

TO EAT OR NOT TO EAT:

The problem of unsustainable food practices at Dalhousie University

ENVS 3502.03 FINAL PROJECT

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Abstract

Undergraduate students Rachel Climenhaga, Meghan McKenna, Elizabeth Murray, Jennifer Robinson and Lilly Briggs conducted a feasibility study to determine whether or not it would be possible to have locally-grown, organic food options on the Dalhousie University campus. Their research took place between January 13th and March 30th of 2004 through the course ENVS 3502, taught by Professor Tarah Wright. It involved surveying Dalhousie students about their food preferences; interviewing local, organic farmers; and interviewing representatives of both Sodexo, the company that is responsible for the food outlets on campus, as well as the head offices of the franchises that are in business on campus.

The purpose of conducting this research was to provide a starting-off point for improving the environmental sustainability of Dalhousie University's day-to-day food operations. Locally-grown, organic food is far more sustainable than the imported, non-organic food that is currently offered at the campus food outlets, and the results of the study demonstrate that it would be feasible to provide this environmentally-friendly food choice to the Dalhousie University population.

1.0 INTRODUCTION

1.1 INTRODUCTION

Between January 13th and March 30th of 2004, undergraduate students Rachel Climenhaga, Meghan McKenna, Elizabeth Murray, Jennifer Robinson and Lilly Briggs conducted a feasibility study to determine whether or not it would be possible to have locally-grown, organic food options on the Studley Campus of Dalhousie University in Halifax, Nova Scotia, Canada. The purpose of conducting this feasibility study was to improve the environmental sustainability of the current Dalhousie campus food operations.

Universities are micro-environments that both “use resources and generate a great deal of waste in conducting their business (Creighton, 2001).” Addressing the sustainability of a university’s daily activities can help to significantly decrease their impact on the environment. In 1990, Dalhousie University signed the Talloires Declaration, and thus committed itself to creating a sustainable university environment. This project seeks to address the general problem of unsustainable food practices on campus in order to assist Dalhousie University in living up to the environmental commitments it made by signing the Talloires Declaration.

Environmental sustainability is linked to the concept of sustainable development. According to the 1987 World Commission on Environment and Development, sustainable development is defined as: “development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs” (UNCED, 2002). Locally-grown, organic food is far more environmentally

sustainable than imported, non-organic food because it has fewer environmental impacts in terms of fossil fuel emissions and cultivation practices. Choosing locally-grown, organic food enhances the health of the air, land and water of the planet, which will in turn enhance the lives of both the current and future generations.

First of all, imported food grown outside of the province or the country must travel long distances to reach our plates. The transportation process burns vast amounts of fossil fuels, which in turn creates greenhouse gas emissions such as carbon dioxide. Currently, atmospheric concentrations of greenhouse gases are increasing rapidly, causing the unprecedented rate of global warming worldwide. Global warming is defined as the average increase in the temperature of the planet, which causes climate change, causing sporadic weather conditions (Global Warming Website, 2002).

Climate change has the potential to cause extreme weather events such as ice storms, floods and droughts; change global rainfall patterns; and lead to more intense hot and cold temperatures in particular geographical locations, and as these changes occur, it will be extremely difficult for ecosystems to adapt quickly enough to survive. Scientists predict that the resultant habitat destruction could cause species loss of 20% or more (David Suzuki Website, 2004). Buying locally-grown food as opposed to imported food reduces transportation needs, and this means reduced greenhouse gas emissions.

Secondly, there are several reasons why organic food is more environmentally sustainable than food grown through large-scale commercial farming techniques. The latter relies heavily on chemical pesticides, and the toxins in these pesticides pollute the air, land and water in their vicinity (Freedman, 2001). This kills the pests, but it also harms numerous other species as well. And eventually, the pests develop immunity to the

pesticides, creating a need for stronger, more toxic formulas. In addition to harming animals and plants, when the toxins in pesticides seep into the groundwater, they pose a serious risk to the safety of our drinking water. (Freedman, 2001)

Another unsustainable practice of commercial farms is their conversion of large plots of land into monocultures, or plantings of only one crop species. When the same type of crop is harvested over and over in the same soil, it causes top soil depletion. Top soil is rich in important nutrients, without which the soil becomes particularly vulnerable to erosion. (Freedman, 2001)

Finally, due to its large scope, commercial farming makes use of heavy machinery for its ploughing and tilling operations. The energy usage associated with this machinery is so great that according to the Organic Agriculture Centre of Canada, modernized farming practices are responsible for 13% of our nation's greenhouse gas emissions. (MacRae, 2003)

By contrast, organic farming methods are far more environmentally sustainable. Monocultures are replaced by multi-crop plantings, and the species diversity on these plots is helpful as a natural form of pest control (Freedman, 2001). Crop rotation techniques and weeding also help to control pest infestations. For these reasons, organic farmers do not use synthetic pesticides. This not only keeps the soil healthier and much more viable over the long term, it also prevents toxic contamination of the surrounding air, land and water. And finally, organic agriculture uses 65% less energy than conventional agriculture, and therefore contributes far less to greenhouse gas emissions. (MacCrae, 2003)

It is evident that locally-grown, organic food has numerous environmental advantages over imported, non-organic food. Furthermore, there is convincing evidence that it is in fact possible for university campuses to implement this environmentally sustainable food choice into their daily operations. Here in Canada, both York University in Toronto and Concordia University in Montreal have taken the initiative to offer locally-grown, organic food on their respective campuses (People's Potato, 2004).

At York there is a student run cafeteria called Counter Culture, which makes a concerted effort to buy locally-grown and organic food whenever possible (Counter Culture, 2004). At Concordia there is student run soup kitchen called "People's Potato," which buys food from local grocers and produce from local farmer's markets. The popularity of this soup kitchen has increased so dramatically that while it once served lunch to only 150 people per day, it now serves between 500 and 600 people each day, five days a week. (People's Potato, 2004).

In the United States, students at Hendrix College in Conway, Arkansas conducted a study which revealed that the majority of the food offered on their campus was imported from outside of the state, despite the fact that Arkansas has a strong agricultural economy. As a result of this discovery, the college administration hired a coordinator to help them connect with local farmers and thereby increase their purchasing of local food from a meagre 6% to over 30% from 1986 to 1990 (Valen, 1992). Finally in New York State, St. Bonaventure University has held a "Local Food Day" event, which allowed local farmers to set up stalls in the campus dining halls to educate students about the advantages of buying locally-grown food (National Wildlife Federation, 2002/03).

By choosing to offer locally-grown, organic food options on their respective campuses, York University, Concordia University, Hendrix College and St. Bonaventure University are demonstrating that they care about the environmental sustainability of their daily operations. Dalhousie University can and should follow the positive example of these North American universities, as is demonstrated by the feasibility study outlined in this report.

The purpose of our study is to address the problem of unsustainable food options on campus. Conducting this feasibility study of Dalhousie's current food services and researching possible alternatives such as locally-grown, organic food will set the groundwork for having low impact food options on campus. In turn, this study will also assist Dalhousie in meeting its sustainable development commitments by providing valuable information and suggest creative recommendations to the "Greening the Campus" initiative.

Our proposed project is intended to draw awareness to the ramifications of unsustainable food practices on Dalhousie campus, and create a movement towards providing locally-grown, organic foods to Dalhousie students. If feasible, it is our hope that a group of students in next year's ENVS 3502 class will accept the challenge of taking our project one step further, and actually bring about locally-grown, organic food options on campus.

1.2 LITERATURE REVIEW

The group's literature review was crucial to the project as it provided us with background knowledge on our topic. Because our topic was a feasibility study of having local organic food options on campus it was important for us to understand what is wrong with

modern agricultural methods (Appendix One). Examining the pros and cons of organic and local agriculture also gave us a clearer understanding of why organic and local food options were more sustainable (Appendix Two and Three). Background knowledge in how organic certification occurs was also crucial to this study because it ensures credibility behind what we are doing because certification ensures that the food is being made in an environmentally sustainable way (Appendix Four). Finally it was important to our study to research if other universities were successful in implementing local and, or organic food options on campus. This gave our study more credibility and reassurance that it is possible (Appendix Five).

2.0 METHODS

2.1 DESIGN OF STUDY

Using the typology defined by Palys, our research study fell under the exploratory framework (Palys, 2003). This is when there is virtually no knowledge of the system before the experiment is conducted. We had no knowledge of food systems on campus, and thus it was the suitable framework for us. We used the deductivist's method, which was to start with a theory to help guide research. It is usually the case that exploratory research by deductivists is done in the form of pilot tests or feasibility studies (Palys, 2003).

