

UBC Social Ecological Economic Development Studies (SEEDS) Student Report

**Incorporating UBC Farm Products into Bernoulli's Bagels' Menu**

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UBC Food System Project  
Scenario 3 2007

**Incorporating UBC Farm Products into  
Bernoulli's Bagels' Menu**

AGSC 450

Group 10

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## **ABSTRACT**

The UBC Food System Project (UBCFSP) is an action-based research project involving the collaboration of various partners from the UBC community. The main purpose of the project is to assess and improve the sustainability of the UBC food system. The focus of scenario three was to incorporate UBC Farm products into the menu of the AMS Food and Beverage Department (AMSFBD) outlet, Bernoulli's Bagels. The group reviewed literature of previous AGSC 450 reports and communicated with project stakeholders, including Bernoulli's Bagels, UBC Farm, and AMS Food and Beverage Department through interviews and email. Although the group generated several proposals, the incorporation of UBC Farm jalapeno peppers in Bernoulli's Bagels' existing jalapeno bagel and cream cheese was the most viable idea put forward. A survey to assess consumer awareness of UBC Farm, attitudes toward supporting local agriculture, and the group's vision of incorporating UBC Farm jalapeno peppers into Bernoulli's Bagels menu was also administered. Results showed limited awareness of UBC Farm but significant support for the project. The group also devised a plan to freeze UBC Farm jalapeno peppers in the off season, in order to supply Bernoulli's Bagels with UBC Farm jalapeno peppers year round, and conducted a freezing experiment and cost analysis to determine potential feasibility. The freezing experiment results showed that although texture changes occurred to jalapeno peppers post-freezing, they are still suitable for baking. The cost analysis showed that with volunteer labor, freezing jalapeno peppers would be both a sustainable and profitable venture for UBC Farm to consider. Developing a connection between AMS and UBC Farm creates an opportunity for promotion of UBC Farm and the importance of supporting local agriculture. Therefore, the group designed a promotional strategy to facilitate increased awareness of UBC Farm and the proposed UBC Farm jalapeno bagel and cream cheese. The project's conclusion was to incorporate UBC Farm jalapeno peppers into Bernoulli's Bagels' menu in September 2007.

## **TABLE OF CONTENTS**

<b>ABSTRACT</b>	<b>1</b>
<b>INTRODUCTION</b>	<b>3</b>
REFLECTIONS ON THE PROBLEM STATEMENT	4
REFLECTIONS ON THE VISION STATEMENT	5
<b>METHODOLOGY</b>	<b>6</b>
LITERATURE REVIEW	7
COMMUNICATION WITH STAKEHOLDERS	7
SURVEY	9
MARKETING	9
<b>FINDINGS AND DISCUSSION</b>	<b>10</b>
INCORPORATING UBC FARM PRODUCTS INTO BERNOULLI’S BAGELS’ MENU	10
JALAPENO PEPPERS – OUR FOCUS	11
FROZEN JALAPENO PEPPER PROPOSAL	12
JALAPENO PEPPER FREEZING EXPERIMENT	13
COST ANALYSIS	13
LOGISTICS OF ORDERING	14
SURVEY	16
MARKETING STRATEGY	17
PROMOTIONAL IDEAS	18
IMAGINE UBC	18
NEWSPAPERS AND WEBSITES	19
UBC FARM	19
PRICING STRATEGY	20
<b>RECOMMENDATIONS</b>	<b>22</b>
FUTURE AGSC 450 STUDENTS	22
UBC FARM	23
UBC SUSTAINABILITY OFFICE	24
<b>CONCLUSION</b>	<b>25</b>
<b>APPENDIX</b>	<b>27</b>
APPENDIX A – SURVEY RESULTS	27
APPENDIX B – COST ANALYSIS OF GROWING AND FREEZING JALAPENOS PEPPERS	28
APPENDIX C – PROMOTIONAL POSTER	30
APPENDIX D - BAGEL COST BREAKDOWN	30

## **INTRODUCTION**

Over the past six years students in Agricultural Sciences 450 have collaborated with various partners in a community-based action research project called the UBC Food System Project (UBCFSP). Main goals of the UBCFSP are to assess the UBC campus food system and to create opportunities and form recommendations that will improve the sustainability of the system. The UBCFSP encompasses a broad array of initiatives, ranging from assessing student participation in composting to creating plans for community gardens in the developing south campus neighborhood. In addition, the project aims to maximize the presence of the UBC farm on campus as it has potential to serve as a model of a natural sustainable food system.

UBC is one of the few campuses in North America that still has a campus farm that embraces small-scale holistic agricultural practices. The Center for Sustainable Food Systems at UBC Farm, commonly known as UBC Farm, is a teaching, research, and community organization that is run through the collaborative efforts of students, faculty, staff, and community partners. Main goals of UBC Farm are to serve as an example of a sustainable food system and to provide fruits and vegetables to the surrounding community through the UBC Farm Market, a Community Supported Agriculture (CSA) program, and through sales to local food service outlets (UBC Farm, 2007).

For this project, the group focused on incorporating produce from UBC farm into the menus of AMSFBD outlets, specifically Bernoulli's Bagels, located in the Student Union Building (SUB) at UBC. Methodology included a review of literature, particularly the reports of our previous AGSC 450 colleagues and secondary sources, interviews with stakeholders, a survey, and development of a marketing plan. The group investigated the feasibility of incorporating UBC farm produce from both the perspective of UBC Farm and AMSFBD. The inquest revealed that introducing UBC farm produce into Bernoulli's Bagels' menu is a

complicated process and must be done gradually. The outcomes of the group's work includes the instillation of UBC Farm jalapeno peppers into Bernoulli's Bagels' Jalapeno Bagel and Jalapeno and Cheddar Cream Cheese when jalapeno peppers are in season at UBC Farm, recommendations for centralizing orders to UBC farm from AMSFBD outlets, the provision of a marketing plan, and results of a survey assessment of consumer awareness and attitudes related to UBC farm and the concept of local food. Recommendations for AMSFBD, UBC Farm, and future AGSC 450 students are revealed at the conclusion of the paper, in order for the UBCFSP to continue its imperative progression.

### **REFLECTIONS ON THE PROBLEM STATEMENT**

The modern food world is dominated by industrial agriculture that relies highly on technological advances and subsidies to maintain production levels. The progression of industrial agriculture has created exceptional distance between the farmer and the consumer. The average meal travels 2500 to 4000 kilometers before it reaches the consumer's plate (Halweil, 2002). Consumers no longer have an appropriate idea of where their food comes from or how it is produced. To the consumer, the most important factor when buying food has become price, favoring continued development of large-scale farms and depression of local economies.

