)
CANNOT	Chopsticks	x									x	x		
	Plastic forks												x	
CAN	Raw meat							x	x	x	x			x
	Paper plates			x			x	x	x	x				
	Fruit													
	Coffee grinds													
	Cooked veg									x				

### Results:

	Number of people (VG+FG) identified wrong	VG	FG
Chopsticks	7	1	6
Plastic forks	1	1	0
Raw meat	11	3	8
Paper plates	12	3	9
Fruit	0	0	0
Coffee grinds	1	0	1
Cooked veg	1	1	0

Result of t-test on Gage survey question # 18

	Refundable deposit	Fine
Mean	0.55	0.45
Variance	0.26	0.26
Observations	20	20
Pooled Variance	0.26	
Hypothesized Mean Difference	0	
df	38	
Stat	0.62	
P(T<=t) one-tail	0.27	
Critical one-tail	1.69	
P(T<=t) two-tail	0.54	
Critical two-tail	2.02	

Result of correlation test between question #15 and question #16

	15) Yes	16) Yes
15) Yes	1	
16) Yes	0.79	1
	15) No	16) No
15) No	1	
16) No	0.98	1



### A3. INTERVIEW WITH EN-GAGE

(Conducted by Justine Greenwood with Laura Beckwith 28 February 2006 via email)

Email: [REDACTED]

1. What does En-Gage do
2. How long has En-Gage existed?
3. What has made your members interested in composting?

In November, 2005, a small group of Gage residents expressed concern regarding the senior residences' lack of incorporating UBC's sustainability goals within the residence community. They have subsequently spearheaded 'EnGage' whose mission is to "promote ecological and social sustainability within the Walter Gage Residence by engaging students in events and programs that seek to educate and develop a sense of community within the residence". These initiatives help to support the University in achieving its waste and energy reduction goals and further on-campus commitments to sustainability.

4. What are the composting procedures for residents at Gage?

Apartments have been given 5gallon plastic bins with a lid and handle for their kitchens. It is the responsibility of the quad members to empty the bin in the central green bin in the basement when it is full. Waste Management picks up the green bin every Tuesday and it is transported to the in-vessel composting facility located in south campus.

5. What has En-Gage been doing to promote composting?

We have held a number of events, including movie screenings, potlucks, discussions, and stuff swaps to get people thinking about living more sustainably and making responsible decisions as consumers. We hope that by making these events fun and approachable, we will continue to attract students who are interested in making the next step towards... We have also included a Gage Sustainability Challenge, outlining simple steps to living sustainably, within the Gage Newspaper, the Gage Gab.

-Sustainability

-info in the foyer about Composting and UBC Waste Management

6. How effective have En-Gage's initiatives been?

The composting project and other events held by EnGage have been met with widespread support. With the help of the Student Environment Centre, Waste Management, UBC Sustainability Office, and the Gage Residence Association, we have successfully begun a composting project, that so far, has been working out very well. We currently have composting in approximately 16% of Gage quads. We are hoping that this number will continue to increase next year, as we get the necessary resources and funding together to make it a viable and long-term program.

7. What are some things that can be done to help En-Gage?

To ensure the future of sustainability within the Walter Gage residence, it is essential that EnGage acquires the necessary resources, support and financial foundation to engage and empower students to make change.

Specifically, we need:

-recognized, official and funded position

- Expand and continue the current **composting program** (new apartment and central collection bins and compost pick-up by Waste Management). We hope to increase composting to include 50% of Gage residents by 2008.

- Pay for the continuation of **frequent events** to "engage" the community in sustainable living (eg. further cooking demos, information sessions, movie nights, etc...).

- Promote an **environmentally** and **socially conscious** community in Gage, home to a population of approximately 1 200 students.

- A mascot!

# A4. UBC ORGANICS COLLECTION BROCHURE

*Did you know that...*

UBC's In-Vessel Composting Facility is the first of its kind at a Canadian university!

Composting at UBC is a closed loop system: organic material produced on campus is composted and used on the campus landscape.

UBC's in-vessel composting cycle includes a 100% natural greenhouse chemicals are added!

UBC's in-vessel composting materials contribute to the landscape maintenance and food products.

