

UBC Social Ecological Economic Development Studies (SEEDS) Student Report

**Creating a “UBC Farm to Campus Food Provider Program”**

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**University of British Columbia**

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# ***Creating a “UBC Farm to Campus Food Provider Program”***

Agricultural Sciences 450  
April 11, 2008

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*“Since universities are generally long-lived institutions, they should be concerned with the long-term health and livability of their community and region.”*

—Sarah Hammond Creighton,  
*Greening the Ivory Tower (1998, p. 6)*

*Abstract:*

“Local food or the local food movement is a “collaborative effort to build more locally based, self-reliant food economies. Ones in which sustainable food production, processing, distribution and consumption are integrated to enhance economic, environmental and social health.” Local food systems are an alternative to their global corporate models. Global food production is centered on its economic benefits. The intensive production of food and its global distribution has contributed immensely to our deteriorating environment. Instead of obtaining food from our local farms, we have resorted to buying foods that are grown and processed in countries around the world. This inefficiency and its contributing negative impacts are making our world less sustainable.

Starting with the Alma Mater Society Food and Beverage Department (AMSFBD) at the University of British Columbia (UBC), we seek to establish a stronger connection between the university community and its invaluable campus farm through the evaluation of the awareness of the university community, its willingness to support the farm, and the ability of the farm and the AMSFBD to meet the needs of each other. In order to strengthen the relationship between the AMSFBD and the UBC Farm, literature reviews from past Agricultural Science 450 (AGSC 450) reports were done, as well as a survey of UBC students.

Results from this survey show that the university community is aware of the existence of the on-campus farm. A large majority of students are willing to pay a limited premium for fresh produce from the UBC Farm. Literature reviews and interviews with the AMSFBD and UBCF Farm representatives showed the desirability and feasibility of creating a “UBC Farm to Campus food provider program”. A business proposal was completed and recommendations were given that benefit both groups, as well as other participating partners. A larger sample size for future surveys has been suggested. This will for a more in-depth and accurate analysis of the situation.

*Introduction:*

As quoted from the University of British Columbia Food System Project (UBCFSP) (2008), “the food system of the world has become heavily influenced by industrialization, centralization and globalization”. The production, processing, and distribution of the food we eat today is primarily achieved by large-scale operations. Small-scale farms are becoming less

involved with foods that are widely available to us and are being pushed out of the food industry by the larger operations due to economies of scale.

Aside from seasonality, the competitive prices set by large-scale firms attract buyers from all around the world, including our local food outlets and supermarkets. As a result, food can travel thousands of miles before reaching us. Large processors will likely purchase produce only from a large farm or a few large farms. This helps the processor to minimize time and the relationship maintenance costs associated with contractual agreements with many small farms. The long distances that our food travels further contributes to the disconnection we have with our food.

The consequences of industrialization, centralization, and globalization displayed above have not gone unnoticed. Many institutions in the United States have made efforts to reconnect people with their food and make them aware of the impact of their food choices (UBCFSP, 2008). An excellent example of such efforts is the incorporation of 'Farm-to-college' programs at several American universities including UC Santa Cruz, St. Olaf College and the University of Wisconsin-Madison (Murray, 2005). These programs strive to: (a) help local farmers and the local economy, (b) provide higher quality and/or more ecologically sustainable food, and (c) provide educational opportunities for students, faculty and staff. The "Farm-to-college" program is just one element of a broader 'farm-to-institution' or 'farm-to-cafeteria' movement, which encompasses "programs that promote and serve locally produced foods in cafeterias of K-12 schools, colleges, universities, hospitals, nursing homes, businesses and other institutions" (Sanger & Zenz, 2004). Motivations driving this movement include providing a dependable market for local farmers and providing fresh food from known sources to consumers (Bellows *et*

*al*, 2003; Sanger & Zenz, 2004). Many also claim superior taste and quality for these local farm products (Bellows *et al*, 2003).

The University of British Columbia is an institution that has the potential to help its students, faculty and staff to gain this awareness and knowledge through the Centre for Sustainable Food Systems located at the UBC Farm. The UBC Farm is an excellent resource to begin the education of sustainable food systems and has already made market relationships with several food outlets on and off the UBC campus including: AMSFBD, UBC Food Services (UBCFS), Sage Bistro and Provence. However, due to their limited resources, they are unable to maintain a consistent exchange with their customers. The existing market relationships between UBC and the UBC Farm can be further improved to ensure that the UBC campus could, one day, be classified as a self-sustaining food system. The task at hand is to improve the linkages between the farm and the rest of the university which will be mutually beneficial for both the university food system and the UBC Farm.

*What and where the UBC Farm supplies to Campus:*

The UBC Farm has become a convenient and sustainable local food source for some of UBC's on-campus food providers as well as off-campus restaurants. Relationships have been developed to incorporate UBC Farm products into menu items for on-campus food providers. According to the 2006-2007 UBC Farm sales report, on-campus customers include Sage Bistro, UBC Natural Food Co-Op (Sprouts), AMSFBD, the Agriculture Undergraduate Society (AgUS), UBCFS, Green College and St. John's College. The UBC Farm currently contributes products to the following AMS food outlets: Pie R Squared, Bernoulli's Bagels and the Pendulum. Likewise, Place Vanier, Agora and Pacific Sprit Place, all part of UBCFS, purchase products from the UBC

Farm. The amount and type of product ordered from each on-campus food provider varies according to seasonality and harvest yield, generating approximately 8.2% of the total UBC Farm sales (Appendix 4). Salad mix, winter squash and cabbage are the three major items used by on-campus food providers along with microgreens, carrots, tomatoes, and arugula demanded in smaller quantities. Further details and specifics on each product type and amount can be found in Appendix 5. The UBC Farm is currently also providing a small portion of products for UBC's catering services. These services are provided through the AMSFBD; however, the amount and type of produce available for specific catering events is limited due to product seasonality, variability, and volume demand. However, the amount and type of produce contributed by the UBC for these specific catering events is highly variable. This is dependent on seasonality and whether or not the farm is able to meet the demand of the specified menu items. In addition to providing food for the on-campus food outlets, the UBC Farm provides fresh produce for on-campus events such as FarmAde, UBC sustainability week, and the farm symposium.