2.1.1 SAMPLING METHOD

The sampling method we chose for our research was purposive. This is a non-probabilistic form of sampling that does not seek formal representatives. (Palys, 2003) We selected people and locations specifically as they fit with our research topic. We chose three farmers from the local farmers market because they would provide the local organic food, selected classes at Dalhousie University because the students are the ones buying the food, and chose Sodexo representatives and franchise operators to interview because they are the food purchasers. For the Sodexo interviews, we also used a snowball sampling method. The first interview conducted led to contacts with subsequent people whom we would not have known to contact in the first place.

2.1.2 SAMPLING TOOLS

Due to the multiple groups of people being researched, a number of different tools were used. For gathering data from local farmers, Sodexo representatives, and franchises (who receive food separate of Sodexo) which includes Pizza Pizza, Starbucks and Tim Horton's face-to-face interviews were conducted. This type of interview has numerous advantages. Direct contact can greatly enhance the quality of data, as any questions the respondent may have can be clarified on the spot, as well as the researcher may encourage a respondent to elaborate on a short answer (Palys, 2003). This interactive method also is useful because it builds a personal relationship between the interviewer and respondent. This is very beneficial to this type of project, as any groups that follow will be able to pick up on this already established relationship. The formats of the questions within the interview were open-ended (Appendix Six and Seven). Open-ended questions were suitable because they leave more flexibility for the direction of the interview and more information. They are also particularly useful in exploratory research, "where the researcher isn't clear about what range of responses might be anticipated (Palys, 2003: 176)." This format did provide some difficulties as well however, as they facilitated longer answers to questions that were harder to record by researchers.

For the student surveys we wanted to obtain information on a number of things; a) students demands in terms of food choices on campus, b) student food trends, c) whether or not sustainable food practices influence the students' food choices and d) whether or not students understand the term sustainability. In order to survey the largest number of students in the short time allotted, group-administered questionnaires were chosen (Appendix Eight). Approaching classes and surveying all students at the same time was

an efficient way of getting the information needed. Some advantages to group-administered questionnaires include a high response rate, as the respondents were “captive” in the classroom setting, clarification of any questions the students may have about the survey, and ease for the respondents to see that their answers were anonymous (Palys, 2003). However, a few disadvantages are that since there is little privacy, one individual could influence the class by one comment. However, given our time and resources, the advantages of this method outweigh the downfalls. The questions on the questionnaire were closed, both to make the questionnaire short and easy to complete, as well as to facilitate data analysis. Closed questions make it easier to compare the answers among respondents, and to quantify or categorize the respondents (Palys 2003).

2.1.3 RELIABILITY AND VALIDITY

Reliability and validity are two important concepts to consider when any research is undertaken. As Palys outlines, reliability is generally synonymous with consistency (Palys, 2003). This means that if other researchers wished to reproduce our project, they would be able to do so and achieve the same results as us. We ensured reliability by outlining in detail each step in the research process. We clearly state who we interviewed and surveyed, and provide the questions used in each case, as well as the method of how we selected our research candidates. Through triangulation, we ensured that our research project held validity. Triangulation is when more than one research method is used to obtain the same result (Wright, 2004). The three methods used in triangulation were the student questionnaires, the key informant interviews, and a literature review. All three methods proved the end result of our research project. Validity was also ensured by making all of our research pertinent to the central problem (Palys, 2003). As we

identified in our introduction, we wanted to assess the feasibility of having locally grown organic food on campus, so it was necessary to ensure all our research dealt specifically with this problem. By surveying students who eat on campus, interviewing the current food purchasers for the campus, and those who might be potential suppliers, we kept our research focused to the problem.

Our project held catalytic validity because it directly affected those who were being researched and raised their awareness (Wright, 2004). In each case it made subjects aware of the issue; for Sodexo it showed them there was a student concern, for the farmers it was that there was potential interest in their produce by the university community, and for the students, that there were other people who shared their concerns.

2.2 PROCEDURES

Before beginning the actual research project, we had to decide on our problem and submit a research proposal. Once the project was approved, we examined the ethics of our research. Any study that is conducted on human subjects must undergo an ethics review. We felt that the project involved minimal risk for those involved, and we followed Dalhousie standards in research involving any human subjects by submitting an ethics proposal to the review board.

2.2.1 STUDENT SURVEY'S

The next step was to choose the classes to survey. To ensure that the questionnaires were not administered to only a certain group of students, we used a random method to choose the undergraduate classes to survey. Someone who was unrelated to our group was chosen, and asked to pick a number between 55 and 480. These numbers corresponded to the pages in the 2003-2004 Dalhousie undergraduate

handbook that had classes listed on them. We then went to page of the number that was chosen, and asked the same student to choose a number between one and however many courses there were on the page. The class corresponding to that number was chosen to survey. Only five classes were to be surveyed, but ten were randomly selected in case a class wasn't offered or the professor was unwilling to participate. We went in groups of two to the five classes at the beginning of each class and distributed the surveys after giving a brief explanation of our research project. All of the professors were contacted either through email or contacted personally. The procedures for conducting the surveys on the Dalhousie campus from the five randomly selected classes were as follows:

On March 9, 2004 at 8:35 am Liz and Rachel went to the Management Building on the Dalhousie Campus and surveyed the fifteen students present in the third year Strategic Management Commerce class. On March 11, 2004 at 11:35 am Liz and Lilly went to the Chemistry Building and surveyed the 39 students present in the second year general chemistry class. On March 11, 2004 at 1pm Rachel and Lilly went to the LSC building and surveyed the twenty students present in the Philosophy of Biology class. On March 22, 2004 at 8:30am Jen and Meghan went to the LSC and surveyed the sixty students present in the first year science class. On March 23, 2004 at 6pm Meghan went to the A&A building and surveyed the sixty students present in the first year International Development Class.

2.2.2 INTERVIEWS WITH FARMERS

On March 13th Meghan and Jen went to the local Halifax farmers market that is held weekly on Saturdays from 6am till 2pm. Messages were left to contact the farmers but there was no reply. Jen and Meghan approached two organic farmers from the

Sellwood Green and Cold Spring Family farms, at 11:30 am, the farmers were provided with the information letter and asked if they would like to participate in a short interview (Appendix Nine). Both farmers agreed to meet later in the day, as they were busy. Jen and Meghan met with each of the farmers individually and spoke with them at their respective stands during the farmers market.

On March 6, 2004 after making an appointment over the phone Rachel conducted an interview with Ted Hutton of Hutton Family Farms at the farmers market in the Cheelin Restaurant, Keith's Brewery Market. Ted Hutton was provided with an information letter and consent form (Appendix Ten).

2.2.3 INTERVIEW WITH SODEXHO REPRESENTATIVE

On March 15, 2004 at 1:30 pm Lilly Briggs and Elizabeth Murray had an interview with the Dalhousie Sodexo representative Jennifer Marriot. The interview took place on the third floor of the Student Union Building (SUB) in the Sodexo office. The goal of the interview was to find out more about where Sodexo receives its food from, customer demand and more information on how the company works.

2.2.4 PHONE INTERVIEWS WITH PIZZA PIZZA, STARBUCKS, TIM HORTON'S

On March 19, 2004 Liz called TDL Group Ltd who is Tim Horton's research and development group. TDL handles all of Tim Horton's nutrition information and is a liaison between Tim Horton's and the public (Tim Horton's Website, 2004). On March 22, 2004 at 2pm Lilly contacted a phone interview with the head offices of Starbucks and Pizza Pizza in Toronto.

The data for these procedures was gathered, the results of the interviews were typed and the responses from the student surveys were entered into a spreadsheet.

2.3 DATA ANALYSIS

To conduct a thorough research project, both quantitative and qualitative methods should be used. While some may say that these two approaches are oppositions, they in fact can be used to complement each other, and provide a better-rounded answer to a research question (Palys, 2003). For this reason, we analyzed our data both quantitatively and qualitatively. The interviews were analysed qualitatively, after they had been conducted. This method of analysis is called grounded a posteriori context sensitive scheme (Wright, 2004), because the research analysis themes are determined after the actual research has taken place. Determining the themes after the interview allows for a greater flexibility in interpretation of data, because before the interviews we did not know what the results would yield. On the quantitative side we used simple percentages to analyse the questionnaires because it was the clearest ways to see the responses. They were displayed in graphs that can be seen in the results section.

