

Farm Food for All

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University of British Columbia

LFS 450

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UBC Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

Farm Food for All

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Executive Summary

The UBC Farm is a 24 hectare research, teaching and community engagement organization located on the campus of the University of British Columbia (UBC) in Vancouver. Through interdisciplinary academic, community and production programs, it aims to explore and exemplify healthy and sustainable food systems. The Farm is determined to increase student access to farm fresh food on campus. Increased access will strengthen both the Farm and our local food system. However, student access is limited for several reasons, most importantly, high farm food prices for student budgets and lack of awareness and cooking skills. The goal of this project is to examine business models which could increase student access to healthy, sustainable, farm fresh food on campus, to evaluate price differences between grocery store and UBC Farm and, homemade and cafeteria prices. Based on our findings, we provide recommendations on how the UBC farm can overcome barriers to student access. UBC Farm prices for selected vegetables were comparable to March 2016 grocery stores' organic prices but on average 75 and 97% more expensive than non-organic or conventional prices in March 2016 and September 2015 prices in grocery stores. When labor and time were taken into account, quesadillas were slightly less expensive to buy from a UBC cafeteria than to make at home while tomato soup was cheaper to make at home. Both dishes were cheaper homemade if labor costs were not taken into account. Current models for educating students and increasing access to locally grown food. However no models address the financial barrier preventing students from affording such food. We recommend that the UBC Farm look into the creation of a student discount to address this barrier. This discount could be subsidized by a small annual fee

created through an AMS referendum proposal and/or by the creation of a specific option for a student-oriented market in the farm's current practicum program. We also suggest various activities to be done in collaboration with UBC student groups in land and food systems and/or in commerce to increase awareness and cooking skills.

Introduction

The UBC Farm contributes to the sustainability of our campus food system by providing local, produce grown according to the principles of organic agriculture.

Located a kilometer and a half south of the main campus, the farm produces local food which can be purchased by students, from June to mid-October, through their markets on campus and a community-supported agriculture (CSA) program. As well, the farm supplies produce to campus cafeterias and other food vendors around the university. This project aims to explore new avenues to increase student access to their campus-grown produce.

Teresa Hao, an intern at the Farm in 2015, investigated the barriers to student access to UBC Farm produce. She identified four primary barriers: high price, lack of knowledge surrounding organic produce, lack of cooking time/ability, and lack of interest (Hao, 2015). All of these factors only add to the need for increasing student access to fresh, local, sustainably grown produce.

The goal of our research is to address some of the barriers identified by Hao concerning the use of UBC Farm food by students. Our specific objectives are to identify the magnitude of the premium associated with farm prices, to compare the cost of homemade food to UBC cafeteria food and to offer suggestions concerning funding to subsidize farm food for students using an innovative business model.

Methodology

Price Comparison

The reason for conducting a price comparison is to gather data that will assist in addressing one of the key barriers to students accessing farm food: price. We gathered prices from several grocery stores to check the validity of this claim and quantify the

price gap. Proximity was the main criteria used to determine which grocery stores would be included in our survey of prices. For this reason, we limited our focus to stores on or near campus. We also included one store in East Vancouver, for a total of five stores: Save-On-Foods in Westbrook Village, AMS Grocery Store in the Nest, Granville Island Produce in the Village, Safeway on West 10 Avenue, Donald's Market on Commercial Drive. Given that our focus is increasing *student* access for farm produce, the price comparison should apply to a period of time when most students are on campus and during which the UBC Farm Market is open. The market is open from June to October, so we decided to gather prices for September 2015 and prices during the execution of this study, March 2016 since tracking historical prices from specific stores is difficult. The UBC Farm Market offers a beautiful selection during the summer, but many students are away during those months.

Prices were tracked for specific fruits and vegetables (salad greens, kale, carrots, potatoes, apples, and blueberries) chosen in consultation with Véronik Cambell, Academic Programs Manager at the UBC Farm, based on their popularity and ease of preparation since some students do not have access to a full kitchen. We decided to gather both organic and conventional prices since the UBC Farm produce is grown organically and prices reflect the cost associated of this management practice.