*UBCF's relationship with its off-campus clientele:*

Currently the UBC Farm provides produce for three off-campus restaurants that are located within 25 km: Provence Mediterranean Grill, Pair Bistro and CPU Restaurant. Similar to providing produce to UBC catering, the UBC Farm cannot guarantee a regular supply of organic produce to these restaurants. Thus, the restaurants make their orders to the farm one week in advance and confirm their order only two days before delivery. Although this process may be inconvenient for restaurant chefs, their support to the UBC Farm is crucial in promoting sustainable and local eating practices. The direct sales from these three off-campus restaurants,

Sage Bistro and various campus food outlets that purchase from the UBC Farm contribute to 19% of total farm sales (See Appendix 5). The UBC Farm also provides fresh, local, and sustainably produced food for the public from June to October through its Saturday Markets. Currently, the Saturday markets provide 66% of the total farm sales (See Appendix 4). Another method of selling produce directly to consumers is through the farm's Community Supported Agriculture (CSA) program that contributes to 11% of total farm sales (See Appendix 4). Individuals interested in fresh produce from the farm initially pay \$500 and are provided with a weekly box of fresh produce throughout the summer. This program was implemented in 2006, but due to limitations in the farm's infrastructure, the program is currently limited to twenty boxes. The CSA program has much potential for growth since it is mutually beneficial for both the farm and the consumer. Since the entire payment is made in advance, the farm can immediately use the money rather than being dependent on weekly installments.. Likewise, the consumer is provided with fresh, organic and locally harvested produce on a weekly basis.

*What can be produced in B.C. and at the UBC Farm:*

Field production of vegetables in British Columbia (BC) is a diverse sector of BC horticulture as the province fares reasonably well in terms of fertile land. BC has a moderate climate with plenty of rainfall allowing for ample access to water sources. Specifically, BC constitutes 2.7% of the total vegetable production within Canada with 75% located in the Lower Mainland; the balance being on Vancouver Island. Although a wide range of crops can be grown, the dominant produce items (in terms of acres devoted to production) are potatoes (early, mid and late seasonal varieties), carrots, sweet corn, head and leaf lettuce, squash, pumpkin, red and green cabbage, broccoli and green beans. Vegetable production is highly diversified in terms

of seasonality. However, all the locally produced vegetables are available during the latter half of the year.

Fruit production in BC (Appendix 4) occurs primarily in the latter half of the year with the exception of apples, which are harvested within the first 3 months. The peak harvest times for fruit are concentrated during the summer months (May - September).

In regards to UBC Farm production, as of 2005, the market garden included almost 250 varieties of vegetables, herbs, flowers and small fruits. From January to May, the UBC Farm focuses on harvesting beets, salad mixes, turnips, radishes, and various herbs including: basil, oregano and rosemary (Appendix 4). As the season progresses into the summer months, the UBC farm harvests carrots, melons, cucumbers, zucchini, peppers, tomatoes, broccoli and cabbage. Many of these items can also be harvested in the latter half of the year from September to December. Potatoes and lettuce can be grown throughout the year as well as green cabbage, with the exception of March, April and May (Appendix 4).

#### *Vision Statement and Value Assumptions:*

The UBCFSP collaborators have outlined seven guiding principles for their vision of a sustainable on campus food system (Appendix 5). Our group believes that these principles provide a strong framework containing the essential elements of an on campus food system. However, we agreed that these principles act more as a guide towards developing a sustainable food system and thus, we feel the need to redefine the principles to accurately represent our collective vision.

The first principle outlined by the UBCFSP collaborators emphasizes the importance of growing, producing and processing food locally. We agreed with this principle, however, we feel

that the term “local foods” has to be accurately defined. We believe that local foods are important in terms of supporting our local economy, becoming more conscious of our food choices and its impact on our ecological footprint. We feel that this interpretation is a critical component of the first principle and needs to be incorporated. We believe that the second principle regarding waste is important in achieving a sustainable food system, but we feel that it lacks a critical element, which is waste reduction. We believe that reducing waste is equally as important as recycling and composting and needs to be continuously encouraged on campus in order to promote a sustainable system. We believe that the fourth principle that discusses promoting education is extremely valuable to achieve our collective vision of a sustainable food system. However, we believe that this principle does not explain why a sustainable system is important and how education will benefit such a system and should be included in this component. We believe that the UBC Farm plays a critical role with educating students by re-connecting them with their food source and empowering them to make conscious and informed food choices. The fifth principle was written extremely vaguely and as a group, we feel that a strong food culture that brings people together and encourages students to take the initiative and question where their food comes from. Thus, we feel that encouraging this type of dialogue is a critical component of this principle and should be redefined with this in mind.

We collectively agreed that a combination of the vision statement set forth by the UBCFSP collaborators and our personal reflections on these principles would create a stronger framework for the development of a successful and sustainable on campus food system.