2.4 LIMITATIONS

The limitations in the project were those things that were beyond our control (Wright, 2004). Our sample size was uncontrollable in the class surveys as we selected classes randomly, not according to size. The time frame of the project was another limitation, and we were unable to go into further detail. The degree of cooperation by the respondents was also beyond our control, as all aspects were completely voluntary, and occasionally respondents are not allowed to answer certain questions due to policies. We

were also unable to fully understand the economics behind this issue because Sodexo and the franchises could not provide us with economic information for reasons of confidentiality.

2.5 DELIMITATIONS

The limits we set for ourselves were put in place so the project would not become too broad in scope. We limited our physical boundaries to the Studley Campus of Dalhousie University, and the Sodexo franchises found there, as well as the undergraduate's students there. The study was only aimed at surveying undergraduate students, not any faculty, graduate students, or part-time staff. We limited face-to-face interviews with local farmers who sold their products at the Halifax Farmers Market, as these were the most accessible farmers. All farmers interviewed were not certified organic. One was considered low impact, while the other two were certified. Low impact farming involves the "use of fertilizers and pesticides only when an absolute necessity (Cayer, 2004)." We did not limit to solely certified organic farmers because often times local low input farmers can have equally sustainable practices as organic, as in the Hutton Family Farm case, with the only difference being they don't hold the piece of paper that certifies organic practices.

3.0 RESULTS AND DISCUSSION

3.1 RESULTS

3.1.1 STUDENT SURVEYS:

In the first two weeks of March, the Food Group administered a survey to measure satisfaction with current food options, values and decisions around food purchases, and potential demand for a local-organic food on campus. The survey was administered to five classes from a number of different programs on the Studley campus. The total number of responses was 194. The tables and graphs in the appendices, clearly summarize the depth of the survey responses. Analysis of the first bar graph shows that 62% of students who eat on campus are not satisfied with the food that is currently available. The survey results also show that 85% of the questionnaire respondents would purchase organic-locally grown food on campus if they were provided with the opportunity and that 61% of these respondents would also purchase organic-locally grown food even if it were more expensive than existing options. (Appendix Eleven) As can be seen on the ‘motivation behind food selection’ graph (Appendix Twelve) when students were asked what was most important in their food choices, taste was the most important aspect, closely followed by price. Finally, according to the pie chart (Appendix Thirteen) 76% of students understood the term sustainability. Students’ understanding of this term was closely correlated in their willingness to pay more for organic food. Other valuable information that was obtained from the survey results include the average number of times those students who eat on campus, which was on 1-3 occasions by 65%

(Appendix Fourteen) of respondents. Also that *Tim Horton's* and the *Second Cup* (Appendix Fifteen) were the two most frequented food locations on campus.

3.1.2 QUESTIONNAIRES FOR LOCAL FARMERS:

Three local farmers from the Halifax area were interviewed at the farmers market, of the three farmers Cold Springs Family Farm and Sellwood Green were certified organic and Hutton Family Farm was low impact.

1) Sellwood Green Farm

Sellwood Green is a certified organic farm that has been in business for 21 years. Norbert, the owner of the farm, was interviewed, and when asked how he became an organic farmer he stated that he emigrated from Germany and had always wanted to be a farmer. Philosophically he felt he had an obligation to himself, the environment, and for health reasons to become an organic farmer. He did not want to use pesticides, fertilizers and breed his animals in confined spaces. He also feels that he had a higher priority for better, higher quality food from growing up in Germany. He believes Europeans are much better educated on food and the benefits of organic produce over large-scale commercial goods.

When asked how did he became certified as an organic farmer, he stated, "I became a certified organic farmer by obtaining certification from a third party certification group called the Organic Crop Producers and Processors (OCPP). An accredited certifier reviews my farm annually to make sure I am up to date with standards. Canadian standards should be out shortly." When questioned on why he became an organic farmer, he stated that in his mind there simply was no other choice.

When asked to what demographic he sells most of his product, he answered, “The demographic that I sell the most products to is the educated population. This includes university students at the market and restaurant owners who consider sustainability and are environmentally conscious such as Chives. This is because people who are educated tend to be more aware of the benefits of eating organic verses non-organic and are therefore likely to seek out organic food distributors.” He stated that he sells most of his product to the Superstore, Sobey’s, Chives, Fid and Great Ocean.

When asked if he had considered selling his product on university campuses, Norbert stated yes. The response from the university cafeterias and franchised food locations was that they had to plan meals in advance. Without being insured that the food could be delivered in regular quantities and times the university could not commit to any other source. Norbert feels that a lot of the problem is associated with management not being aware of the benefits of going organic and what little increase it would have in costs.

Norbert also went into great detail about the Sea Spray Atlantic coalition and what part our feasibility assessment could play. Sea Spray is currently composed of seven to eight large farms across Atlantic Canada. The hope is that after a meeting next month in PEI they will be up to 20 farmers. Once this coalition is officially formed the farmers would like to create a distribution system between Nova Scotia, PEI and Newfoundland. Once there is a support network throughout Atlantic Canada then pick-up and drop-off trucks can be bought and delivery routes formed through Atlantic Canada. Their first objective is to create a large marketing group that can target opening up current mainstream markets to local organic foods. This will include contacting institutions like

university food management. Norbert's personal goal would be to have 10-20% of food local organic or to have one meal a week totally organic. Norbert also mentioned that this can only be successful if there is demand by the student body and support from the local government to support more organic food options in institutions. Another important step before contacting the universities is to be aware of the demand and the quantity of particular foods served.

When asked about the failures and successes of this enterprise Norbert stated that thus far he has not received positive feedback from universities in Nova Scotia, specifically Halifax. The hope right now is being put in the hands of Sea Spray Atlantic. Once a distribution system is established, Norbert feels he will get more positive feedback.

When asked how the prices of his products compare to non-organic foods, Norbert stated that the mark-up can range from 0-150% depending on what food you are talking about. For example, broccoli or potatoes versus leeks. Broccoli has to be mechanically farmed so it can't be grown easily organically. Since broccoli is such a high maintenance vegetable to grow to have it own an organic farm would entail employing for more staff to wash, package and check the broccoli. This would cause it to be much more expensive than broccoli that was grown mechanically. Currently, there is only one organic broccoli farmer in Nova Scotia. (Kungl, 2004)

On the other hand leeks can be cleaned, grown and harvested just as easily for organic farmers as for large-scale farming companies. Therefore the mark-up is very little. A true reflection of the mark-up can be seen when studying potatoes. Potatoes are

sold at the Superstore for \$0.05 per pound whereas Sellwood Farm has to sell them for \$0.30 per pound. (Kungl, 2004)

2) Cold Springs Farm

Cold Springs farm is a certified organic farm that has been in business for 32 years. When asked how they became an organic farm they stated that they had always had their own garden and then farm, so when they were thinking of going large scale there was no question but to go organic. When questioned on how they became certified they stated that they had third party certification from Maritime Organics.

When asked where they sell most of their product, they stated that 50% of Cold Springs products are sold at the Farmers Market. The other 50% is sold either from their home or whole sale to restaurants such as Chives, Fid and Great Ocean.

When asked if they had ever considered selling their product on university campuses, they stated yes. Due to meal schedules and planning Cold Springs did receive positive feedback from the university cafeterias, specifically Dalhousie. A group of organic farmers are currently in the process of forming an Atlantic Canada farmer's coalition, which they have called Sea Spray Organics.

3) The Hutton Family Farms

The Hutton family farm is a low-input farm that has been in business for 20 years. When asked how they became a low-input, Ted Hutton stated, "Frankly, I never really assumed I would do anything else. I grew up on a farm, and both of my parents were farmers. I tried one year of university in computer programming, but I hated it. I never wanted to go back."

When asked where he sells most of their product, he stated, “The Farmers Market is definitely the place where I sell the most. About 80% of my income is from the market, and 50% of my volume is sold there. I also sell to local restaurants in Halifax, but they come to the market and buy their vegetables there.”

When asked why he was not a certified organic farmer, he stated that his farm was low input as he sprays some of his apples. Since he is the proprietor of about 125 acres of land and farms only 18 acres, his soil is in excellent condition as land can be left fallow for a number of years. He added, “I think with healthy soil such as mine, small amounts of synthetic pesticide use is negligible.”

In terms of whether or not his farm could supply a university campus, Ted answered, “I don’t do deliveries. I am a relatively small-scale farm, and sell only to people who come to me. I don’t deliver to the restaurants I sell to, they come to me. I am too small to be able to deliver. I don’t see myself expanding either. My doctor says my blood pressure is too high, and I have young kids who I want to see grow up. So if anything, I may be reducing the size of my land. So I am not looking to expand. But if a group of Dalhousie students were to run something on the campus, and wanted to come get their produce from me, I would be more than willing to supply them.”