Large scale farming depends highly on outside inputs and on government subsidies (Halweil, 2002). These farms do not represent a natural life cycle as they continually devour natural resources to maintain production, while not replacing them. From social, ecological, and economic perspectives this is an unsustainable process, and will not be able to continue in the future without serious consequences. In order to counteract this state of affairs, the Faculty of Land and Food Systems, in conjunction with various campus partners is striving to develop a sustainable campus food system that involves localizing food on campus. The University of British Columbia hopes to build up UBC Farm in an effort to act as a model for natural food systems and connect the community to its food roots.

UBC Farm is currently labeled as a “future housing reserve” and could possibly be developed if the farm is not seen as a significant contributor to UBC. To achieve UBC Farm’s vision of representing a sustainable food system, the farm has a strong commitment to forming more connections with campus food service outlets. These connections would not only create a new market for UBC Farm but would also increase awareness among students, faculty, and staff about the existence of the farm and the concept of supporting local or seasonal food.

### **REFLECTIONS ON THE VISION STATEMENT**

The vision statement for a sustainable UBC food system is a set of guiding principles developed by the collaborating partners of the UBCFSP. This vision was developed to guide the progress of the UBCFSP by aligning recommendations with the core values and goals of collaborators. Therefore, our group carefully considered these values while evaluating our scenario and while making decisions about the direction of our project.

As fourth year students in the Faculty of Land and Food Systems we have each developed our own set of values through the courses we have taken. The faculty has helped shape our view of food systems and has led us to deeply value holism as essential to food system sustainability. However, some group members view certain aspects of sustainability as more important than others. Economic sustainability is seen as the backbone of a successful food system for two group members, as in the modern world it is often necessary to be competitive on a global scale and to make a profit. Other group members view ecological sustainability, principally maintaining the quality of the soil that our food is grown in and the air we breathe, as the underlying factor to consider when making food system decisions. However, after thorough discussion, our group agreed that achieving the ultimate sustainable food system needs to equally consider all aspects of sustainability: social, ecological, and economic. Therefore, our group fully supports the vision statement and does not see a need for further revision.

The guidelines emphasize that while protecting and enhancing the ecosystem, a sustainable food system should provide food that is ethnically and nutritionally appropriate. This stood out in our group, as many group members are continually challenged while balancing cultural and nutritional ideals with the concept of eating locally grown food. However, the guidelines also emphasize that while we may not always be able to consume or buy all our food from local sources, choosing foods produced using socially and ecologically sustainable methods, regardless of whether it is produced locally or imported, should be a foundation while making decisions as consumers. This informed our group that there are multiple factors to consider when choosing what to eat, but that it is also important to retain cultural traditions.

The guidelines also emphasize that food workers and educators should be informed about food system issues and that awareness should be fostered amongst the community. These guidelines are particularly applicable to our group's scenario. We agree that change towards a more sustainable system can be made through the education of AMS management and staff, as they decide what is accessible to consumers and can send messages through the products they promote. The guidelines also accentuate that providers and growers should receive and pay fair prices. This is also applicable to our scenario as it is important to ensure that both UBC Farm and AMSFBD receive and pay fair prices that will maintain long-term financial viability of both operations. Prices should underline the true cost of food production.

## **METHODOLOGY**

The target of our scenario was AMSFBD, a department of AMS, the student society of UBC. Representing 42,000 students annually, AMS oversees many student services, student owned businesses, resource groups and clubs (AMS, 2007). AMSFBD operates a variety of student owned food service outlets that hire approximately 275 employees annually and pay over \$1 million in student wages (AMS, 2007). All net profits are circulated back into the society to



benefit the students it serves. For our project we focused on Bernoulli's Bagels, an AMSFBD outlet that serves traditional Montreal style bagels made from high-quality ingredients (AMS, 2007). Our project goal was to evaluate the feasibility of incorporating UBC farm produce into Bernoulli's Bagels menu and to devise an implementation plan. The methods used were based on an action research approach. The following is a description of specific methods used.

### **LITERATURE REVIEW**

A review of the literature, specifically a review of the reports of previous AGSC 450 students, began our investigation. The rationale for reviewing previous reports was to know what had already been accomplished and to learn what has been successful and what has not. From there we were able to find a starting point and obtain a direction for our project.

In 2006, group 13 designed a Squash and Rosemary Pizza for Pie R Squared, a pizza restaurant in the SUB, and developed a plan to implement it during the proceeding squash season (Group 13, 2006). We used this group's report, along with the directed studies report from July 2006, to give us an idea of factors to consider for our project (Fuller, 2006). Group 3 worked with Bernoulli's Bagels' and developed seasonal menus with a variety of new recipes (Group 3, 2006). Our group evaluated this report to give us an idea about what had already been accomplished and the strategies that worked and did not work with Bernoulli's Bagels.

After a literature review, we examined UBC Farm's product list and evaluated products that could be used in recipes suitable to the requirements of Bernoulli's Bagels. Group discussion produced numerous proposals for recipes and other ways to incorporate UBC Farm produce into Bernoulli's Bagels' menu. We compiled our ideas with recipes created by AGSC 450 Group 3 2006 and attempted to determine the feasibility of these ideas.

### **COMMUNICATION WITH STAKEHOLDERS**

Communication was facilitated through thorough interviews and emails with project stakeholders including Bernoulli's Bagels Manager, Bernoulli's Bagels Baker, the AMS

Procurement Manager, and UBC Farm. These stakeholders possess the information needed to form a connection between AMS and UBC Farm. Interviews and emails took place throughout February and March 2006, as questions arose or clarification was required. Personal interviews offer contact with direct sources or stakeholders that can provide continuous feedback and guidance. On an ongoing basis, the group shared ideas with stakeholders in order to improve ideas and move forward with the project.

Bernoulli's Bagels Manager, Kathy, was contacted to make sure that ideas were suitable to the requirements of Bernoulli's Bagels. The group was required to consider labour costs, overall quality and price of UBC Farm products, and potential consumer approval and quality of the final product (Kathy, personal communication, Mar 6). Bernoulli's Bagels' baker, Marvin, was also interviewed to obtain his expert opinion on specific UBC farm produce that could be incorporated into Bernoulli's Bagels products.

The AMS Procurement Manager, Nick Gregory, participated in a personal interview and was contacted through email. He was contacted as the group needed to determine the requirements that AMSFBD has when selecting suppliers and to receive his opinion on the reality of using produce from UBC Farm in AMSFBD outlets. The Procurement Manager was also interviewed to gain an understanding of the structure of the AMSFBD. This allowed the group to propose the foundations of an ordering system to connect AMS to UBC Farm.

Members of the UBC Farm Team, including the Program Coordinator, Outreach and Education Coordinator, Marketing Coordinator, and Production Coordinator were contacted through email and personal interviews. The Marketing Coordinator, Amy Frye, provided the group with estimates of prices that UBC Farm products could be sold for, as well as insight into setting up an ordering system. The Production Coordinator, Tim Carter, helped the group evaluate what products could be grown successfully at UBC Farm in sufficient quantity to meet

Bernoulli's Bagels' requirements, and also projected the length of the growing seasons for different products at the farm.