*Methodology:*

Investigations from previous AGSC 450 colleagues evaluating UBC’s Food System have

shown that the fall 2007 period demonstrated an increased use of UBC Farm products for on-campus food providers. In terms of UBC Farm products used by AMSFBD outlets, Pie R Squared relied heavily on the UBCF Farm to supply them with butternut squash for their new specialty pizza. In fact, the UBC supplied 500lbs of butternut squash to the AMSFBD during the 2007 fall semester (Amy Frye, Personal Communication, March 19, 2008). Bernoulli's Bagels, the Pendulum Restaurant and Agora Café also used a variety of UBC Farm produce including: squash, eggs, cabbage and mixed vegetables. In addition, Sage Bistro has developed a strong relationship with the UBC and has ordered salad mix and a variety of specialty items for several years. Sage Bistro also promotes the UBC Farm by specifically mentioning on their menu that this item was produced with local ingredients from the UBC Farm. The research provided by our colleagues has shown that the UBC Farm currently contributes local, fresh and sustainable food to UBC food outlets, and that there is much potential for incorporating further produce to UBC.

After initial interviews with Amy Frye and Mark Bomford, marketing and program coordinator at the UBC Farm respectively, it became evident that demand far exceeds the UBC farm's supply ability, due to the lack of volunteers and financial resources; Amy then stated that she would like the farm to campus connections to focus on 'quality' rather than 'quantity' (Amy Frye, Personal Communication, March 12, 2008). From this preliminary research we decided that our group would focus on the AMSFBD and the outlets that are associated with it. These outlets include: Bernouilli's Bagels, Pie R Squared, The Pit Pub, The Honour Roll, The Pendulum, Blue Chip Cookies, and The Burger Bar. We conducted an interview with Nancy Toogood, food and beverage manager from the AMSFBD, to determine what products the outlets on-campus could use from the UBC Farm. It was determined that carrots, cabbage, beets,

and several different herb species would be the most beneficial for the AMSFBD outlets (Nancy Toogood, Personal Communication, March 19, 2008).

We further conducted a survey of UBC students, faculty, and staff to determine the desirability of incorporating UBC Farm produce into campus food providers (Findings and Appendix 3). This survey can be used in future contracts between the UBC Farm and AMSFBD to determine which products will be the most feasible.

*Findings:*

An interview with Nancy Toogood, revealed a desire to incorporate local foods, especially food from the UBC Farm, into AMS food outlets. Out of the vast range of products that the UBC Farm produces, Nancy particularly expressed interest in purchasing cabbage, carrots, herbs, potatoes, and winter vegetables from the farm. Cabbage can be easily incorporated into a menu item while carrots are used in every AMS outlet with a fifty-pound bag delivered every few days (N. Toogood, Personal Communication, March 19, 2008). Although it is unlikely that the UBC farm will meet such high volume demands, replacing a portion of this quantity from carrots grown at farm when they are seasonally available may be a good start. Amy Frye, Marketing Coordinator of the Centre for Sustainable Food Systems at the UBC Farm, also pointed out that products like beets and carrots are relatively easy for the UBCF to grow. Furthermore, carrots, beets, and cabbage are three of the farm's Top 15 Vegetable crops. Thus, our group believes that forming a connection between the UBC Farm and the AMS is feasible with these crops and decided to focus our research around these products.

Since UBC Farm produce is typically more expensive than produce from the AMS food suppliers, there may be an opportunity to incorporate specialty items that are not used by the

AMS in large quantities (N. Toogood, question session, March 19, 2008). An example of this would be to incorporate herbs, such as oregano and rosemary, from the UBC Farm to the AMS. Basil, on the other hand, is an herb that is used more frequently by the AMS making it less practical for them to purchase from the farm at a premium, given the quantities utilized by the AMS (N. Toogood, Personal Communication, March 19, 2008).

Due to uncertainties in weather patterns and other factors, it is often difficult for both the UBC Farm and the AMS to commit to the specifics of volume and product purchases. However, with the unique relationship between the UBC Farm and the AMS, Nancy said that there is a possibility for advance payments to the UBC Farm to help support them with the financial inputs required to grow the produce. Selling produce to the AMS is also suitable for the UBC Farm since the AMS purchases unprocessed and unpackaged produce and hence will not increase the strain on the farm's limited labor resources.

AMS food service outlets have used produce from the UBC Farm in the last two years. In 2006, the AMS purchased winter squash, summer squash, beets, salad mix, ground cherries, apples, corn, and lettuce. The purchases in 2007 up until October 31<sup>st</sup> included winter squash, corn, and cabbage. At the pre-consumer level, every AMS food outlet composts or recycles 100% of the compostable and recyclable materials (N. Toogood, Personal Communication, March 19, 2008). The AMS, however, does not know the logistics of the waste system as this is a responsibility of UBC Waste Management (N. Toogood, Personal Communication, March 19, 2008).

Delivery from the UBC Farm generally occurs on Friday afternoons or during the evening after harvesting is complete. The time of delivery is directly dependent on the amount of harvesting and processing required for the given quantity of produce. UBC Farm produce is

sometimes delivered on Saturdays after 1:00 pm when the market gardens finish, but the farm prefers to make as little delivery trips as possible to remain cost effective.

To determine students' desirability of bringing food from the UBC Farm onto campus and whether or not students will accept small price increases in AMS food outlets, we created a survey using SurveyMonkey (Appendix 3). Our survey received a total of fifty-five responses with one person who answered 'no' in response to 'allowing for their anonymous use of their answers for research purposes'. Although the number of respondents is not large, we received responses from a wide range of disciplines in various faculties (Table 1).

Table 1: Number and total percentage of students from each faculty that participated in the online survey

<b>Faculty</b>	<b>Count</b>	<b>Percentage of Total</b>
Arts	17	30.9%
Land and Food Systems	17	30.9%
Science	8	14.5%
Applied Science	5	9.1%
Commerce	4	7.3%
Human Kinetics	2	3.6%
Law	1	1.8%
Medicine	1	1.8%

After tallying the number of respondents in each faculty, we found that the respondents from the Faculty of Land and Food Systems made up nearly one-third (31%) of the results and may have skewed our results. Moreover, as our group members mainly forwarded this survey to

people within our network, we believe that the majority of the respondents are upper level students and hence are quite familiar with the UBC community.