When asked to give a few examples of their product prices, he stated that in the fall, a bushel of conventional apples would cost around 10-12\$, which is about 50 cents a pound. “My organic apples on the other hand cost around 40\$ a bushel, because people are so willing to buy organic, they will pay any price. But there are probably growers in Nova Scotia who will sell you organic apples at better prices because they aren’t aware of the great market. I simply charge more because I know I can get it.”

3.1.3 SODEXHO

According to the Sodexho website Sodexho is:” [T]he leading provider of food and facilities management in the U.S and Canada.” (Sodexho Website, 2004). Sodexho’s food services include café’s, vending, on-site convenience stores, kiosks, and catering (Sodexho Website, 2004). In our discussion with Jennifer Marriot stated that Sodexho owns the Dalhousie franchise’s in the SUB on campus and pays royalties where applicable to the franchises (Marriot). The franchises include; Tim Horton’s, Pizza Pizza, Starbucks, Sandwich /Smoothie Bar and the SU convenience store.

During our interview, Jennifer Marriot stated that all of the franchises have certain standards and product specifications that they follow. In most cases the food suppliers for the franchises are different from the food supplier that Sodexho may already use (Marriot). Sodexho is responsible for providing food at the SUB, specifically the convenience store, and café. Sodexho also provides catering services inside and outside of the campus facilities. In terms of catering Sodexho will provide the customer’s with what they demand. This includes local or organic options, should the client desire however the cost of these services will be higher (Marriot).

Sodexho’s food suppliers are mostly local which includes; bread from Ben’s Bakery; tomatoes from Amherst, Nova Scotia; seafood, milk, etc, all from local suppliers (Marriot). However Gordon Food Services (GFS) is Sodexho’s largest food supplier. GFS is a family owned food service operating since 1897 and deals with food distribution in the U.S and Canada (GFS Website, 2004). GFS receives its food from all across Canada and packages it in their Milton, Ontario distribution center. GFS guarantees that the food is delivered the next day by using modern tractor-trailers and straight trucks

(GFS Website, 2004). This information was important to our study because transportation is responsible for over 27 percent of Canada's Greenhouse Gas Emissions (GHG) (Suzuki, 2004). Although the single largest source of GHG emissions is from passenger vehicles and light trucks (SUV's), average trucks and trailers as used with GFS are not as fuel efficient causing negative impacts on the environment (Suzuki, 2004).

To better understand students' demands and food preferences on campus our interview with Jennifer Marriot was quite useful. Although Sodexo does get most of its food from local distributors there have not been requests from students particularly for local food (Marriot). However there has been some inquiry by students requesting organic food. Jennifer Marriot points out that the demands are few and far between, and without sufficient demand it isn't feasible economically to provide the food (Marriot). Sodexo does offer comment cards to its customer's, however the main comments deal with food quality, service and price (Marriot). This information will be useful when we compare it to the results of our surveys.

3.1.4 RESULTS OF PHONE INTERVIEWS WITH PIZZA PIZZA, STARBUCKS AND TIM HORTON'S

The results of the phone interview with Pizza Pizza were that the company uses Canadian products such as wheat and cheese, but does not use organic produce (Pizza Pizza, 2004). The results of the phone interview with Starbucks were that the company works with local bakeries, but these bakeries do not use organic ingredients in their baking. Most importantly, Starbucks does not serve organic coffee (Starbucks, 2004). TDL, the representatives for Tim Horton's, made it clear that they could not divulge any information regarding where they get their ingredients from due to competition purposes with other companies (TDL, 2004).

3.2 DISCUSSION

3.2.1 SUMMARY STATEMENT

The purpose of this research was to assess the feasibility of implementing more sustainable food options on the Dalhousie Campus. Clearly, the results show that there is a demand by students for more environmentally friendly alternatives and that this demand must be satisfied by Dalhousie food services in collaboration with willing and able local-organic farmers.

3.2.2 OVERVIEW OF SIGNFICANT FINDINGS

Student Surveys:

Based on the results of the surveys and the graphs it has been found that there is a demand for local-organic food by Dalhousie students on the Studley campus.

Farmer Interviews:

The farmer interviews determined that they are willing and capable of providing Dalhousie food distributors and franchises with local-organic food. According to both certified organic farmers they have already approached universities in Halifax about purchasing their product and the response they received was negative. Management at the universities stated to the farmers that without the insurance that the food could be delivered in regular quantities and at particular times they would not commit to a local-organic source. Norbert of Sellwood Green mentioned that he felt that this resistance is associated with university management not being aware of the benefits of going organic and what little overall increase it would have to costs.

To address the problem of food delivery and the ability to consistently offer large quantities of particular foods Atlantic Canadian farmers are currently in the process of

forming a partnership of organic farmers under the title Sea Spray Organics. Sea Spray Organics currently consists of 8 farmers but after a meeting the weekend of March 26th-28th, 2004 in PEI this number has the potential to increase to at least 20. Once this association is officially formed the farmers would like to create a distribution system between Nova Scotia, PEI and Newfoundland. Once there is a support system throughout Atlantic Canada then delivery trucks can be purchased and a drop off route formed throughout Atlantic Canada. The first objective of Sea Spray Organics is to create a large marketing group that can target and open up mainstream markets to local-organic foods. This will include contacting institutions like Dalhousie. Their initial goal is to have 10-20% of food on campus local-organic. Clearly, organic farmers in the Maritime region are capable and willing to provide food in mass quantities to universities.

On the other hand, the local low-input Hutton Family Farm has not contacted universities about selling their product on campus. This is due to the small size of the Hutton Family Farm and Ted Hutton's no-delivery policy. However, Ted mentioned that if a group of Dalhousie students were to run something on the campus, and wanted to come and purchase their produce from him, he would be more than willing to supply them. (Hutton, 2004)

Sodhexho:

If Sodexho was made aware that there is a demand for local-organic food by students and that farmers are capable of meeting this demand, they would be more willing to consider providing this food choice to Dalhousie students. This was established in the interviews with Sodexho and franchise representatives.

3.3 ACKNOWLEDGEMENTS

Our group would like to extend our gratitude to the student participants in the survey and both the local organic farmers and Sodexo representatives we interviewed. Finally we would like to thank our professor Tarah Wright for her support and guidance throughout the project.

4.0 CONCLUSION AND RECOMMENDATIONS

4.1 CONCLUSION

The conclusions of our feasibility study reveal that having local-organic food on the Studley campus would increase the sustainability of Dalhousie University. Students on the Studley campus are purchasing food at a minimum of once a week resulting in severe implications to the environmental and health of students. It is therefore necessary that Sodexo take an active and supportive role in replacing conventional food choices with local-organic alternatives. The routine nature of preparing and serving meals, purchasing foods, and planning menus provides an opportunity to incorporate purchasing changes, operational changes, behavioural changes, and different food choices in to food operations (Creighton, 2001). Implementing local-organic food is feasible on campus based on the following reasons: 1) there is student demand for local-organic food and this must be brought to the attention of Dalhousie food services and 2) local organic farmers are willing and capable of providing food to the Dalhousie campus.

4.2 FINDINGS IN CONSIDERATION OF EXISTING RESEARCH

As found in our literary review of universities in Canada and the United States, it is feasible to have organic food served on campus. The food programs executed at Hendrix College, York University, Concordia University, and St Bonaventure University exemplified this.

4.3 EXAMINATION OF FINDINGS THAT FAILED TO SUPPORT THE HYPOTHESIS

Our hypothesis was that local/organic food was feasible on campus; feasibility must take into consideration areas such as environmental, social and economic. Although it was clearly shown that local organic food would be socially and environmentally feasible economic feasibility was not found. Due to confidentiality issues, Sodexo was not able to provide us with information on their costs; however, it has been found that the prices of organic food are generally greater than that of commercial produce (Appendix Sixteen). Organic food would not be economically feasible unless there was an increase in the current food budget to allow for the increased prices.

4.4 RECOMMENDATIONS

Our recommendations for further research include making greater efforts to establish communication between the students, farmers and Sodexo administration to promote the use of certified organic, sustainably produced, locally-grown food in all food facilities on campus.