A sales person at Sprouts was interviewed in order for the group to obtain information pertaining to the connection of Sprouts to AMS and to UBC Farm.

### **SURVEY**

To determine the attitudes of consumers towards UBC farm, local foods, and towards projected changes to Bernoulli's Bagels ingredients, the group administered an oral survey. Sample size was 100 with the location of the survey being 50% inside the SUB by Bernoulli's Bagels and 50% random sampling of people around different areas of campus; for example, the UBC bus loop, the UBC Aquatics Center and in front of the UBC Bookstore. Surveying in the SUB was completed during Bernoulli's Bagels' "rush" hours, 9:00am and 11:00am. There was a wide array of people surveyed, including students, staff, professors, construction workers, and SUB kiosk vendors.

An oral survey was administered, as opposed to a written survey, as a means to demonstrate sustainability by reducing paper use, and to more accurately receive answers to our questions. For example, possible misunderstandings of the questions could be cleared up by surveyors as participants considered their answers. A survey developed by AGSC 450 spring 2004 group 9 was used as a template and tailored to better suit our group's specific research needs (Group 9, 2004).

### **MARKETING**

The incorporation of UBC Farm products into AMSFBD provides an opportunity to increase awareness of the existence of UBC Farm and the concept of supporting local agriculture. The group developed a list of promotional ideas, specific to our project, as well as applicable to assessing the broader problems of the UBC food system.

## **FINDINGS AND DISCUSSION**

### **INCORPORATING UBC FARM PRODUCTS INTO BERNOULLI'S BAGELS' MENU**

Through a review of the literature and communication with stakeholders, the group considered numerous options for incorporating UBC Farm products into Bernoulli's Bagels' menu. The Following is a description of ideas that were considered but found to be unviable:

<b><u>Unsuccessful Ideas</u></b>	<b><u>Reasoning</u></b>
<input type="checkbox"/> Carrot bagel	-Carrot bagel would not be popular as per Kathy, manager of Bernoulli's Bagels.
<input type="checkbox"/> Fruit juice	-Limited supply of fruits from the UBC farm (for example peaches, apricots, berries) -Apples will not be available from the UBC farm until 2009
<input type="checkbox"/> Berry bagel	-Bernoulli's Bagels already uses frozen blueberries, which is cheaper to buy from the regular AMSFBD supplier than buying fresh from UBC Farm. -Berries (blueberries, strawberries, raspberries) are very popular items at UBC farm markets and are sold very quickly. -Blackberries are grown wildly at UBC farm, but they lack labourers to pick them
<input type="checkbox"/> Smoothies	-Bernoulli's Bagels is not authorized to sell smoothies as another vendor in the SUB is currently selling them.
<input type="checkbox"/> Soup	-Bernoulli's Bagels already uses pre-made frozen soup and does not want to change at this time.
<input type="checkbox"/> Garlic spread	-Too labour intensive to whip the butter, as per Kathy, manager of Bernoulli's Bagels.
<input type="checkbox"/> Fresh Herbs	- Bernoulli's Bagels used fresh herbs in the past, but were deemed too time consuming and labour intensive. They have now switched to dried herbs.
<input type="checkbox"/> Eggs	- Eggs sell out quickly at farm. - Bernoulli's Bagels requires many eggs (2.5 dozen per day).
<input type="checkbox"/> Humus	- The UBC farm does not produce chickpeas.
<input type="checkbox"/> Salad	-Too labour intensive for Bernoulli's Bagels, even if using pre-washed bag salad.
<input type="checkbox"/> Dessert bagel	(example: Cinnamon raisin bagel with sweetened cream cheese icing) -Does not represent Bernoulli's Bagels as per the Kathy, manager of Bernoulli's Bagels.

The above products and reasons are included for reference for future AGSC 450 students. They should be re-considered for implementation following expansion of UBC Farm.

## **JALAPENO PEPPERS – OUR FOCUS**

After a thorough investigation of the above proposals with limited progress, the group decided to focus on jalapeno peppers and investigate their feasibility. The group decided to incorporate jalapeno peppers from UBC Farm into Bernoulli's Bagels' existing Jalapeno Bagel and Jalapeno and Cheddar Cream Cheese.

Jalapeno peppers can be grown in a variety of climates including that of British Columbia's west coast. In 2006 UBC Farm was left with a surplus of jalapeno peppers, as they were overproduced for research purposes and did not sell well at UBC Farm Markets or to restaurants (Mark Bomford, personal communication, Mar 8). While UBC Farm does not plan on producing jalapeno peppers in such high quantity again without a guaranteed market, the successful production of jalapenos in 2006 showed that jalapeno peppers could be produced effectively at UBC Farm in the future. The rationale for choosing jalapeno peppers was that they are a feasible crop to grow and sell to Bernoulli's Bagels' and will therefore aid UBC Farm in increasing revenue. This will also help promote a sustainable UBC food system by decreasing the distance Bernoulli's Bagels' jalapeno peppers travel and consequently the energy required for the peppers to reach Bernoulli's Bagels. In addition, the Jalapeno Bagel and Jalapeno and Cheddar Cream Cheese are popular items on Bernoulli's Bagels' menu and are appealing to potential consumers, according to the survey results (see appendix A).

Currently, Bernoulli's Bagels uses fresh jalapeno peppers for the jalapeno bagel and cream cheese (Kathy, personal communication, Mar 15). The group's research showed that substituting jalapeno peppers from the farm for the current jalapeno peppers purchased by AMSFBD is a feasible idea. UBC Farm is able to supply the required amount, 5kg per order, at a reasonable price of \$2.25/lb (T. Carter, personal communication, Mar 16). Each 5kg order of jalapenos lasts Bernoulli's Bagels about 10 days, which means that UBC farm would need to supply approximately 15 kg of jalapeno peppers a month (Kathy, personal communication, Mar 15).

Although the opportunity to substitute UBC jalapeno peppers for those supplied from Allied Foods during UBC Farm's jalapeno pepper season was reasonable, the group was struck by the short length of the jalapeno pepper season and searched for a way to prolong the availability of jalapeno peppers from UBC Farm. The group felt that if Bernoulli's Bagels and UBC Farm support frozen jalapeno peppers, the plan would be more practical and beneficial for both UBC Farm and Bernoulli's Bagels. Bernoulli's Bagels could have UBC Farm jalapeno peppers year round, and UBC farm would have a market for increased jalapeno pepper production.

### **FROZEN JALAPENO PEPPER PROPOSAL**

UBC Farm was consulted to obtain their perspective on the idea of freezing pre-chopped jalapeno peppers. The Production Coordinator at UBC Farm supported the idea and called it a "local-food-system-friendly idea" (T. Carter, personal communication, Mar 20). The Production Coordinator confirmed that by freezing the peppers it would be possible to provide Bernoulli's Bagels with a year's supply, thereby extending the short growing season and helping to support a sustainable local food system (T. Carter, personal communication, Mar 22).