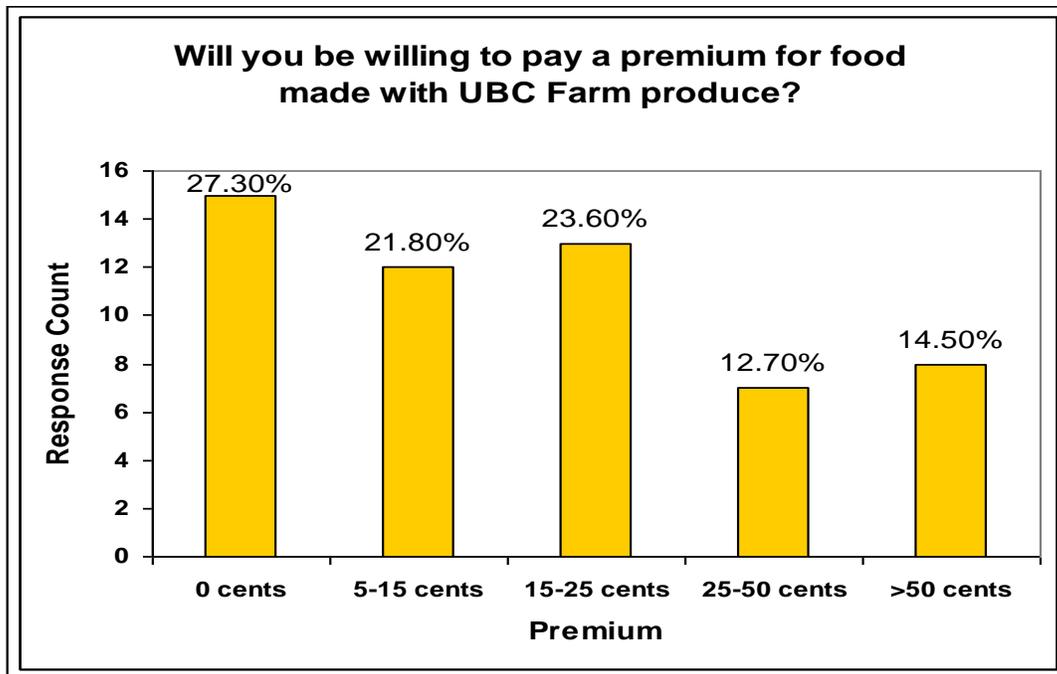


Figure 1: Number of respondents that would be willing to pay a premium (0 to >50cents). Percentage of total response is given above each bar.

Despite the slight biases that may be present in our dataset, we found that 92.7% of the respondents know of UBC’s farm, that 85.5% are interested in having more food from the UBC Farm incorporated into AMS food outlets, and 72.7% are willing to pay a premium that ranges from five cents to more than fifty cents for food made with UBC Farm produce.

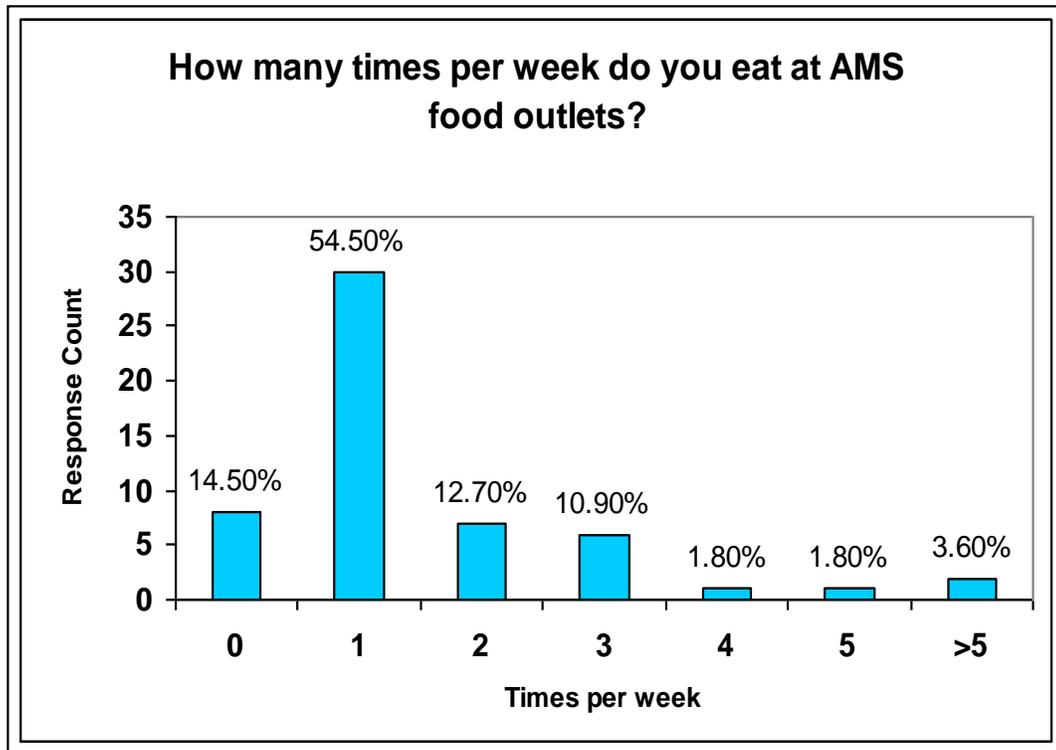


Figure 2: Number of respondents and times per week that they eat at AMS food outlets. Percentage of total responses is given at the top of each bar.