Although 75% of students who completed the sustainability definition question answered it correct our group still feels that more education on the benefits of eating sustainability is important. This is because we feel that education is the first step to actually getting local organic food on campus. Suggestions for an educational campaign include a variety of tactics, including pamphlets and placards in the dining halls, lectures and panels of speakers, workshops, and demonstrations in the dining halls showing the differences between organic and non-organic food with taste tests and a weekly local-organic food option in the Union Market and cafeterias. This will increase awareness and

encourage those students who want more local-organic food options on campus to speak up and educate those who currently have a limited knowledge of sustainability.

Also, because Tim Horton's and the Second Cup were the two most frequented food locations on campus, in order to have a significant effect on the sustainability of the Dalhousie Studley campus it would be ideal to have local-organic alternatives offered at these locations.

We feel this study was of great benefit to both future students and all those living in the university environment. It is important to understand where our food is coming from and what role we each can play in minimizing our environmental impact on the Dalhousie campus. It is crucial that students get involved in their university environment and we hope that future students will consider using the information we have gathered and take it the next level to evoke positive social and environmental change.

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Appendix 1

Literature Review of Modern Agriculture

Before entering into a brief discussion about the risks and benefits of organic agriculture it is important to understand what is wrong with current modernized commercial agriculture. A literature review of Bill Freedman's research will outline issues associated with modern agriculture. According to Bill Freedman modernized large-scale commercial farming techniques used in industrial agriculture threaten Environmental Sustainability in several ways. First modernized farming techniques use large plots of land and convert them into mono-cropping, which is one type of crop planted over one large area (Freedman, 2001). When the same type of crop is harvested continuously in the same soil, top soils along with nutrients are removed leaving the soil vulnerable to infestations and diseases (Freedman, 2001). Secondly to deal with the fast rate of nutrient depletion and handle pests and weeds modernized farmers use extensive amounts of synthetic (man-made) fertilizers on their crops to keep production levels high, despite lack of nutrients (Freedman,2001). Eventually the excess of nutrients in the soil causes soil erosion, contamination of ground and surface water, and salinization (Freedman, 2001). Weeds thrive in the nutrient depleted environment which forces the farmers to use more herbicides to handle the weeds (Freedman, 2001). The soil cannot regenerate itself if organic nutrients are taken out faster than they are replaced. Thirdly industrial farming uses high levels of tillage, tillage uses plows to prepare the land for planting crops. Tillage removes topsoil and decomposing organic matter in the soil which creates soil erosion (Freedman, 2001). Pollution and loss of non-renewable resources is caused by the manufacturing of fertilizers, transportation and the use of heavy machinery

(Freedman, 2001) Modernized farming practices threaten the sustainability of the environment for future generations.

Appendix 2

Literature Review of the Risks and Benefits of Organic Agriculture

CONS OF ORGANIC AGRICULTURE

It is crucial to our understanding of sustainable food options that we analysis both the potential risks and benefits of organic food. This literature review will explain why we conclude that organic food is the more sustainable food option (Pence, 2002).

Researcher G.Pence wrote a recent article discussing some of the social, health and environmental drawbacks to organic agriculture and food production. In term s of health Pence states that as consumers we are lead to believe that organic food is safer. Pence argues that the use of manure as fertilizer for their crops, breeds various disease including E. coli that can infect humans through contamination of ground and surface water (Pence, 2002).

Growing organic food is also very labor intensive, to cover costs some organic farmers will use hundreds of low –paid workers to perform labor intensive tasks. This is a negative social impact to organic farming (Pence, 2002).

In terms of the environment, extensive amounts of water must be used to clean the produce and rid it of bacteria. In some instances there are extensive transportations when putting different organic products together to create a new product for sale (Pence, 2002). Pence gives the example of organic broccoli from Alberta being put together with organic chicken from Oregon to make “organic T.V dinners.”(Pence, 2002) Finally Pence argues that the extensive use of cow manure for organic fertilizer contributes to deforestation and CO2 emissions which contributes to climate change (Pence, 2002). It is obvious that

like most things there are potential risks however in the case of organic agriculture the benefits outweigh these.

PRO OF ORGANIC AGRICULTURE

However despite this we believe the social, environmental and health benefits to organic agriculture outweigh the risks. For example unlike modernized agriculture which uses synthetic fertilizers to control weeds and pests organic agriculture uses multi cropping crop rotation methods, and weeding methods as way to handle pests and weeds (Organic Advocates Website, 2004). The use of organic fertilizers also assists in the management of pests. When diversifying crops through rotation the soil is able to obtain organic matter easier which keeps the soil healthy and viable (Organic Advocates Website, 2004). Organic farmers are able to utilize the soil for longer periods of time without the use of synthetic pesticides, thus reducing pollution and contamination of ground water (Organic Advocates Website, 2004).

Organic farmers also depend less on the use of heavy machinery limiting their use of fossil fuels. A recent article by the Organic Agriculture Centre of Canada, states that modernized farming practices are responsible for 13% of Canada's Green House Gas (GHG) emissions which are associated with climate change (MacRae, 2003). Organic farmer's counteract this by using intercropping methods, less tillage, limited use of pesticide and herbicides and use of horses which prevent extensive tillage and provide fertilizer to the soil (Organic Advocates Website, 2004 and MacRae, 2003). The article further states that organic agriculture uses 65% less energy than conventional agriculture, thus reducing organic agriculture's contribution to GHG (MacRae, 2003). Finally the article states that organic agriculture will ensure public confidence by providing food that

uses less harmful chemicals and more sustainable practices. Organic agriculture will enrich rural development bringing jobs, new opportunities and increasing participation of rural areas thus revitalizing communities

Unlike modernized agriculture organic agriculture strives to reduce its environmental impact on the earth using a holistic approach to agriculture management that integrates environmental sustainability. It is our conclusion that produce derived from organic agriculture is a more sustainable food option than food derived from modernized agriculture methods.

Appendix 3

Literature Review of the Pros and Cons of Local Agriculture

In the last century, North America has moved from an agricultural, to an industrial, to an information economy. Not only have these changes had a serious impact how we grow, produce, and distribute food; they have also changed consumers' relationship to food. Today's high-powered and complex transportation system helps satisfy our appetite for exotic foods, which can now be delivered to local supermarkets quickly and cheaply. Nationally, 93 percent of all fruits and vegetables make long journeys, requiring tremendous amounts of fossil fuel and packaging, reducing freshness and nutritional value. (Nabhan 2002) With every journey food passes through six to eight hands before it reaches you, reducing the portion of the food dollar going to the farmer, making family farms increasingly less viable. (Nabhan 2002) The demands of the work driven society find consumers in need of quick and easy meal plans, forcing us to accept a high concentration of processed, packages and virtually nutrition free foods in our diets.

To address this issue a growing number of communities feature farmers' markets, where customers get guaranteed fresh, local produce and farmers get to cut out the middleman. Take for example, the Farmer's Market here in Halifax, Nova Scotia. Local food also known as regional food is defined as a principle of sustainability relying on the consumption of food products locally grown. (World I.Q. 2004) Eating locally offers numerous benefits; from a better taste, improved local economy, conservation of local farmland, community building, food safety, minimal environmental impact, and enhanced food security. (Farm Folk City Folk, 2004) By supporting small, independent farmers, particularly those that farm locally, consumers have access to foods that are not

only more nutritious but also fresher and tastier. Local food production improves the economy by creating employment & local business options such as farms, small-scale processors, and markets. (Farm Folk City Folk, 2004) Local farmland is conserved through active agriculture use and the community building occurs through connections with the people who produce the food you are eating and socializing at local markets. Greater knowledge about how, where and who produces food also helps to alleviate fears and inspires confidence about the safety of our food supply. (Farm Folk City Folk, 2004) Choosing locally grown foods over those that are imported has many positive effects on the environment. As mentioned earlier there is less need for long distance transport and handling but there are other benefits such as minimal pesticide and fertilizer use and crop rotation. Finally, eating locally can enhance food security. Due to the abundance of food in North America people are unaware of how fragile the earth's natural resources are. Most of the food, sold, bought and consumed in Canada comes from developing countries where food is often produced without respect for environmental standards or affects on indigenous cultures. (Farm Folk City Folk, 2004) Encouraging local agricultural production (to be sold and consumed locally) benefits everyone from primary producer to final eater. Eating local grown and raised food is increasingly becoming recognized as one of the most effective acts of sustainable living that everyone can take part in.

There are both advantages and disadvantages of eating locally rather than nationally or globally. One obvious disadvantage is that of mineral deficiencies (or even toxicities) that occur in plants grown on particular types of soils. (Weil 1996) If a particular area of land does not have suitable soil for growing than you may be getting a

product that is not as high in minerals compared to one grown on more suitable land. This could mean that the product that is most beneficial to an individual's health is one grown farther away.