As we began visiting the stores, it became clear that there would be varying levels of cooperation and support from store managers. While we had no trouble gathering current March prices, only one manager from Save-On-Foods in Westbrook village was willing to provide reliable averages for September. These Save-on-Foods fall prices were used as our baseline to estimate the fall prices of the other stores. For

example, if our weekly March data collection indicated that, on average, a bunch of kale is 49 cents cheaper at Donald's Market than the average March price at Save-On-Foods, we took the average September price from Save-On-Foods and subtracted 49 cents to calculate the September average for Donald's Market. We tracked March prices for all grocery stores, compared prices to the Save-On-Food March prices and estimated an average September price for these other stores.

Raw and Prepared Meal Price Comparison

In order to provide a different perspective and add to the produce price comparison, we compared the price of preparing two home-cooked dishes to the price of purchasing similar meals in the UBC cafeterias. The two dishes were chosen based on popularity, high vegetable content and straightforward cooking procedures: vegetable quesadillas and tomato soup. Ingredient prices were found at Save-On-Foods, the largest on-campus grocery store already included in the produce price comparison. Each item was found in the quantity most likely to be purchased by a student who would not normally benefit from bulk discounts. The cost of each item as used in the recipe was estimated by dividing the amount used over the total amount to obtain a fraction of the price. We estimated the amount of time spent on the preparation of the meal and used the British Columbia minimum wage to account for human labor costs. The cost of ingredients was added to human labor cost to provide total cost which was compared to the prices of quesadillas and soup noted at the UBC Vanier cafeteria in March 2016.

Research Models

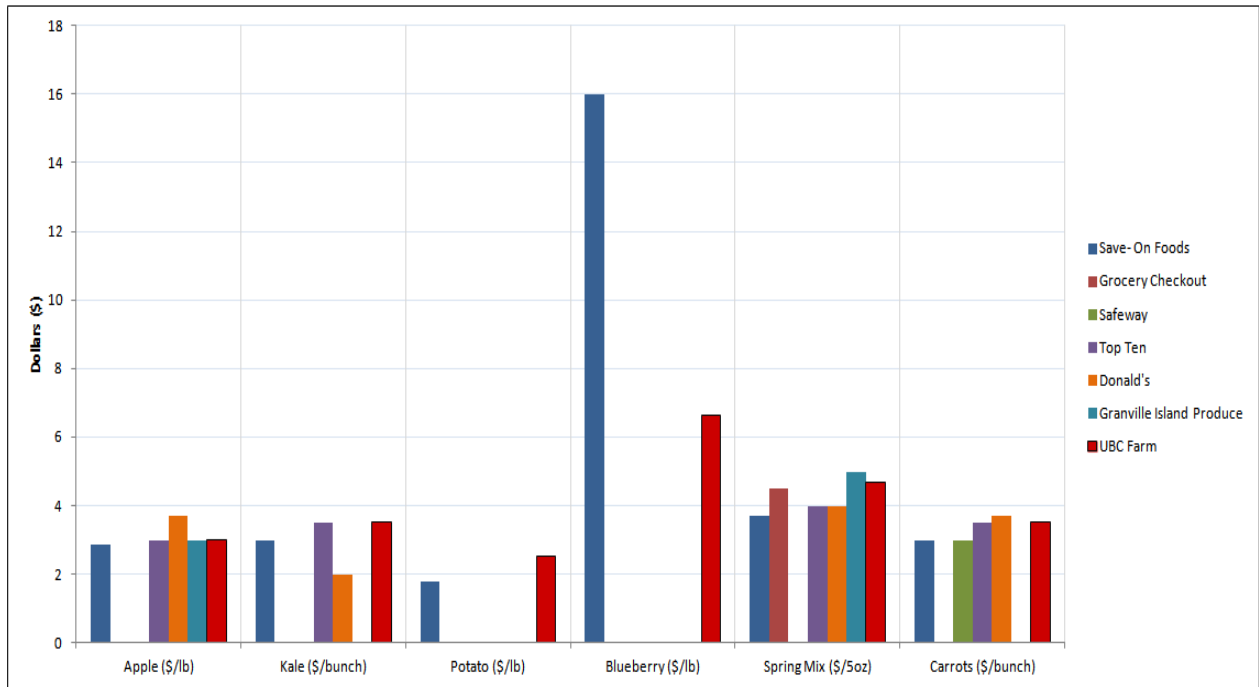
We executed a literature review on business models of food retail allowing for student access to healthy and sustainable produce using online search engines with keywords such as “university”, “student discount”, “organic”, “farm”, and “produce”. Particular points of interest included how produce was sold, how farms involve students or make their produce particularly attractive to students, strategies for raising student awareness of the farm and its produce, existence of farmers market, CSAs, etc. This data was used to make recommendations to the UBC Farm for possible modification to its business model for increasing student access to farm produce.