More than half of the respondents from the survey buy food from an AMS food outlet once a week. The respondents ranked these three outlets as being their primary choice in descending order: Blue Chip Cookies, The Honour Roll, and Pie R Squared. Another question in the survey (Q7, Appendix 3) found that most respondents bring lunch from home on a regular basis, eat at home, supplement their lunch from home with food on campus, or eat at a large range of food outlets on and off campus.

*Discussion:*

To assess whether or not UBC students would appreciate incorporating UBC Farm food into the AMS-UBC food outlets we designed a survey, which was distributed through an online survey engine, [www.surveymonkey.com](http://www.surveymonkey.com), to the different networks of our group members.

It was found that 93% of the surveyed students were aware of the UBC Farm and 73% would be willing to pay a premium for food made with UBC Farm produce. Initially, we were concerned that we would not get a representative sample outside of the Faculty of Land and Food Systems (LFS); however, we received responses from all of the major faculties including: Arts, Science, Commerce, Engineering, and Human Kinetics. Although the majority of responses came from the Faculty of LFS and Arts we were still able to gain a preliminary idea of the eating habits of UBC students and whether or not incorporating UBC Farm produce into the AMS would be beneficial. It can be concluded that many students (93% in our survey) eat at the AMS-UBC Food Outlets and 86% are interested in having more food from the UBC Farm incorporated into these food outlets. Although the initial survey was small it shows the support of UBC students as well as the potential for the amalgamation of UBC Farm produce into the AMS. Through further surveys as well as discussions with students, faculty and AMS this project could be a reality.

*Business Proposal:*

This business proposal is focused at strengthening the relationship between the UBC Farm and the AMS food outlets. The AMS is currently purchasing cabbage from the UBC Farm and has shown interest in purchasing beets, carrots and herbs from the farm as well. To meet this demand, the UBC Farm is willing to produce larger quantities of beets, carrots, herbs and cabbage and supply these products to the AMS. Based on these findings, a summary of key elements that have been investigated and incorporated into our UBC Farm to Campus Food Provider Program are shown below.

Table 2: Business Proposal: estimated volume, cost/unit, preliminary times estimate for harvesting, delivery schedule (time of day, frequency, and location), post handling (processing practices) and package requirements for cabbage, beets, carrots, and herbs being used by the AMSFBD from the UBC Farm (UBCF).

	<b>Cabbage</b>	<b>Beets</b>	<b>Carrots</b>	<b>Herbs**</b>
<b>Estimated Volumes</b>	Uncertain production volumes at this time. To be determined by UBCF closer to the time of production	Uncertain production volumes at this time. To be determined by UBCF closer to the time of production	Uncertain production volumes at this time. To be determined by UBCF closer to the time of production	Uncertain production volumes at this time. To be determined by UBCF closer to the time of production
<b>*Cost per unit</b>	\$1.00/lb	\$1.50/bunch (2006)	\$1.25/lb (2006)	\$1.00/bunch
<b>Preliminary time estimate for harvesting</b>	2.5 months	Less than 2.5 months	Less than 3 months	Approximately 3 months
<b>Delivery schedule, time of day, frequency and location</b>	Weekly deliveries between 3 and 7pm to be made by the UBCF to the student union building	Weekly deliveries between 3 and 7pm to be made by the UBCF to the student union building	Weekly deliveries between 3 and 7pm to be made by the UBCF to the student union building	Weekly deliveries between 3 and 7pm to be made by the UBCF to the student union building
<b>Post handling processing practices</b>	No post handling processing practices are required by AMS	No post handling processing practices are required by AMS	No post handling processing practices are required by AMS	No post handling processing practices are required by AMS
<b>Package requirements</b>	No package requirements are required by AMS			

\* Note: These are 2006 prices from UBCF

\*\*Note: Herbs include both rosemary and oregano

*Recommendations:*

## AMS Food and Beverage Department:

1. Continue strengthening the good relationship with the farm through promotion and sale of their products.
2. Strengthen the ability to use long-term contracts in order to provide advanced payment to the UBC Farm. This will help to enhance the sustainability of the entire system.

## UBC Farm:

1. Specifically allocate land and resources for the production of specific crops for the AMS Food Services including: cabbage, carrots, beets and herbs depending upon availability of space and maximization of revenue.
2. Continue updating data and have it available for use by future students working on this project, the AMS and for determination of feasibility of providing products to the AMS and other outlets.
3. Seek to consolidate a working data set between the AMS and the UBC Farm including produce exchanges, quantities, prices, and availability of products. This will be useful for future student projects and AMS marketing.

## Future AGSC 450 students:

1. Enhance and continue the surveys conducted with students to develop a better baseline data, and increase the sample size. Determine what year of study the students are in and target new students (first and second year) and begin surveys earlier.
2. Research the possibility of storage enhancement on the UBC Farm as well as enhancing the amount of space available for produce storage at the AMS facility.
3. Contact the UBC Sustainability Office about the feasibility of developing a marketing plan to promote UBC Farm produce in the AMS Food Service outlets.

General:

1. Pamphlet featuring UBC Farm produce of the week (Appendix 1). This would be given to students at Imagine Day in their orientation package, posted in the UBYSSEY newspaper and outside AMS outlets on a weekly basis. The pamphlet can be laminated and whiteboard markers used to detail the product being featured.
2. To promote the UBC Farm through the UBC Sustainability Office and other sustainability groups across campus.