Appendix 4

Literature Review of Organic Certification

“Certified Organic’ assures the consumer that the product has been produced according to regulated standards, which include, production without the use of synthetic fertilizers, pesticides, herbicides, sewage sludge, irradiation to preserve food or genetically modified organisms or genetically engineered seed/stock. Farmers also judiciously employ management techniques such as well-designed crop rotations, replenishment of organic matter, use of green manures and composting. Certified organic practices assure the consumer that production has met national organic standards regulated through certification agencies.” (ACORN Website)

In Canada there are more than 40 certification bodies (Organic Centre), each of these individual certification bodies has individualized standards however, all of them follow the key set of standards provided by the National Organic Standards of Canada. These standards are:

1. Protect the environment, minimize soil degradation and erosion, decrease pollution, optimize biological productivity and promote a sound state of health.
2. Replenish and maintain long-term soil fertility by optimizing conditions for biological activity within the soil through cover crops, crop rotation, composting, and by avoiding the use of synthetic fertilizers.
3. Maintain diversity within and surrounding the enterprise and protect and enhance the biological diversity of native plants and wildlife.

4. Recycle materials and resources to the greatest extent possible within the enterprise.
5. Provide attentive care that promotes the health and behavioral needs of livestock.
6. Maintain the integrity of organic food and processed products from initial handling to point of sale. This includes the prohibition of genetically modified organisms and irradiated food.

This set of standards ensures that all certification bodies in Canada follow a set of guidelines in their methods of certification. Although many certification bodies vary in the way they ensure that these standards are met and some may have additional standards consumers can be assured that at minimum certified organic produce meets there six key principles.

Along with Canadian national certification bodies there are also many other countries that have their own certification bodies and International certification bodies as well. The large number of certification organizations and the lack of one national certification body in Canada can create confusion amongst consumers as to which certification body follows what guidelines. As well the lack of national standards has stopped Canada from forming an equivalency agreement with other countries. This means that Canadian organic farmers do not have access to markets in other countries. (Simon Weseen) It is clear that in Canada there is a need for national unification to improve the credibility of our organic markets and generate a larger market for organic food within the country.

Within the Maritimes there are many local certification bodies such as, Maritime Certified Organic Growers (MCOG), Nova Scotia Organic Growers Association (NSOGA) and Organic Crop Improvement Association (OCIA). The number of certified organic farmers in PEI alone grew 50% in 2001(Organic Centre). A growing market for organic food meets this trend, as people become more aware of health and environmental concerns they become aware of the benefits of organic food. “The core support for organics is amongst affluent, well-educated, health conscious consumers. Demographic and income shifts have increased the size of this market segment.”(Organic Centre) As the organic market continues to grow and certification bodies in Canada join together to form one national standard the prospects for organic food may soon be to take over the market creating affordable and healthy food for all. Supporting the Canadian organic market in its immature stage will help to ensure that it reaches a prosperous final development.

Appendix 5

Literature Review of Other University Success Stories

To evaluate the possible success of a local organic food initiative on the Dalhousie Campus, it is useful to look at other universities that have implemented such programs. A few examples of these are Hendrix College, York University, Concordia University, and St Bonaventure University.

Students at Hendrix College in Conway, Arkansas organized a local food project at their university. The idea was initiated by a desire to implement a wellness program on campus because it was felt that the food served had little nutritional value and was often pre-packaged and pre-made. The first step in this project was a study conducted by four students over a summer to determine where the current food in the college cafeteria came from. They traveled all over the country and found that 90% of their food came from outside of the state of Arkansas, which was surprising considering Arkansas has a strong agricultural economy. Most fruits and vegetables came from California, beef from Texas, and rice from Mississippi. The results of this study prompted the funding of a local food project in the 1988-1989 school years. A coordinator was hired from outside the campus to work directly with the food services on campus, to talk with suppliers and to educate the students about good nutrition and all aspects of the college's food operations. Through seeking out local farmers and gardeners, the university was able to increase local purchasing. Food was purchased from those producers who were considered environmentally sensitive, that is, they use sustainable agricultural practices that enrich the soil, use minimal energy and involve the humane treatment of animals. Some issues that arose in the implementation of this project are the difficulties of trying

to change a food system that has existed for years, identification and patronage of local suppliers, and the actual delivery of products. They were able to deal with these problems by hiring a coordinator who initiated a positive rapport with existing dining services staff, traveling to local farmers markets or farm organizations, and arranging for all farmers to drop off their products in one area and having one farmer deliver them all at the same time to the campus. The results of the project were promising. The percentage of food obtained from within the state of Arkansas jumped from a meager 6% to over 30% from 1986 to 1990. It successfully incorporated local farmers into the food supply, and new local businesses were formed as a direct result of the study, which in turn increases the rate of local purchases.

Counter Culture is a student run alternative food service at York University in Toronto, Ontario. It serves vegan and vegetarian options, and buys locally grown organic food wherever possible. It is also an educational centre to bring faculty and students together to discuss food issues. It hosts food-based events such as World Food Day, Spring Feast, and various others. It was started as a not-for-profit corporation in 1995 in order to allow the organization to meet its long term goal of developing into a co-operative.

The People's Potato at Concordia University in Montreal, Quebec, is a student run soup kitchen. They started serving food to people four years ago, with getting food from local suppliers and farmers market. They now receive 25 cents per credit per student to serve 500-600 students lunch five days a week. (personal email)

St Bonaventure University in New York State worked with dining services and local farmers to have a Local Food Day, where they educated students as to the

advantages of buying local and set up booths in the dining halls with fresh local produce. The university has a partnership with a local organic farm and students can spend Fridays working on the farm. It is interesting to note that Sodexo, Dalhousie's main food supplier, is their food supplier on campus. From the local food day initiatives, and local food purchasing plan was organized through dining services and the farmers.

Appendix 6

Interview Questions for Local Organic Farmers

1. How did you become an organic farmer?
2. How long have you been an organic farmer?
3. How did you become certified as an organic farmer?
4. Why did you become an organic farmer?
5. To what demographic do you sell the most product? (e.g. age group, ethnicity)
6. Where do you sell most of your product?
7. Have you ever considered selling your product on university campuses?
8. If no, why not?
9. If yes, what have the failures and successes of this enterprise?
10. How do the prices of your products compare to non-organic foods?

Interview Questions for Low Input Farmer

1. How did you become a farmer?
2. How long have you been a farmer?
3. Are you a certified organic farmer?
4. In brief, why not?
5. In what way is your food low impact?
6. To whom and where do you sell most of your product?
7. Have you ever considered selling your product on university campus?
8. Why not?
9. Could I have a few price examples of your products?

Appendix 7

Interview Questions for Sodexo

- 1) Where do you receive your food from? For example; local distributors, from other provinces, etc.
- 2) How much of your food is bought from either local distributors or local farmers?
- 3) Is it feasible to receive food from local farmers? Why or why not?
- 4) What are your annual costs and revenues? For example; for 2002 or 2003
- 5) Do you find there is a higher demand or preference for certain types of food as opposed to others?
- 6) Have students requested organic food options? If yes, is this feasible for your establishment? If no, why not?
- 7) Have students requested locally-grown food options? If yes, is this feasible for your establishment? If no, why not?

Appendix 8

Questionnaire: Demand for Locally-Grown Organic Food by Students

1. Year of Study _____ Program _____

2. In an average week how often do you purchase food on Campus?

- ___ Never
- ___ 1-3
- ___ 4-6
- ___ 7+

3. Circle the vendors that you most often purchase food at.

- | | | | |
|------------------|----------------|-------------|--------------|
| Tim Horton's | Pizza Pizza | Grill Works | Starbucks |
| Java | Grad House | Grawood | Bistro |
| Second Cup | Hot Dog Stands | Manchu Wok | A Prime Spot |
| The Union Market | Other _____ | | |

4. Are you satisfied with the foods choices available on campus? Yes No

5. Would you purchase local organic food if it were available on campus? Yes No

6. Would you be willing to pay more for locally grown organic foods? Yes No

Comment _____

7. Please rank the following from most to least importance in your choice of food. (1 being the most important and 7 being the least)

- | | | | |
|-----------------------|----------------|--------------------------|-------------------|
| ___ Price | ___ Taste | ___ Organic | ___ Locally Grown |
| ___ Nutritional Value | ___ Name Brand | ___ Location/convenience | |

8. Which of the following definitions best represents the term sustainability?

- a) Meeting the needs of future generations by compromising some needs of today.
- b) Meeting the economic needs of today without sacrificing the economic needs of the future.
- c) Meeting the needs of today without sacrificing the ability of future generations to meet their needs.