**For more information about organic collection and composting, contact:**

**UBC Waste Management**  
Dept. of Plant Operations  
604-822-3827  
waste@campus.ubc.ca  
www.waste.ubc.ca

Information courtesy of Waste Environmental Management Inc.  
www.weminc.com

Printed on 30% post-consumer recycled paper.

**University of British Columbia**

**Organics Collection and In-Vessel Composting**




UBC Waste Management  
Dept. of Plant Operations  
604-822-3827  
waste@campus.ubc.ca  
www.waste.ubc.ca

**Why participate in the Organics Collection Program?**

UBC's Organics Collection Program is a great way for all our campus more sustainable. It allows for collection of pre- and post-consumer food waste from various sites around campus, including UBC Food Services outlets, AMS outlets and other locations.

Food waste collection includes raw and cooked meat and veggie scraps, meat cuts, and even paper plates. It is then given to UBC's In-Vessel Composting Facility to be employed rather than sent to the landfill.



**Located at South Campus, UBC's In-Vessel Composting Facility consists of a large stainless steel composter that can compost up to 5 tonnes of material a day. The composting process takes between 14 and 28 days.**





















**What is in-vessel composting?**

In-vessel composting refers to composting that is done in a fully enclosed vessel, which results in a more controlled and accelerated composting process. This also minimizes the risk of odours and vectors (i.e. rodents and birds).

The composting system at our plant maintains temperature, oxygen and the in-vessel carbon-to-nitrogen ratio to be monitored and controlled within ideal ranges for maximum microbial activity. Furthermore, leachate is recycled and the system is equipped with a biofilter to prevent odours.

**Organics Collection**



You can help make UBC a greener campus by following these simple guidelines!

	YES ✓	NO ✗
Raw food waste		Juice boxes 
Cooked food waste		Milk cartons 
Meat		Metal 
Dairy		Glass 
Grains		Plastic 
Paper cups		Styrofoam 
Paper napkins and towels		Wood 
Paper plates		Sand 
Yard waste		Wooden chopsticks 

Brought to you by:

- UBC Waste Management / Dept. of Plant Operations
- UBC Food Services
- Campus Sustainability Office
- Alma Mater Society
- UBC Housing and Conferences

www.waste.ubc.ca/wastehelp

## A5. GAGE COMPOSTING INFORMATION FLYER

*RealLife*  
L.A.



# WHERE TO RECYCLE & COMPOST?

**BINS ARE LOCATED IN THE UNDERGROUND CAR  
PARK ACCESSIBLE VIA THE BASEMENT**



**PLACE ITEMS IN THE  
APPROPRIATE BINS**

<i>Cardboard</i>	<i>Paper</i>	<i>Organic waste</i>	<i>Cans &amp; Bottles</i>
			

### Gage Composting Information

- Quad compost bins are provided to residents for the convenient storage of compost, and are to be signed out by participating quads. A fine of \$5 will be levied to the resident if bins are not returned cleaned and in good condition at the end of the academic year by *Friday, 21 April*.
- Quad compost bins should be emptied at the **main composting bin (green bin)** at the **recycling area in the underground parking lot** every week.
- Be considerate of other residents living in the same quad. Signing out a quad compost bin carries with it a responsibility to maintain and clear it as well.
- Have a **prior discussion** with the residents living in the same quad about composting in the quad.
- Be sure that a common understanding is reached with other residents living in the same quad as to the use and management of the bin. Any resident conflicts arising as a consequence of the bin would immediately result in the repossession of the bin.
- **Have good sense.** If the contents of the bin start to smell bad, then it is time to empty it. If the bin is uncovered and left in a frequently used area of the quad, the chances of someone accidentally tipping it over is higher.
- **Do not place bins on the balcony.** It causes a stink and attracts birds, rodents and other pests.
- If any issues are encountered, do not hesitate to approach an advisor to seek resolution.
- Checks by housing staff will be carried out to ensure things are running smoothly.
- **Use the compost bins for compostables only.** Any uncompostable item in the main composting bin would result in a fine being levied to Gage. Refer to the information sheet or visit <http://www.recycle.ubc.ca/compost.htm> as to what can be composted.
- If in need of any resources, contact the Gage Enviro Council at [en\\_gage\\_ubc@hotmail.com](mailto:en_gage_ubc@hotmail.com)