Results

Price Comparison for selected produce

UBC Farm 2015 prices which do not vary during the June-October growing season, were found to be similar to March prices of organic produce sold in grocery stores with the exception of blueberries (Fig.1A), but higher than most prices of conventional produce (Fig. 1B). Some organic produce could not be found at certain grocery stores, reducing the number of comparisons (Fig 1A).

a) Organic produce



b) Conventional produce

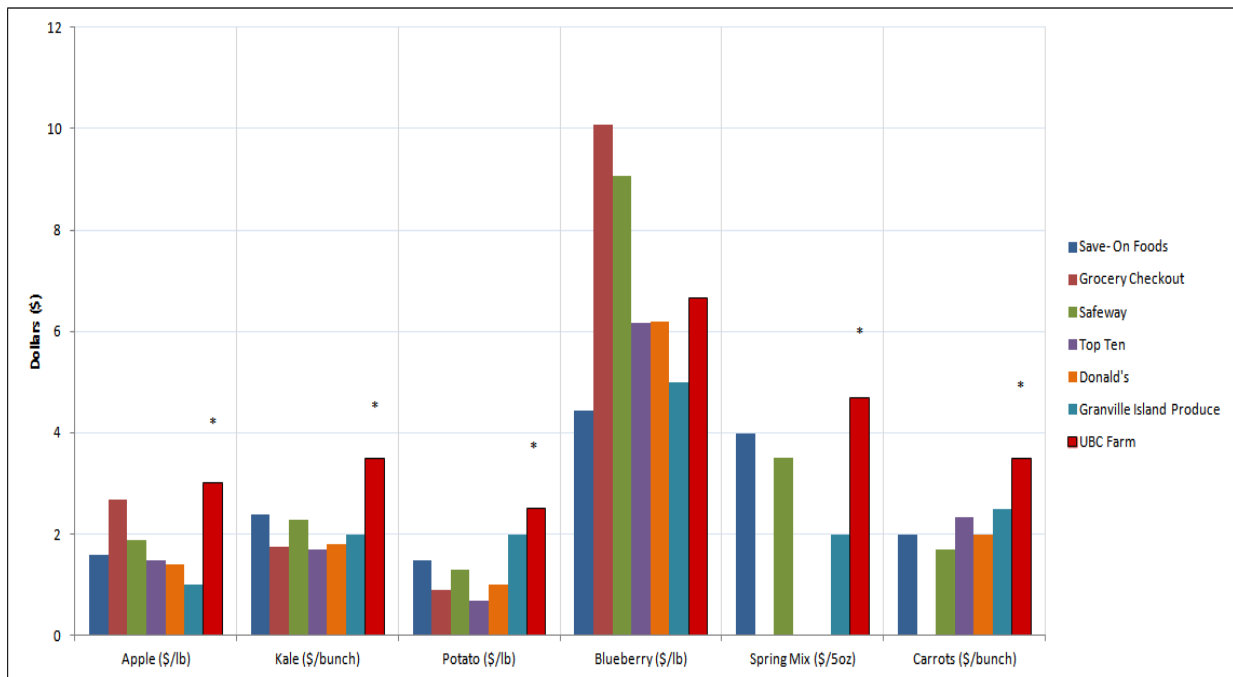


Fig 1. a) Average March 2016 organic prices at grocery stores on or near UBC campus compared with UBC Farm 2015 summer/fall prices (red). **b)** Average March 2016 conventional prices at grocery stores on or near UBC campus compared with UBC Farm 2015 summer/fall prices (red).