Comments

Thank you for your participation!

Appendix 9

Letter of Intention

Dear Interviewee,

My name is _____, and I am a _____ year student at Dalhousie University. As part of my Environmental Problems Solving course (ENVS 3502), I am conducting a study to see if it is feasible to have locally grown, organic food on campus. The purpose of this project is to determine the environmental impacts of the Dalhousie University food operations, and to explore the possibility of implementing food options on campus that are more sustainable.

During the interview you will be asked to answer a list of questions that relate to the issue of sustainable food options on campus. The interview will last approximately ___ minutes and will be done at your convenience.

Your decision to participate in the interview is strictly voluntary; you may withdraw at any time without providing a reason. The interview session will be audio taped to ensure the accuracy of the information reported by the study. Only the course instructor and those students collaborating on this project will have access to the tapes. The tapes will be destroyed when the final report has been handed in. Due to the nature of the information being provided, it may be important to include your name in the report; therefore, anonymity cannot be guaranteed.

The Department of Environmental Studies and the Dalhousie Ethics Review Board have reviewed this project. If you have any questions or concerns, please feel free to contact myself at _____ or the course instructor, Tarah Wright, at 494-3683. If you agree to the interview conditions described above please sign in the space provided on the next page. If wish to obtain a copy of our final report, please write your mailing address on the back of the form.

We thank you very much for your time and participation.

Appendix 10

Informed Consent

Part I.

I understand the information explained in the letter and agree to participate in the interview.

Signature of Interviewee

Date

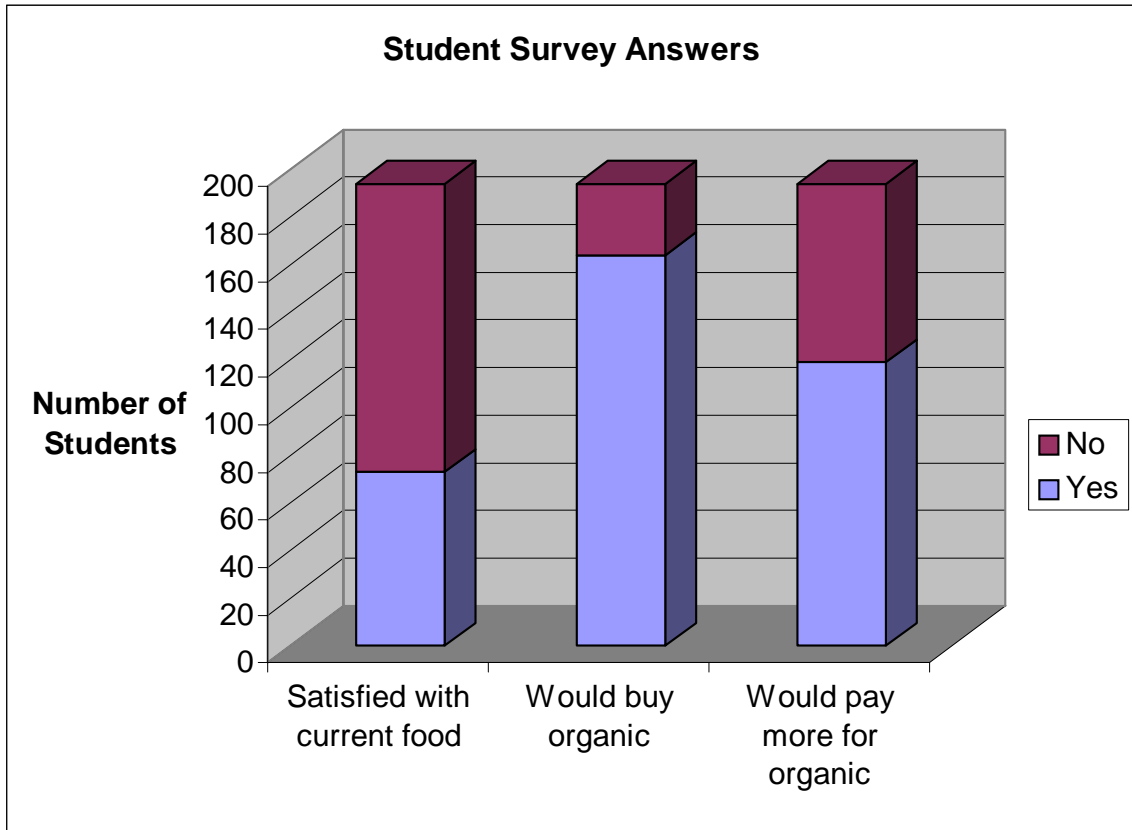
Part II.

I have explained the purpose and procedures of this interview to the participant and have answered any questions and concerns of the participant.