Although UBC Farm showed support for the idea of freezing jalapeno peppers, when contacted, Bernoulli's Bagels had some concerns. A group member asked Bernoulli's Bagels' manager if she would be willing to use fresh jalapeno peppers from September to mid October and frozen jalapeno peppers when they are not in season at UBC Farm. There was a positive response to using fresh peppers in season; however, the manager's immediate response was negative to using frozen peppers. She did not see a reason to buy frozen jalapeno peppers when fresh peppers are available year round (Kathy, personal communication, Mar 26). As well, in the past, Bernoulli's Bagels had tried to freeze jalapeno peppers and found that cutting up the peppers when thawed was difficult, as they did not retain their firmness (Kathy, personal communication, Mar 26).

## **JALAPENO PEPPER FREEZING EXPERIMENT**

Despite Bernoulli's Bagels' resistance to frozen jalapeno peppers, the potential to implement a strongly sustainable idea that emphasizes the importance of supporting local agriculture led the group to further investigate. Group members decided to conduct a freezing experiment to determine the quality of jalapeno peppers after freezing.

Both whole jalapenos peppers and peppers that had been de-seeded and chopped were frozen. The peppers were double bagged and placed in a freezer for one week. Upon thawing the jalapenos, it was discovered that they retained water and were slippery to handle. This would make things difficult if trying to chop the thawed whole peppers and is consistent with Bernoulli's Bagels' experience. However, the precut frozen peppers did not require any further processing and were easy to use.

To test how well the frozen and thawed jalapeno peppers would stand up in baking, two batches of jalapeno cheddar muffins were made: one with fresh jalapenos, and one with frozen jalapeno pieces. After thawing the peppers, paper towels were used to help absorb any excess moisture from the frozen pieces. Frozen jalapeno pieces were then added to the muffin batter.

After baking, the two muffin batches were compared. The muffins made with frozen jalapeno pieces did retain their shape but the texture was softer than the muffins prepared with fresh jalapeno peppers. Despite texture variation, both batches tasted the same. Thus, it may be plausible to use precut frozen jalapeno peppers in the jalapeno bagel and cream cheese as long as moisture content in the recipes are adjusted.

## **COST ANALYSIS**

Although Bernoulli's Bagels was not interested in using frozen jalapeno peppers, UBC Farm still supported evaluating the potential of freezing as a method of extending the selling season and were interested in knowing what it would take to accomplish this (T. Carter, personal communication, Mar 28). Thus a cost analysis was conducted to give the farm an idea of the

costs involved in growing and freezing jalapeno peppers. If the results are acceptable to the farm's logistics, including budget, labour, and facility considerations, the possibility of freezing other farm items may aid in increasing the productivity of UBC Farm and help to create new ways for the farm to increase their revenue. Results of the cost analysis showed that it is very inexpensive to grow jalapeno peppers, approximately \$17.00 per season, and that if volunteer labor is used, the additional costs for the farm to process the peppers would be approximately \$3.00 per week while peppers are in season. See **appendix B** for cost analysis details.

### **LOGISTICS OF ORDERING**

Bernoulli's Bagels, along with the other outlets in the SUB building, currently place orders via a centralized system through the AMSFBD (N. Gregory, personal communication, Mar 27). The AMS Procurement manager handles the accounts of various outlets and sends orders to suppliers. AMSFBD Suppliers include (N. Gregory, personal communication, Mar 27):

- Allied Foods Inc.– Produce
- Saputo Inc. - Dairy products
- Neptune Food Service – Eggs
- SYSCO CANADA - Meat and poultry

Bernoulli's Bagels' Baker, Marvin, and the AMS Procurement Manager stressed that it is absolutely important for ordering and receiving processes to be reliable (Marvin, personal communication, Mar 28 and N. Gregory, personal communication, Mar 27). It is imperative that UBC Farm gives Bernoulli's Bagels and AMS an accurate prediction of the quantity and quality of jalapeno peppers that can be provided, so they can place their order to Allied Foods if necessary. According to the AMS Procurement Manager, price, quality (size, shape, aesthetics), and quantity are stipulations that need to be declared before an agreement can be made (N. Gregory, personal communication, Mar 27).



From the perspective of UBC Farm, AMSFBD needs to commit to purchasing a specified amount of jalapeno peppers, as UBC Farm is vulnerable to financial losses (A. Frye, personal communication, Mar 14). The farm needs to know under what specific conditions Bernoulli's Bagels and AMSFBD would be willing to purchase from them. Despite these conditions, UBC Farm's Marketing Coordinator suggested that a contract between Bernoulli's Bagels and UBC Farm is not necessary at this time (A. Frye, personal communication, Mar 29).

For AMSFBD to order from UBC Farm, an email could be sent to AMS Stores from UBC Farm that includes the availability of jalapeno peppers each week, when the pepper are in season (September to mid October). From this information, AMS Stores could decide how much to purchase. If, for example, there is a limited availability of UBC Farm jalapenos one week, then the order could be split so that most are purchased from UBC farm, and the rest purchased through the AMSFBD regular produce supplier, Allied Foods.

Correspondence with UBC Farm showed that the farm wants all orders from AMSFBD to be combined into a single order. The orders should be received on the same day of the week, and delivered once per week. To simplify orders received from AMSFBD, ordering from UBC Farm could be centralized through Sprouts. Sprouts is a small not-for-profit combined grocery store and education center in the SUB specializing in selling local, organic, and healthy products. They are dedicated to purchasing and selling products from UBC Farm when products are in season (Sprouts, 2005). They are not formally connected with the AMSFBD as a student co-operative, but instead, the UBC Food Co-op operates the store (Sprouts, 2005). They order separately from standard AMSFBD outlets; however, the AMS Procurement Manager manages their accounts. (Sprouts Sales Associate, personal communication, Mar 14).

UBC Farm makes a delivery approximately once a week to Sprouts, depending on produce availability (A. Frye, personal communication, Mar 22). Orders for the required jalapeno peppers for Bernoulli's Bagels, as well as any other items incorporated by other AGSC

450 scenario three groups (potentially squash, herbs, carrots, etc.) could be combined with Sprouts' orders to UBC Farm to decrease the number of small orders sent to the farm. It would be most feasible if UBC Farm orders are received and delivered once per week to all AMSFBD outlets purchasing from the farm. This would give UBC Farm a structured ordering and delivery system, and would decrease labor requirements. The orders could be delivered to Sprouts and then distributed from there to Bernoulli's Bagels. UBC Farm invoices could be given to the AMS Procurement Manager, as he is in charge of managing both Bernoulli's Bagels' and Sprouts' accounts.

Despite the progress made on these arrangements, the group concluded that it is very difficult for students, who are not formally connected to UBC Farm or AMS to establish a formal relationship between these two operations. The group feels unsure of how to act as a mediator and suggests that if UBC Farm is serious about improving their connection with AMS, they need to make this a priority. It would be in the best interest of UBC Farm to send a representative to show AMS what they can offer, in order to establish a concrete alliance.