When all grocery stores' prices were averaged, UBC prices were similar for most organic produce in March, but definitely higher than the prices for most conventional produce (Fig 2). We defined 'similar' as falling within one standard deviation of the mean. Blueberries were the only exception to this trend, as the UBC Farm price fell within the average price range of both conventional and organic blueberries most likely because organic blueberries are a fragile, high-end seasonal crop (imported from South America in the spring) which was difficult to find in March. Hence, blueberries were excluded from this analysis, as spring prices are not representative of in-season prices.

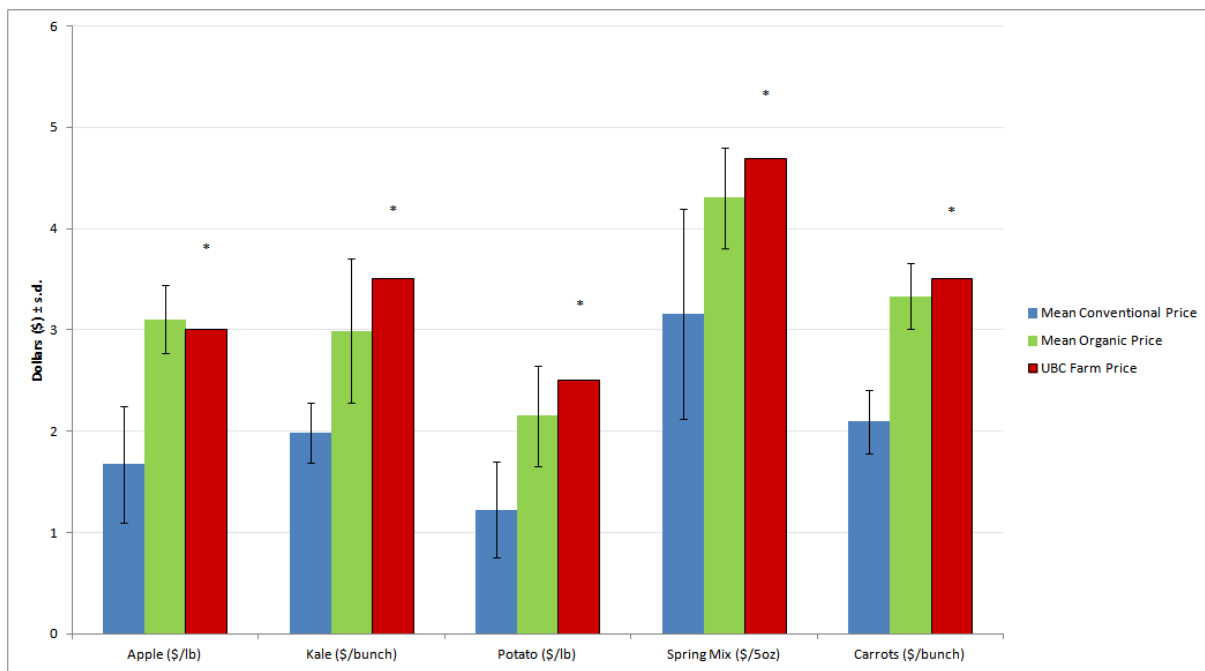


Fig 2. UBC Farm 2015 summer/fall price (red) compared with average March 2016 grocery stores prices for conventional (blue) and organic produce (green) prices. UBC Farm prices fall within one standard deviation of the mean prices for all organic produce items.