*Current Educational and Research Opportunities:*

The Center for Sustainable Food Systems at the UBC South Campus Farm engages and involves students, faculty, staff, and community members through the creation and maintenance of relevant on-farm programs, activities, and events. The success of the Center is dependent on the participation of UBC students, faculty, and staff as well as contribution from the surrounding community. The UBC Farm hopes to accomplish this through creatively encouraging and supporting meaningful participation. Through embedding the farm within an applied learning curriculum the Centre for Sustainable Food Systems hopes to develop and offer a wide range of interesting and relevant farm programs, and activities. The Center for Sustainable Food Systems has developed educational and research opportunities to help meet these desired outcomes. These include programs within UBC, and the surrounding community. Through these programs, the Center hopes to expand their relationships with university faculties, both for higher diversity and higher involvement and engagement from students and faculty. The UBC Farm is committed to:

1. *Creatively encouraging and supporting meaningful student participation*
2. *Embedding the farm within an applied learning curriculum*
3. *Developing and offering a range of interesting and relevant on farm programs and activities*
4. *Exposing the farm to a wide variety of students.*

Education is one of the three core programs in place at the Center for Sustainable Food Systems. In 2004 there were over 38 courses and 1100 people that used the UBC Farm. There are more than 11 programs within the university that use the farm including: First Nations Science, Landscape Architecture, Earth and Ocean Sciences, Education, Planning, Forestry, Agroecology and Biology. Another educational tool that has been developed is the Internship Program. This project works in partnership with Global Resource Systems to provide 1-2 month long internship programs to exchange students from Tec de Monterey University in Mexico. From this program stemmed a pilot project, in 2004, called "Introduction to Organic Farming". This is an internship program, one month in length, provides students with the opportunity to gain practical, hands-on experience in organic farming. The future vision for the internship program is to have a multi-tiered, for-credit internship. This program would allow students the choice of two different options:

1. *A multi-semester practical directed study highlighting hands-on agroecological knowledge*
2. *An environmental education internship through the faculty of education.*

There is also a vision to have a non-credit continuing studies internship that would be based on the original pilot project from 2004.

The Center for Sustainable Food Systems has also developed a year-long program called “Rooted at UBC Farm”. This is a set of 11 workshops given by professionals on different farming practices. The topics covered include Composting, Canning, Plant Breeding, Weeds, Plant Propagation, Seed Saving, Medicinal Plants, Soil, and Year-Round Cropping Techniques. These seminars are open to the public and have a small fee attached to cover expenses. These educational resources provide a learning opportunity for the community as well as the opportunity to raise awareness about the Farm.

The newest addition to the educational aspect of the Centre of Sustainable Food Systems is the “Sowing the Seeds” Organic Farming Apprenticeship. This is a hands-on, season-long apprenticeship-style course in organic agriculture that is starting April 2, 2008. The program will offer instruction and daily work experience in small-scale organic farming “designed as an entry point for aspiring growers, educators, and agricultural professionals (UBC Farm)”. Students will work alongside staff in the greenhouse, gardens, fields, and orchard, as well as attending workshops, demonstrations, and field trips. A certificate will be awarded upon completion of the program; however this is a not-for-credit course. This program is still waiting on funding from external sources, and has not yet been fully finalized.

Along with the above educational initiatives, the Center for Sustainable Food Systems offers a wide-range of research opportunities. The UBC Farm is the perfect example of a living outdoor laboratory containing a mosaic of agriculture, forest, and transitional lands that holds considerable potential for interdisciplinary field research. The farm is already home to many student research projects and hopes to continue this trend. The UBC Farm engages and involves

students through the creation and maintenance of relevant on farm programs, activities, and events requiring meaningful participation and delivery. The other large research initiative at the farm is the “Farm Research Symposium”. This is a yearly event featuring a wide variety of speakers who highlight past, current, and potential research projects at the farm. The Centre for Sustainable Food Systems has also developed a “UBC Farm Project Menu” to provide students with ideas on potential research projects (See Appendix 2).

*Recommendations for Future Educational and Research Opportunities:*

Currently the UBC Farm has many programs that focus on education and research within the UBC community. In order to enhance the farm-to-institute program discussed in detail above, we recommend that the UBC Farm and the AMSFBD pursue a future initiative. The program that we believe would enhance student knowledge of the farm is the implementation of a pamphlet that will display featured items from the UBC Farm being used in specific AMS food outlets. The pamphlet, found in Appendix 1, can be easily laminated and placed in a visible, permanent spot within or outside the AMS outlets. Every week, featured produce from the UBC Farm can be displayed. We also recommend that the pamphlet, or a version thereof, be added to the Imagine Day package received by all first-year UBC students. This will enhance the education of the UBC Farm to students as well as promoting the farm-to-campus program.

*Conclusion:*

The interest in the UBC Farm by the AMSFBD plays a critical role in the successful implementation of a farm-to-institution program. The interest of the UBC community in locally grown food plays an essential role in helping the AMSFBD bring more UBC Farm produce into

their food outlets. Consumer knowledge of sustainable practices can also help guide food choices at UBC. Knowing the benefits of a sustainable system, the UBC community would have a greater tendency to support the UBC Farm through purchasing its products.

Our research has shown that the majority of the UBC community is aware of the existence of a farm on campus. A large majority of respondents are also willing to pay a premium in order to enjoy local products grown by the UBC Farm. Though the sample collected for this study was small, it is a relatively good representation of the various faculties across campus. In the future, the accuracy of this survey could be enhanced by increasing the number of survey participants. Nonetheless, we have set the foundation for the further expansion of a farm-to-institution program. The needs and capabilities of the AMSFBD and the UBC Farm have been assessed and put together to complement the needs of the UBC Farm and the AMSFBD. This foundation is necessary to facilitate the strengthening of the UBC Farm-AMSFBD relationship, which will in the future; strengthen the relationship between the UBC community and its local farm.

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**Appendix 1:** Pamphlet to promote farm produce in AMSFBD outlets.