### **SURVEY**

In order to assess the potential success of the project, consumer attitudes towards UBC Farm, local agriculture, and Bernoulli's Bagels' jalapeno products were assessed through a survey. See **appendix A** for complete survey results.

Survey results revealed that the majority of participants either did not know that UBC Farm existed or knew that it existed but were unaware of the location or services offered. Of those who were aware of UBC Farm, the survey showed they were first exposed to the Farm through a course, UBC Farm's Markets, or through word of mouth. This suggests that increasing marketing initiatives to facilitate awareness of UBC Farm is warranted.

When surveyed, most participants felt that they would purchase local food if it were readily available and competitively priced. The survey showed that the majority of consumers

are willing to accept a price increase of \$0.25 - \$0.75 if UBC Farm products are incorporated into Bernoulli's Bagels' recipes. This data is very important as it may decrease Bernoulli's Bagels' and AMSFBD resistance to buying UBC Farm products if their concern is a potential price increase. In addition, buying from UBC Farm may increase clientele as results showed that consumers would be more likely to eat at Bernoulli's Bagels if they served local UBC Farm foods.

Survey participants showed 100% support for UBC Farm's vision of incorporating their products into the AMSFBD system. This data is important as it shows consumer support for the UBCFSP, specifically the group's attempt to incorporate UBC Farm jalapeno peppers into Bernoulli's Bagels' products, despite potential price increases.

The survey demonstrated an 89% interest in a jalapeno bagel or cream cheese. However, only 41% of participants had actually tried these two products. This suggests that marketing strategies could be implemented to increase sales of this product and awareness of UBC Farm.

Although these findings are helpful when analyzing the potential success of our project, it is also important to note the limitations of the survey technique used. There was a potential response bias among survey participants, as the survey was conducted orally. The group felt that participants answered "yes" to supporting the UBC Farm's vision despite a potential price increase, in some cases, in order to satisfy the survey administrators.

### **MARKETING STRATEGY**

Bernoulli's Bagels is located on the main floor in the SUB building at 6138 SUB Boulevard (AMS, 2007). This is a prime location, as it is near the main entrance to the SUB, one of the largest food destinations at UBC, and it is in close proximity to the bus loop, Gage residences, and other housing along University Boulevard. The accessibility of this location is essential to the success of this operation and to the target market (students, faculty, residents).

The location faces its highest traffic volume in the morning at 9am and 11am (Kathy, personal communication, Mar 21).

UBC Farm has a very small budget to advertise their products. It's small-scale operation and consequent inability to increase sales to a level that could compete with large-scale farms makes aggressive promotion unnecessary (A. Frye, personal communication, Mar 22). However, by forming a connection between the AMSFBD and UBC Farm, an opportunity has come forward to increase awareness of UBC Farm's existence and the concept of supporting local agriculture. The best way to promote the incorporation of UBC Farm's jalapeno peppers into Bernoulli's Bagels' menu items is to promote UBC Farm's connection to Bernoulli's Bagels by using low cost and sustainable practices.

Marketing ideas also include promoting UBC Farm itself, as this will ease marketing of UBC Farm's connection to the UBC campus, for example, the proposed connection to Bernoulli's Bagels. The increase in awareness of UBC Farm will eventually come full circle and increase Bernoulli's Bagels' success as a business. Recognition of UBC farm products will encourage students to buy from Bernoulli's Bagels, as students will want to support UBC Farm and ensure its continued existence.

### **PROMOTIONAL IDEAS**

#### **IMAGINE UBC**

The connection of UBC Farm to Bernoulli's Bagels could be promoted through Imagine UBC, a program that introduces first year UBC students to what UBC has to offer. This would be a great opportunity for UBC Farm to gain exposure to a large population. The fact that UBC has a farm on campus is not well known, as seen from the survey results. Facilitating interest and awareness of UBC Farm in students' first year at UBC will greatly boost UBC Farm's academic appeal.

UBC Farm could use this opportunity to advertise the connections it has to different outlets and programs on campus. UBC Farm could show the benefits they offer students by providing opportunities and experiences they would normally not gain through other volunteer activities. UBC Farm offers a wide variety of educational programs that help to promote the awareness and enhance the benefits of having a farm at UBC.

## **NEWSPAPERS AND WEBSITES**

Bernoulli's Bagels could advertise their UBC Farm jalapeno products in the Ubysey, the UBC community newspaper. Ubysey also designs and distributes a quarterly newsletter to which UBC Farm could send a brief submission each month about what is going on at the farm and what students should look forward to. Coupons could also be included in the AMS Insider for a discount on Bernoulli's Bagels products that feature UBC Farm produce.

The AMS website could be further developed to include a section on UBC Farm products available through AMSFBD outlets. As well, the Department of Computer Science could also be contacted to create a class project that would develop or update websites for UBC Farm and Bernoulli's Bagels. This would educate other faculties other than the Faculty of Land and Food Systems about UBC Farm.

## **UBC FARM**

Promotional ideas that UBC Farm could implement include:

- Sending a representative to be a guest speaker at seminars to present on their area of expertise in order to develop academic relations.
- Continuing to build and maintain a customer mailing and contact list on database software.
- Designing a point of purchase display to promote campus products that contain UBC Farm items and displaying it at UBC Farm Markets to encourage sales. Displays can be created with help from campus clubs, such as *Friends of UBC Farm* and *The Art Society*.

- Offering free samples of farm produce to increase awareness. Possible locations or events include:
  - The residential area surrounding UBC
  - Crazy Days: Totem and Vanier – UBC Farm could contact residential life managers
  - Imagine UBC
- Designing and distributing a free "how to farm successfully" pamphlet
- Setting up a campus wide logo design contest, in conjunction with the arts faculty, to create a new logo for the farm.
- Providing public tours of the farm to increase awareness of small scale farming and UBC Farm.
- Designing a brochure for UBC Farm that best explains the benefits of the programs and services offered. If this has already been done, the information could be updated.
- Displaying posters on bulletin boards around student populated areas that showcase Bernoulli's Bagels products that use UBC Farm produce. See **appendix C** for a copy of a proposed poster.

### **PRICING STRATEGY**

While making arrangements for obtaining UBC Farm jalapeno peppers, cost was considered. The costs of production and inputs incurred to produce a bagel should be less than the price a bagel is sold at. Furthermore, a reasonable profit margin should be set in order to ensure that prices are at a reasonable level. Based on our findings from the survey, the majority of consumers are willing to support the UBCFSP vision and increase the price of their purchase.