UBC Farm prices range from 149% to 204% that of average March conventional produce prices around campus (Table 1). In other words, UBC Farm prices are, on average, 75% greater than conventional prices.

Table 1. UBC 2015 summer/fall prices as a percentage of average March 2016 prices for conventionally grown vegetables.

Produce Item	Percentage of Mean Conventional Price
Apple (/lb)	179%
Kale (/bunch)	177%
Potato (/lb)	204%
Salad Mix (/5oz)	149%
Carrots (/lb)	167%

Estimated fall organic and conventional averages provide a more realistic comparison for seasonal produce such as blueberries. UBC farm prices were found to be higher than the average ranges for most fall conventional produce items, including blueberries (Fig 3). Although the UBC farm prices were in the range of the standard deviation associated with organic prices, the variability around the means are so large that a percent comparison is necessary to understand the meaning for this figure. The farm prices range from 119% to 308% that of average estimated September 2015 conventional produce prices around campus and are 97% greater, on average (Table 2). UBC Farm prices are also higher than most estimated September 2015 organic prices, with UBC Farm prices being 23% greater on average (Table 2).

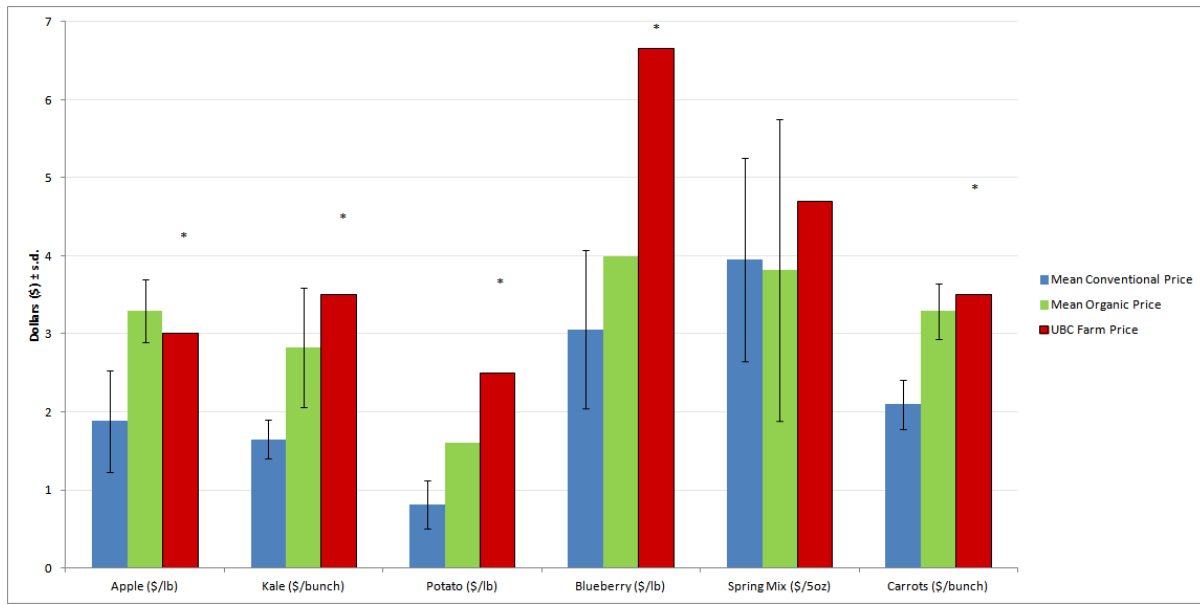


Fig 3. UBC Farm 2015 summer/fall price (red) compared with estimated average September 2015 grocery stores prices for conventional (blue) and organic produce (green) prices. UBC Farm prices fall within one standard deviation of the mean prices for all organic produce items.