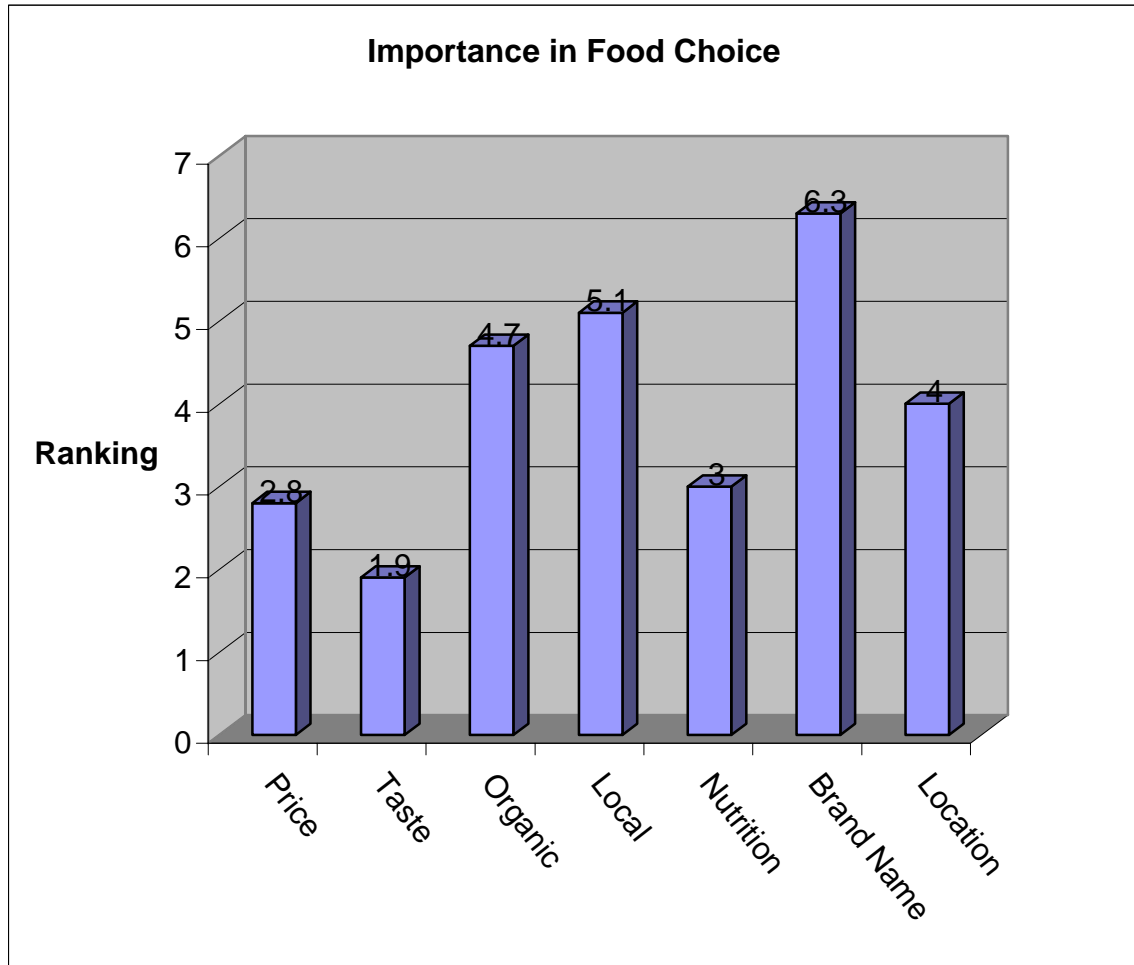
Signature of Researcher

Date

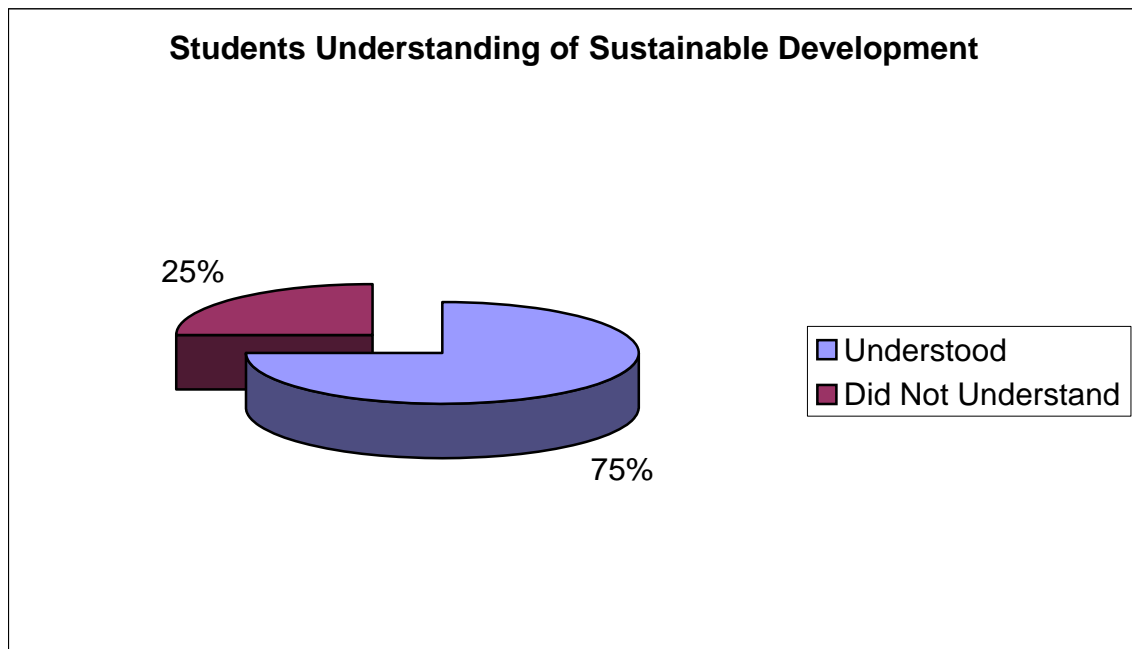
Appendix 11



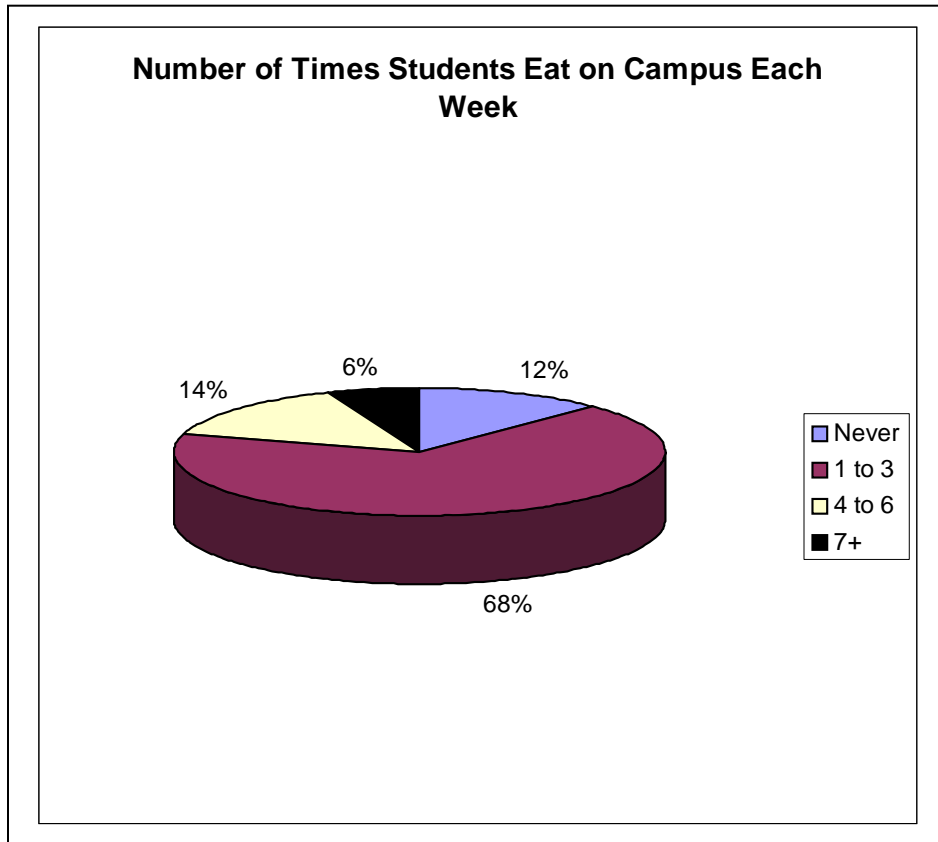
Appendix 12



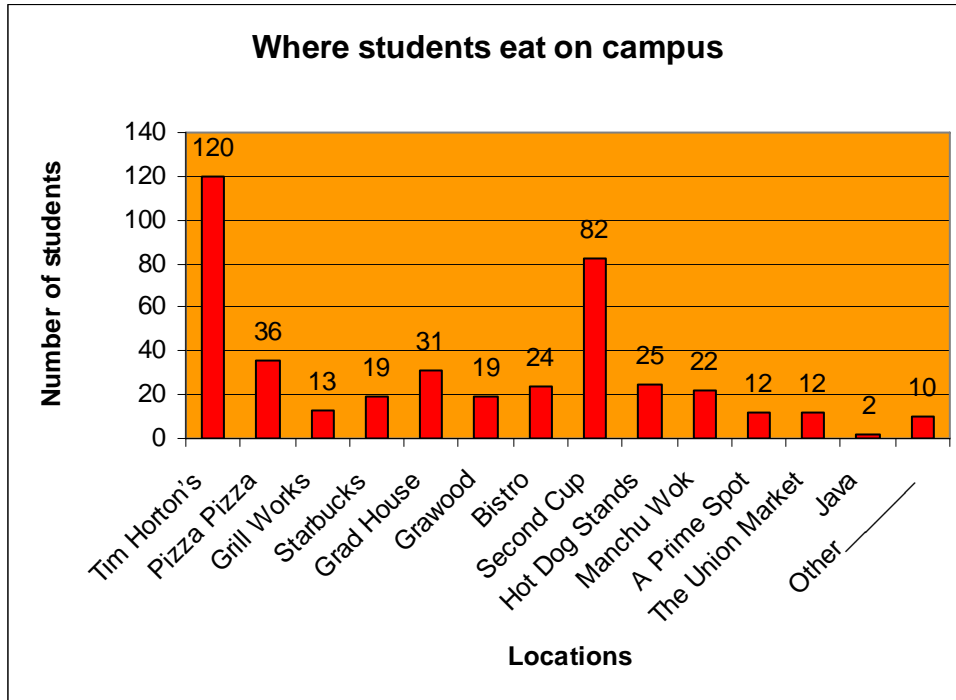
Appendix 13



Appendix 14



Appendix 15



Appendix 16

Comparison of Prices of Organic and Conventional Food in Halifax Area

	Organic	Conventional	Difference
Oats	\$4.88	\$1.78	\$3.10
Pasta	\$7.89	\$5.05	\$2.84
Flour	\$2.27	\$1.48	\$0.79
Cheese	\$23.98	\$13.95	\$10.03
Eggs	\$4.99	\$1.99	\$3.00
Milk	\$2.64	\$1.58	\$1.06
Yogurt	\$3.59	\$2.64	\$0.95
Apples	\$3.85	\$4.17	(\$0.32)
Chicken	\$11.09	\$4.72	\$6.37
Carrots	\$1.47	\$0.59	\$0.88
Lettuce	\$3.62	\$2.49	\$1.13
Onions	\$1.67	\$0.64	\$1.03
Potatoes	\$1.97	\$0.57	\$1.40
Tomatoes	\$5.49	\$3.62	\$1.87

Author Unknown, "Organic and Conventional Average Retail Prices in Four Canadian Cities" Organic

Agriculture Center of Canada, December 1 2001. Accessed March 30 2004.
<http://www.organiccentre.ca/MarketReports/Dec1-03.html>,