Currently Bernoulli's Bagels purchases their jalapenos through the AMSFBD supplier Allied Foods at a price of \$2.65/lb (N.Gregory, personal communication, Mar 28). As an attempt to engage in competitive pricing we suggest that the UBC Farm offers Bernoulli's

Bagels jalapeno peppers at a price of \$2.25/lb. At cost, the UBC Farm jalapenos are worth \$1.27/lb, therefore UBC Farm would gain a profit of \$0.98/lb (A. Frye, personal communication, Mar 22). The cost of transportation from UBC Farm fluctuates according to gas prices; however, both UBC farm and Bernoulli's Bagels are on campus, significantly minimizing transportation miles. This results in a low cost for delivering produce to Bernoulli's Bagels and is an ecologically sustainable method of distribution, as minimal fossil fuels would be required.

Bernoulli's Bagels prices its bagels at a premium price. This higher price strategy is a result of the convenient location of Bernoulli's Bagels and the use of high quality ingredients in their products. Furthermore, Bernoulli's Bagels is the only AMSFBD outlet that sells bagels and cream cheese in the SUB (AMS, 2007). As a result, they have the ability to charge a higher price due to a decreased influence of competitors pricing similar products at a lower price.

Bernoulli's Bagels engages in a pricing strategy that is different compared to other vendors outside of AMS because AMS regulates their prices. AMS sets a profit margin for products sold by the AMSFBD outlets. AMS receives a portion of the profits, which goes to supporting AMS programs and services. In turn, it is important for Bernoulli's Bagels to get their ingredients at a competitive price in order to ensure that they are able to capture a profit. If costs of production are high and a set fraction of the profit is distributed to AMS and used to pay taxes, a large profit for Bernoulli's Bagels will not result. See **appendix D** for a breakdown of the cost of a bagel and cream cheese from Bernoulli's Bagels.

## **RECOMMENDATIONS**

### **FUTURE AGSC 450 STUDENTS**

1. Further develop or implement marketing strategies that will increase awareness of UBC Farm and the importance of buying locally grown food. Future students could update Bernoulli's Bagels' current educational brochure that explains the importance of sustainability. The brochure is available at Bernoulli's Bagels.
2. To confirm or refute survey results, it is recommended that the survey be re-administered to acquire answers that reflect accurate consumer opinions. An issue faced during the survey was the excessive amount of paper required for individual surveys to be distributed, which was partial reasoning for selecting an oral survey technique. To counteract this, surveys can be printed on small pieces of paper or administered online. Survey questions may also need to be evaluated to ensure that they do not, themselves, promote biased responses. As well, statistical analysis of the survey could be done to determine the significance of the results.
3. Focus on increasing awareness and education of AMS staff on the importance of buying locally and supporting UBC Farm. When contacted, Bernoulli's Bagels' Manager and the AMS Procurement Manager were not interested in buying certain produce from UBC Farm if they could conveniently buy fresh produce from other suppliers. A general campaign to encourage awareness among AMS staff of the concept of supporting local food could be developed and implemented.
4. Future AGSC 450 students could also experiment with different freezing techniques (for example, blanching the peppers prior to freezing) and develop a convincing campaign to persuade AMSFBD and Bernoulli's Bagels to consider frozen jalapeno peppers or other preserved products. Freezing techniques could also be used for other UBC Farm



products. As well, other methods of processing, such as dehydration, could be investigated.

5. From a business point of view, AMSFBD concerns over the unpredictability of buying from local producers are valid. Perhaps upcoming students can brainstorm and discuss ideas on how businesses and UBC Farm can overcome this barrier.

### **UBC FARM**

1. We recommend UBC Farm continue investigating ways to add value to their products by developing the ability to process their produce on site. As described earlier, jalapeno peppers grown in the summer months could be processed (seeds and stem removed) and frozen, and would therefore be available during the winter month. This would follow the guidelines found in the Vision Statement for a Sustainable UBC Food System, as it would promote a sustainable method of food procurement. If the freezing proposal is feasible for the UBC farm, then jalapenos could be sold in three forms: frozen, pre-processed or whole. Even if the jalapeno peppers are soggy upon thawing and may not be suitable for baking, they are excellent for cooking and could be sold at UBC Farm's Markets. Berries grown at UBC Farm could also be frozen. The farm tends to have large amounts of blackberries in the summer that could also be added to recipes frozen or thawed.
2. Through an analysis of survey results, it was found that many people were not aware of UBC Farm. We recommend that UBC Farm make its markets more of a social event by including music, crafts and family activities in order to appeal to a broad population group. In order to raise awareness in the younger population, more events such as Farm Aide could be implemented in the future. Even if UBC Farm does not have enough supply to meet demand, raising awareness of UBC Farm's markets would raise

awareness of farmers' markets in general and consequently, the idea of local food production.

3. It is also recommended that in order to make the UBC food system more sustainable, UBC Farm could use a bike delivery system on campus. Instead of UBC farm using cars or trucks to make campus deliveries, bike couriers could be used to deliver the jalapenos and other produce to the SUB. When consulted, UBC farm said that they have looked into bike couriers as a possible zero-emission strategy in the past; however, they are concerned that it would not be very efficient as campus deliveries can be quite large (A. Frye, personal communication, Mar 20). Currently, deliveries are made via two large Rubbermaid containers each for Sage Bistro and Sprouts. If Bernoulli's Bagels was added to this list, it could easily take 4-5 bike trips (A. Frye, personal communication, Mar 20). Nevertheless, this idea should be looked into further, perhaps by using a cost analysis or emissions analysis of a bike delivery versus a car delivery system.

#### **UBC SUSTAINABILITY OFFICE**

1. Enlisting commerce students who are educated in the area of marketing and business could help the project succeed while establishing academic bonds between faculties. This would also include developing business relationships with AMSFBD outlets to try to incorporate more of the UBC Farm's products in not only Bernoulli Bagels but in other AMSFBD outlets. With increased academic and business relationships across campus, UBC Farm would be able to become a financially independent organization.
2. It is also recommended that the UBC Sustainability Office provide Bernoulli's Bagels and AMSFBD Management with the survey results to persuade them to purchase local UBC Farm jalapeno peppers for their products. Survey results showed consumer support for local products.

## **CONCLUSION**

Survey results showed strong consumer interest in the concept of supporting local food production and UBC Farm. However, as many consumers are unaware of UBC Farm and the concept of local food production, there is an impressive opportunity to promote UBC Farm and raise awareness for the importance of local food. As Bernoulli's Bagels will not accept frozen jalapeno peppers, it was decided that a plan to implement frozen jalapenos will not be proposed for fall 2007. However Bernoulli's Bagels is willing to support the farm by buying fresh jalapenos for as long as UBC Farm can supply them, likely from September to mid October. Therefore, Bernoulli's Bagels could use jalapeno peppers from UBC Farm beginning September 2007 if the UBC sustainability office and the UBC Farm carry the group's proposal forward.