Table 2. UBC 2015 summer/fall prices as a percentage of estimated average September prices for conventionally grown vegetables.

Produce Item	Percentage of Mean Conventional Price	Percentage of Mean Organic Price
Apple (/lb)	159%	91%
Kale (/bunch)	212%	124%
Potato (/lb)	308%	156%
Blueberry (/lb)	217%	167%
Salad Mix (/5oz)	119%	123%
Carrots (/lb)	167%	106%

Price Comparison for two dishes

Not taking time into account, ingredients for both home-cooked dishes, vegetable quesadillas and tomato soup, cost less than the purchasing price at the cafeteria without taking labor cost into account (Table 3). However, with labor the homemade quesadilla's cost rises to \$6.30 while the cafeteria price is \$5.39. The homemade tomato soup is less expensive at \$2.72 than the cafeteria purchase at \$3.59.

Table 3. Price and quantity of ingredients* to prepare one vegetable quesadilla without and with labor cost** compared to UBC Vanier Cafeteria in March 2016

Item	Recipe quantity	Store quantity	Store price	Organic price	Cost	Organic Cost
Tortilla	1	8	4.99		0.62	
Cheddar Cheese	57 g	100 g	1.93		1.1001	
Tomato diced	50 g	lb	2.99	4.99	0.3289	0.5489
Green Onion	24 g	lb	3.56		0.18868	
Green Pepper	40g	lb	3.49	3.99	0.30712	0.35112
Salsa	50 g	650 ml	4.51		0.34727	
Sour Cream	50 g	250 ml	1.99		0.398	
				Total \$/Serving	3.29	3.55
				Adding GST & PST	3.68	3.98
				Adding Labor	6.30	6.59
				Cafeteria Price	5.39	

* All produce imported from U.S. or Mexico. purchased at store

** B.C. minimum wage

Table 4. Price and quantity of ingredients* to prepare one serving of tomato soup without and with labor cost** compared to UBC Vanier Cafeteria in March 2016.

Item	Recipe quantity	Store quantity	Store price	Organic price	Cost	Organic Cost
Tomato Sauce	.4 L	910 mL	3.69		1.62	
Crushed Tomato	.4 L	800 mL	2.29		1.15	
Frozen Peas	12.5 g	750 g	3.89		0.65	
Frozen Corn	.3 lb	751 g	3.99		0.723	
Carrot Diced	.3 lb	lb	1.49	1.24	0.5	0.37
Celery Diced	.3 lb	lb	2.69	2.79	0.81	0.84
Green Onion	.3 lb	lb	3.69		1.11	
Corn Starch	12.5 g	454 g	4.59		0.13	
Bay Leaves	.3 g	7 g	7.99		0.34	
Oregano	12.5	33 g	7.39		2.8	
				Total \$/Recipe (2 L)	9.833	9.733
				Total \$/Serving (.3 L)	1.65	1.62
				Adding GST & PST	1.85	1.81
				Adding Labor Cafeteria Price	2.72	2.69
					3.59	

* All produce imported from U.S. or Mexico.

** B.C. minimum wage

It is important to note that that UBC students who cook and students who eat at the cafeterias are generally two mutually exclusive groups since cafeterias are mostly used by first-year residence students who do not have access to kitchens. Therefore, price difference between the cafeteria and home-cooked food is not a direct factor in how students choose to eat but, can serve as an illustration that wholesome home cooked food is cheaper or at least equal in price to relatively expensive UBC Food Services food. This information should be useful to all students including those moving out of first-year residence.

Current Business Models for campus access to local food

Numerous universities across North America currently support initiatives aimed at increasing student access to local farm produce. These programs generally focus on educating students and university food services on the benefits of supporting local food production. Universities such as Cornell, UC Santa Cruz, and UC Davis have taken steps towards sustainable food systems through various initiatives. The Farm to Institution (FTI) model is a framework designed to connect local food producers with nearby institutions such as universities and hospitals. The UBC Farm has been working with this model to connect with food vendors on campus.