## Appendix 2: UBC Farm Project Menu

### *Agroecology:*

#### **Farm Management:**

- Business planning
- Farm design
- Environmental farm planning
- Organic management or certification
- Marketing
- Enterprise & synergies e.g. Poultry
- Small lot, mixed farming

#### **Cropping System**

- Perennial crops (grapes, strawberry, raspberry, kiwi, apples etc.)
- Vegetable Crops management
- Crop protection e.g. Wireworm, blight, weed control
- Medicinal plants and properties
- Season Extension
- New crops

#### **Livestock Management**

- **Poultry**
- Breeding
- Behaviour
- Welfare
- Nutrition
- Product quality
- Bird Health
- Predation prevention
  
- **Bee-keeping**
- Hive set-up
- Pollen counts
- Monitoring of different types of bees
- Landscape survey for nectar sources

#### **Soils**

- Soil inventory and characterization
- Management of soil organic matter and other fertility indicators
- Water management
- Development of teaching exhibits and interpretative materials

**Ecology**

- Bio-diversity mapping
- Wildlife inventory (birds etc.)
- Understanding climate & weather (interpretations for agriculture)
- Microclimate characterization and exploitation
- Water storage and management
- Survey of and roles of plants in south campus landscape
- Hedgerow planning/development

**Agroforestry**

- Wood lot management
- Non-timber food products
- Shitake mushrooms
- Management of historic tree plantings

**Advocacy & Social Science Research**

- Establishment of a "Friends of the Farm" Advocacy group
- Advocacy strategies and campaigns
- Agricultural literacy and awareness
- Local and global food security issues
- Food systems and links to social well-being
- Bio-diversity and social implications

**Community Connection**

- School programs
- UBC community (interface with planning development OCP)
- Small lot agriculture development

***Food, Nutrition, and Health:*****Food Safety**

- HACCP assessment of Market Garden operation
- HACCP assessment of Poultry operation, eggs and meat
- Use of compost as a fertilizer for food crops
- Environmental Farm Planning

**Food Processing**

- Appropriate technology for small scale agriculture
- Design, build and evaluate equipment for production, handling and storage of horticultural products
- Food processing system design and food safety

**Human Health**

- Medicinal Plants in human health and disease prevention
- Nutritional assessment of Market Garden crops

**Community Connection**

- School programs
- "Grow an extra row": Local food production, preparation and nutrition for low income consumers
- UBC community (The Farm as a laboratory for inclusion of food in institutional food systems)
- UBC community (interface with planning development and OCP)
- Small scale, value added, food processing and rural development

***Forestry:*****Agroforestry**

- Wood lot management
- Non-timber food products
- Shitake mushrooms
- Management of historic tree plantings
- Wood Science, farm structures

**Community Connection**

- School programs
- UBC community (interface with planning development OCP)
- Wood-lot development and management
- Maintenance of aesthetic values in working landscape

**Soils**

- Soil inventory and characterization
- Forest soils
- Development of teaching exhibits and interpretative materials

**Ecology**

- Bio-diversity mapping
- Wildlife inventory (birds etc.)
- Understanding climate & weather (interpretations for agriculture and forestry)
- Microclimate characterization and exploitation
- Survey of and roles of plants in south campus landscape
- Hedgerow planning/development

***Applied Science:*****Equipment Design/Evaluation**

- Appropriate technology for small scale agriculture
- Design, build and evaluate equipment for production, handling and storage of horticultural products
- Design, build and evaluate equipment for livestock (poultry, sheep and possibly swine) production
- Food processing system design and food safety

**Structures**

- Monitoring of physical environment and crop response in plastic greenhouses and other land covers.
- Design, construction and evaluation of housing for livestock
- Wood Science and construction of farm structures

**Land Management**

- Irrigation/drainage system design, management and monitoring
- Water storage and conservation
- Microclimate characterization and exploitation
- Soil management
- Feasibility and design of aqua-culture system

**Waste Management and Recycling**

- Composting technology
- Manure management
- Energy Conservation and alternative energy sources
- Environmental farm planning

***Community Education and Outreach:*****Schools Program**

- Curriculum development for elementary programs
- Curriculum development for high school programs
- Classroom to Farm work projects
- Summer camp workshops

**Teacher Training**

- Development of agricultural curriculum components for teachers in training
- Agriculture/gardening workshops for Professional Development Days

***Faculty of Science:*****Botany**

- Survey of and roles of plants in south campus landscape
- Hedgerow planning/development
- Economic botany: role of current and potential crops for the Market Garden
- Medicinal plants and human health
- Perennial crops (grapes, strawberry, raspberry, kiwi, apples etc.)
- Vegetable Crops management
- Crop protection e.g. Wireworm, blight, weed control
- Season Extension of vegetable production

**Geography**

- Landscape/community mapping
- Topographic surveys
- Atmospheric data collection

**Zoology (Livestock Management)**

- **Poultry**
- Breeding
- Behaviour
- Welfare
- Nutrition
- Product quality
- Bird Health
- Predation prevention
  
- **Ruminants**
- Sheep
- Other stock
- Pasture improvement/management
- Animal Health/reproduction
  
- **Bee-keeping**
- Hive set-up
- Pollen counts
- Monitoring of different types of bees
- Landscape survey for nectar sources

**Ecology**

- Bio-diversity mapping
- Wildlife inventory (birds, mammals, insects, etc.)
- Understanding climate & weather (interpretations for agriculture and forestry)
- Microclimate characterization and exploitation
- Survey of and roles of plants in south campus landscape
- Hedgerow planning/development
- Plant ecology in a managed landscape
- Influence of land use and soil management on microbial ecology
- Preparation of interpretive materials, signage for courses and public education
- Economic roles of native plants,
- Connection to First Nations traditional knowledge