## REFERENCES

- Alma Mater Society of UBC. (2007). *About the AMS*. Retrieved Apr 2, 2007, from <http://www.ams.ubc.ca/about>
- Alma Mater Society of UBC. (2007). *Bernoulli's Bagels*. Retrieved Apr 2, 2007, from <http://www.ams.ubc.ca/bernoulli>
- Auto Hopper (2007). *Gas Mileage Estimates*. Retrieved April 2, 2007 from: [http://www.autohopper.com/fuel\\_economy\\_cars/results\\_gas\\_mileage.asp](http://www.autohopper.com/fuel_economy_cars/results_gas_mileage.asp)
- City of Vancouver. (2007). *City Compost*. Retrieved March 31, 2007 from: <http://www.city.vancouver.bc.ca/engsvcs/solidwaste/grownatural/citycompost.htm>
- Food Safe. (2007). *Food Safe Frequently Asked Questions*. Retrieved April 2, 2007 from: <http://www.foodsafe.ca/FSQuestions.htm#Server>
- Fuller, Jessica. (2006). *Implementing Seasonal Pizza at Pie R Squared*. FNH 497-Directed Studies.
- Group 3. (2006). *UBC food system collaborative project V*. Retrieved Feb 20, 2007, from [http://www.webct.ubc.ca/SCRIPT/agsc\\_450/scripts/student/serve\\_bulletin](http://www.webct.ubc.ca/SCRIPT/agsc_450/scripts/student/serve_bulletin)
- Group 9. (2004). *The UBC farm: Forming market relationships*. Retrieved Feb 20, 2007, from [http://www.webct.ubc.ca/SCRIPT/agsc\\_450/scripts/student/serve\\_bulletin](http://www.webct.ubc.ca/SCRIPT/agsc_450/scripts/student/serve_bulletin)
- Group 13. (2006). *Agsci 450 food system project: Scenario 2*. Retrieved Feb 20, 2007, from [http://www.webct.ubc.ca/SCRIPT/agsc\\_450/scripts/student/serve\\_bulletin](http://www.webct.ubc.ca/SCRIPT/agsc_450/scripts/student/serve_bulletin)
- Harris Seeds (2007). *Harris Seeds Catalogue*. Retrieved March 31, 2007 from: [http://gardeners.harriseseeds.com/cart/search\\_results.asp?txtsearchparamcat=ALL&txtsearchparamtype=ALL&ilevel=1&txtsearchparamman=ALL&txtsearchparamven=ALL&txtfromsearch=fromSearch&txtsearchparamtxt=mulch](http://gardeners.harriseseeds.com/cart/search_results.asp?txtsearchparamcat=ALL&txtsearchparamtype=ALL&ilevel=1&txtsearchparamman=ALL&txtsearchparamven=ALL&txtfromsearch=fromSearch&txtsearchparamtxt=mulch)
- Halweil, B. (2002). Home grown: The case for local food in a global market. *Worldwatch Institute*, 1-84.
- Mapquest (2007). Direction Inquiry. Retrieved April 2, 2007 from: [www.mapquest.com](http://www.mapquest.com)
- Sears Canada (2007). *Freezers*. Retrieved April 2, 2007 from: [http://www.sears.ca/gp/search/ref=sr\\_nr\\_n\\_1/00298439032826434?ie=UTF8&searsBrand=core&rh=n%3A15867831%2Cn%3A15860851%2Cn%3A16348351%2Cn%3A16363801&page=1](http://www.sears.ca/gp/search/ref=sr_nr_n_1/00298439032826434?ie=UTF8&searsBrand=core&rh=n%3A15867831%2Cn%3A15860851%2Cn%3A16348351%2Cn%3A16363801&page=1)
- Sprouts. (2005). *About us*. Apr 2, 2007, from: <http://www.ams.ubc.ca/clubs/nfc/?page=aboutus>
- Southern Drip Irrigation. (2007). *Southern Drip Catalogue*. Retrieved March 30, 2007 from: <http://www.southerndrip.com/SoutherDripCatalogue.pdf>
- UBC Farm. *About the UBC Farm*. Retrieved April 12, 2007, from UBC Farm at the University of British Columbia Web site: <http://www.landfood.ubc.ca/ubcfarm/about.php>

## APPENDIX

### APPENDIX A – SURVEY RESULTS

- 1) How familiar are you with the UBC Farm?
  - a) Not familiar at all 37%
  - b) A little bit familiar 43%
  - c) Fairly familiar 15%
  - d) Quite familiar 3%
  - e) Very familiar 2%
  
- 2) How did you hear about the UBC Farm?
  - a) Word of mouth 32%
  - b) Internet 15%
  - c) Road signs 21%
  - d) Print media 2%
  - e) Other (Class, Farmer’s Markets, etc.) 30%
  
- 3) How important is buying locally-produced food to you?
  - a) Not at all important 15%
  - b) Somewhat important 49%
  - c) Fairly important 21%
  - d) Quite important 8%
  - e) Very important 7%
  
- 4) Would you be willing to support UBC’s vision of incorporating UBC Farm items, which are grown locally and organically, into the AMS Food and Beverage system? For example, incorporating UBC farm’s fresh produce into Bernoulli’s Bagels’ recipes.
  - a) Yes 100%
  - b) No 0%
  
- 5) Would you be willing to support incorporating UBC Farm items into the AMS Food and Beverage system if incorporating UBC farm produce meant price increases?
  - a) Yes 98%
  - b) No 2%
  
- 6) What price increase is acceptable to you, if any?
  - a) 0 2%
  - b) \$0.01 - \$0.25 10%
  - c) \$0.25 - \$0.50 35%
  - d) \$0.50 - \$0.75 29%
  - e) \$0.75 - \$1.00 18%
  - f) \$1.00 + 6%
  
- 7) Do you currently eat at Bernoulli’s Bagels?
  - a) Yes 53%
  - b) No 47%
  
- 8) Would you be more likely to eat there if Bernoulli’s bagels sold local, organic UBC farm products?
  - a) Yes 54%
  - b) No 46%

9) Does a Bernoulli's jalapeno bagel or jalapeno cream cheese sound appealing to you?

- a) Yes 89%
- b) No 11%

10) Have you tried the Jalapeno Bagel?

- a.) Yes 41%
- b.) No 59%

**APPENDIX B – COST ANALYSIS OF GROWING AND FREEZING JALAPENOS PEPPERS**

**The major costs associated with growing jalapeno peppers are outline below.** They were determined via discussion with the UBC Farm production coordinator, Tim Carter.