The FTI model works on establishing a relationship between local farms and institutional food services. The model can include an educational component aimed at raising awareness regarding the benefits of supporting local agriculture. UC Santa Cruz has successfully implemented the FTI model in their Farm-to-College initiative. The initiative has focused on education and raising awareness around eating locally, sustainably produced, food. Educational speakers' series, taste test demonstrations, and film nights are hosted on campus (UCSC Center for Agroecology & Sustainable Food Systems 2015). Administrators and managers from the university food services industry are regularly consulted on strategies to meet the university's sustainability goal to source more local foods. Other strategies implemented at by UC Santa Cruz include regional farm tours for students and faculty and student farm internships (<http://casfs.ucsc.edu/farm-to-college/>). Cornell U. and UC Davis have implemented farm-to-school initiatives that include very similar strategies (<http://farmtoschool.cce.cornell.edu/about/> and

<http://dining.ucdavis.edu/sustainability.html>). We have thus far been unable to find any existing university programs which aim to address financial barriers faced by students.

Discussion

Overcoming the Economic Barrier

The UBC Farm Practicum is an 8-month experiential learning program designed for students with an interest in applying their learning about sustainable agriculture and food systems. Seth Friedman, the coordinator of the program, suggested implementing a CSA and market stand component to the UBC Farm practicum curriculum. Current students grow food and eat it during the course. However, a portion of the food they produce could be sold at reduced price to UBC students through food stands on campus.

Another recommendation to address the financial barrier is through the creation of a student discount. This discount could be funded through an AMS referendum and the creation of small annual fee. The proposal for a referendum would ask students if they we would be willing to pay a small annual fee as a part of their tuition to subsidize a student discount. The UBC Alma Mater Society members vote on such a referendum to accept or reject the proposal. To call a referendum, either a motion must be passed by Council that approves the referendum question, or, a petition signed by 5% of active members or 1000 active members (with their student numbers), whichever is the lesser number. The petition must be handed to the VP Academic and University Affairs, Jenna Omassi (NEST 3522). More information can be found here <http://www.ams.ubc.ca/studentociety/elections-2/referendums/>. Once called, the

referendum must take place 10-30 days later. If funding for raising awareness of the referendum question is needed, the following steps should be taken:

1. Obtain a copy of the referendum handbook
2. Submit to the Elections Committee a petition which includes:
 - a. The signatures and student numbers of at least 150 active members
 - b. A list of members of the Yes and No committee identifying them as members of that committee
 - c. A budget outlining any proposed expenditures

The referendum passes if there are enough voting members present and if it secures a majority vote.

Overcoming the Lack of Cooking Skills Barrier

The University of California at Davis (UC Davis) offers nutrition education to its students through the 'Nutrition Talk Education Program' which takes place throughout the academic year and provides information on healthy eating strategies. Coordinators plan topics and educational materials and nutrition interns deliver the education program during meals. Their website also provides information on healthy sustainable eating (<http://dining.ucdavis.edu/nutrition.html>). A similar program could be established in the residence dining halls at UBC. Totem Park and Vanier Place cafeterias would be the perfect place for such a program. Going beyond nutrition education, these programs could provide hands-on workshops. This would be a great way for first-year students to improve their cooking skills as well as increase their food knowledge. While most of these students do not have their own kitchens, these skills will be beneficial once they move away from residence halls. Building cooking confidence in students is essential

for getting them to purchase raw fruits and vegetables. Education affects purchasing habits of Canadians. The more education, the more fresh fruits and vegetables are purchased (Ricciuto, Tarasuk, and Yatchew, 2006).