**Agroforestry**

- Non-timber forest products, food and medicinal plants
- Shitake mushrooms
- Management of historic tree plantings

**Land Management**

- Water storage and conservation
- Microclimate characterization and exploitation
- Feasibility and design of aqua-culture system

**Waste Management and Recycling**

- Composting technology
- Manure management
- Energy Conservation and alternative energy sources
- Environmental farm planning

**Community Connection**

- Identification of community needs and interests
- Community workshop series development
- Land, Food and Community Garden education program development
- School programs and summer workshops for youths
- UBC community (The Farm as a laboratory for inclusion of food in institutional food systems)
- UBC community (interface with planning development and OCP)
- Maintenance of aesthetic values in working landscape

### Appendix 3: Survey of Students

1. What faculty/school are you in? Are you a student/faculty/staff?
2. Are you aware that UBC has a farm?
3. Do you eat at AMS-UBC food outlets? (ie. Honour Roll, Pie R Squared, Bernouilli's The Pendulum, Pit Pub, Burger Bar)
4. If yes, how many times per week?
5. Which of the following do you frequent?
6. If you do not purchase from AMS food services, where do you purchase from, or do you bring lunch from home
7. Are you interested in having more food from the UBC Farm incorporated into AMS food outlets?
8. Would you be willing to pay a premium for food made with UBC Farm produce, If yes, by a factor of how much?

### Appendix 4:

#### UBC Farm sales to on-campus customers, April 1 2006 - Oct 31 2007

All figures are dollar values of total gross sales.

#### Report 1: UBC Farm gross sales to on-campus customers, by customer name

Customer	Years		Grand Total
	2006	2007	
Sage Bistro	5,532	3,461	8,993
UBC Natural Food Co-Op (Spouts)	1,079	1,217	2,296
AMS Food and Beverage Services	628	583	1,210
AgUS		146	146
UBC Food Services - Place Vanier		72	72
Pacific Spirit Place		62	62
Grand Total	7,239	5,541	12,779
<i>Total Farm Sales (all customers)</i>	74,504	81,507	156,010
<i>% of Sales from on-campus customer group</i>	9.7%	6.8%	8.2%

**Report 2: UBC Farm gross sales to on-campus customers, by item name**

Category	Item Name	Years		
		2006	2007	Grand Total
Berries	Strawberries	188	204	391
Eggs	Chicken Eggs		365	365
Flowers	Edible Flowers		14	14
Fruits	Apples	47		47
Herbs	Herbs	59	151	211
Vegetables	Salad Mix	3,601	1,543	5,144
	Winter Squash	164	1,109	1,272
	Microgreens	325	510	835
	Carrots	454	73	527
	Arugula	295	216	511
	Tomatoes	387	76	463
	Corn	228	162	390
	Beans	103	184	286
	Lettuce	175	54	229
	Peas	217	6	223
	Cucumbers	79	132	211
	Kale	54	140	194
	Summer Squash	35	141	175
	Fennel Bulbs	126	32	158
	Cabbage	28	113	141
	Swiss Chard	27	110	137
	Garlic	59	44	103
	Ground Cherries	85		85
	Misc Vegetables	47	38	85
	Leeks	72		72
	Beets	71		71
	Onions	68		68
	Peppers	66	3	68
	Broccoli	57		57
	Radishes	22	19	40
	Pac Choi	28	1	29
Eggplant	26		26	
Turnips		20	20	
Kohlrabi	13		13	
Cauliflower	11		11	
Salad Greens		11	11	
Melons	10		10	
Tomatilloes	7		7	
Shallots	5		5	
Collards		4	4	
<b>Grand Total</b>		<b>7,239</b>	<b>5,469</b>	<b>12,708</b>

**Appendix 5: Seasonally available B.C. fruits and vegetable:**

Seasonally available B.C. vegetables:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Beans						█	█	█				
Beets	█	█	█				█	█	█	█	█	█
Broccoli						█	█	█		█	█	
Brussels sprouts									█	█	█	█
Cabbage - red	█	█	█				█	█	█	█	█	█
Cabbage - green	█	█				█	█	█	█	█	█	█
Carrots						█	█	█	█	█	█	█
Cauliflower						█	█	█	█	█	█	
Celery						█	█	█	█	█		
Chinese veg.					█	█	█	█	█	█		
Corn						█	█	█	█	█		
Cucumbers - field						█	█	█	█	█		
Leeks	█	█	█							█	█	█
Lettuce	█	█	█	█	█	█	█	█	█	█	█	█
Onions - green					█	█	█	█	█	█		
Onions - red/yellow	█	█	█							█	█	█
Parsnips	█	█					█	█	█	█	█	█
Peppers - field									█	█		
Potatoes	█	█	█	█	█	█	█	█	█	█	█	█
Radishes				█	█	█	█	█	█	█		
Rhubarb - field				█	█	█						
Rutabagas	█	█				█	█	█	█	█	█	█
Spinach				█	█	█	█	█	█	█		
Turnips - white	█	█			█	█	█	█	█	█	█	█
Zucchini						█	█	█	█	█		

Seasonally available B.C. Fruits:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Apples	█	█	█	█				█	█	█	█	█
Blackberries							█	█				
Blueberries							█	█	█			
Cherries							█	█				
Currants							█	█				
Gooseberries						█	█					
Hazelnuts	█	█	█	█	█	█		█	█	█	█	█
Pears								█	█	█	█	█
Plums								█	█	█		
Prunes								█	█	█		
Raspberries							█	█				
Saskatoons						█	█					
Strawberries						█	█	█	█			

## **Appendix 6: UBCFSP Principles for a Sustainable UBC Food System**

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 and growers pay and receive fair prices