<p><b>1. <u>Cost of jalapeno seeds</u></b></p> <p>The UBC farm plants jalapeno seeds in early April, and harvest in late August. The jalapenos are grown in a polyhouse, in which no artificial light or heat is required. This helps to create an effective solution to decrease production costs. For the upcoming jalapeno season, UBC farm has ordered a 14g package of seeds from <i>West Coast Seeds</i>.</p>	<p>A 14g package of seed costs <b><u>\$6.05.</u></b></p>
<p><b>2. <u>Compost</u></b></p> <p>The UBC farm uses compost made from animal bedding as the primary method to maintain soil fertility. To plant the jalapeno peppers, 1 inch of this compost is needed every year. To estimate costs of production inputs, the price of finished compost was used. The Vancouver landfill in Delta sells finished compost for: <b>\$10 per 1.3 yards (or 46.8 inches)</b> (City of Vancouver, 2007).</p>	<p>To plant the jalapenos, the farm will require 1 inch, which is: \$10/ 46.8inches = <b><u>\$0.21 per inch</u></b></p>
<p><b>3. <u>Irrigation Tape</u></b></p> <p>The UBC farm currently uses the supplier <i>Southern Drip Irrigation</i> to purchase “Netafim typhoon drip tape” (Southern Drip, 2007). Using the order catalog, the cost is \$0.15 per feet. The peppers use approximately 100 inches of tape, or 8.3 feet.</p>	<p>Thus: 8.3 ft x \$0.15/ft = <b><u>\$1.25</u></b></p>
<p><b>4. <u>Black Plastic Mulch</u></b></p> <p>Black plastic mulch is often used for pepper production to control weeds, keep the soil warm, and may help obtain higher yields.</p>	<p>One 3’ x 50’ roll of black plastic mulch will cost = <b><u>\$9.60</u></b> (Harris Seeds, 2007).</p>

**Major inputs to grow jalapeno peppers**

<u>Inputs</u>	<u>Cost</u>
<b>Jalapeno seeds</b>	\$6.05 per season
<b>Compost</b>	\$0.21 per inch
<b>Irrigation Tape</b>	\$1.25 (for 8.3ft)
<b>Black Plastic Mulch</b>	\$9.60 per roll
<b>TOTAL</b>	<b>\$17.11 per growing season</b>

**The major costs associated with processing and freezing the jalapeno peppers are outlined below:**

<p><b>1. <u>Labor: To Pick Jalapeno Peppers</u></b></p> <p>The UBC farm production coordinator estimates a time of approximately 20mins to pick 5kg of jalapeno peppers. Although most of the farm workers are volunteers, paid wages will be used for the purposes of this cost analysis. The current wage paid to farm workers is <b>\$14/hour</b>. Thus harvesting the peppers for 20mins would cost:  <math>\\$14/\text{hour} = \\$14/60\text{mins} = \mathbf{\\$0.23/\text{min}}</math></p>	<p>Harvesting peppers for 20mins x 0.23/min = <b><u>\$4.60 to pick the peppers each week</u></b></p>
<p><b>2. <u>Labor: To Process Jalapeno Peppers</u></b></p> <p>Processing involves removing the stems and seeds, and then dicing the peppers before freezing. Through our freezing experiment, we timed how long it takes to process one pepper. It took approximately <b>1.5 minutes</b>, but may be more or less depending on the skill of the worker. Upon weighing jalapeno peppers at a grocery store, <b>one pound = 12 peppers</b>  <math>12 \text{ peppers} \times 1.5\text{mins} = \mathbf{18\text{mins}}</math> to process 1 pound of peppers          Bernoulli's Bagels needs 5kg (11 lbs) of jalapenos every 10days. Thus:  <math>18\text{min}/\text{lb of peppers} \times 11 \text{ lbs} = \mathbf{198\text{mins or } 3.3\text{hours}}</math></p>	<p><math>\\$14/\text{hour} \times 3.3\text{hour} = \mathbf{\\$46.20 \text{ to process the peppers each week}}</math></p>
<p><b>3. <u>Cost of Food safe</u></b></p> <p>In order for the jalapeno peppers to be processed, the UBC farm must obtain food safe certification. Every operator of a food service establishment must hold a food safe certificate, as well as ensure that while the operator is absent, at least one employee present holds a food safe certificate (Food Safe, 2007).</p>	<p>Food safe level 1 prices range from approximately <b><u>\$55-\$99</u></b>, depending on the location and company offering the course.</p>
<p><b>4. <u>Transportation Costs</u></b></p> <p>The driving distance between the UBC Farm and the Student Union Building was determined to be <b>1.80 miles</b> (Mapquest, 2007). The UBC farm currently makes deliveries in a 1990 Toyota Hatchback (Auto Hopper, 2007). With a gas mileage of approximately <b>20 miles per gallon</b>, and an estimated gas price of <b>\$1.15/L</b> then:  <math>1.80 \text{ miles} \times 1 \text{ gallon}/\text{mile} = 0.09\text{gallons}</math> (1 gallon = 3.785L) = 0.34L of gas</p>	<p><math>0.34\text{L} \times \\$1.15/\text{L} = \sim \mathbf{\\$0.40}</math>  <math>\times 2</math> (trip back to farm) = <b><u>\$0.80</u></b></p>
<p><b>5. <u>Freezer Costs</u></b></p> <p>The UBC Farm does have a freezer, but it is currently inoperable. Thus the farm will also have to also take into consideration the costs of either buying a new one or repairing the existing freezer.</p>	<p>The approximate costs of buying a new freezer are <b><u>~\$200-500</u></b> (Sears Canada, 2007).</p>

**Major Inputs to Process and Freeze the jalapeno peppers**

<u>Inputs</u>	<u>Cost</u>	<u>Cost per week</u>
<b>Labor: to pick peppers</b>	\$4.60 each week	\$4.60
<b>Labor: to process peppers</b>	\$46.20 each week	\$46.20
<b>Food Safe Certification</b>	\$55-99 (average: \$77)	\$1.60
<b>Transportation</b>	\$0.80	\$0.80
<b>Freezer</b>	\$200-500	n/a
<b>TOTAL</b>		<b>\$53.20 each week</b>

- If UBC farm sells jalapenos for \$2.25 per pound, and Bernoulli's needs 5kg every 10 days then:  
 $5\text{kg} \times 2.2 = 11 \text{ lbs} \times \$2.25/\text{lbs} = \mathbf{\$24.75}$
- Thus the farm inputs to freeze the jalapeno peppers (**\$53.20**) would exceed their profit (\$24.75)
- However, volunteers primarily do the labor. If labor costs are taken away:  $\$53.20 - \$4.60 - 46.20 = \mathbf{\$2.40}$  to process and deliver the peppers.
- Thus freezing the jalapeno peppers may be a feasible idea and the farm could possibly look into freezing other farm items as well to help boost revenue and promote a local food system.

**APPENDIX C – PROMOTIONAL POSTER**



**APPENDIX D - BAGEL COST BREAKDOWN**

<b>Allocation of Cost</b>	<b>Amount</b>
Cost of Bagel and Philadelphia cream cheese	\$0.55
Government Taxes	\$0.13
Supporting the AMS resource groups like SASC and the Student Environmental Center	\$0.10
Repayment of renovation	\$0.43
Payment to manager and student staff	\$0.89
<b>Total for toasted bagel with cream cheese</b>	<b>\$2.10</b>