Overcoming the Knowledge Barrier

While the UBC Farm has an excellent record of education in the community at large, it could increase its influence on students living on campus by promoting sustainable food systems informing the students of its close location and market hours and the importance of local, organic and sustainable food for sustainable living. As students get educated on these issues, they will likely want to purchase farm fresh food and cook, especially if discounted produce can be offered to them. Therefore, promoting awareness of the farm is a vital way to increase student purchasing its produce.

UBC Farm staff, Seth Friedman and Katherine Hastie, UBC Farm Outreach Events Coordinators, are aware of this need and suggest the possibility of hosting events to celebrate specific crops in season. Such an initiative could bring farmers, staff and UBC student consumers together to accomplish some of the outreach work mentioned above, increasing awareness and learning to prepare delicious meals.

Recommendations

Action

The UBC Farm prices were found to be significantly higher than the average conventional price of produce. Therefore, we recommend implementing a student discount where students are able to buy produce from the farm at a lower cost when they show their UBC card. This discount could be subsidized various ways but we recommend submitting a request for a referendum during AMS elections in 2017. We recommend getting into contact with organizations who have had successful referendum proposals for U-Pass, Health and Dental, WUSC and Campus Culture to get some insight into the making of an effective campaign. This initiative could be organized by members of the Land and Food System Undergraduate Society, who are active members of the AMS and registered in the Faculty of Land and Food Systems. This society can work in collaboration with the Commerce Undergraduate Society (CUS) from the Sauder School of Business to evaluate the amount to request on this proposal.

Additionally, we recommend that the various UBC Farm staff members add an 'affordability for student' component to their Practicum in Sustainable Agriculture program. Such a component would go a long way to increase the food security of the general UBC student population.

Education on sustainable food systems is vital, as it influences the student food choices (Hao 2015). The following recommendations look at overcoming the knowledge, lack of skill and interest barriers. Approximately, 3100 UBC students live in first-year residences Vanier and Totem Park. After first year, all of these students move into upper-year campus housing or off-campus housing, both of which involve cooking

at home. This makes second-year residences a prime place for teaching students about cooking, nutrition and local food before they are on their own and start making decisions about food. For this reason, we looked into the possibility of engaging with students living on campus by offering a systematic series of workshops in residences to increase food literacy in making food decisions in order to address the barriers of student knowledge, interest and skill around farm produce and cooking. The mission of the LFSUS is to build a sense of community within the faculty by acknowledging the unique ability food has to bring people together. The society understands students' busy schedules and that many may not always have the means or time to cook nutritious meals for themselves. Therefore, this society would be able to work collaboratively with Nicole Fetterly, the Manager of Nutrition and Wellness at Student Housing and Hospitality Services at UBC who is highly involved in this line of work and has already been offering some workshops for first-year students in residence. Thus, we recommend increasing the pool of resources by connecting stakeholders such as LFSUS and the Cooking Club to allow these workshops to become more self-sufficient and systematic. This could involve offering a nutrition program such as setting up a booth at the residence halls monthly during the academic year. This provides the opportunity for students to learn healthy eating strategies by answering food-related questions. Students from the LFSUS can plan nutrition meals and provide recipes, delivering cooking workshops to students during dinner meals in the dining rooms. Additionally, providing a link from their website under the 'resources' tab for students to read and become more knowledgeable on healthy sustainable eating might also be useful.

Research

We found a lack of data on removing the affordability barriers of farm fresh produce for university students. Although many universities such as UC Davis, UC Santa Cruz and Cornell follow a farm to institution model of food distribution to increase accessibility, none of them directly overcome the affordability barrier. In this regard, we suggest monitoring the number of UBC students who purchase food from the farm and observe the purchase patterns before and after implementing a student discount. This could be the subject of a collaboration between the UBC Farm and the CUS or LFSUS. These data would help determine if and how much funding is increasing student purchases and gauge the impact of offering discounted farm food. UBC Farm prices were found to be about 75% greater on average than the average spring conventional produce prices.

In conclusion, we recommend a two-pronged approach of education and student discounts on UBC Farm produce to bridge the financial gap between farm and conventional produce prices.

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