UBC Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

Sprouts Menu Development, Recipe Testing and Evaluation

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FNH 473

Food, Health, Wellbeing

April 5, 2018

Table of Contents

Executive Summary

The demand for sustainable and nutritious food has seen a dramatic increase over the last decade; however, the majority of food options on the UBC campus do not support these changes in an affordable way. Sprouts cafe is motivated to improve this issue by offering cheaper food options and creating awareness around the importance of supporting sustainability. Our FNH 473 group helped Sprouts design menu items that will delight customers' taste buds while promoting Sprouts' core values on food system sustainability.

Project Objectives:

1) To increase by **25%**, Sprouts' profit - indicated by Square data, representing an increase in the UBC community's perception that locally-sourced, healthy food *can* be affordable, **within 1 year** of opening (short-term).
2) To increase by **25%**, the number of purchases at Sprouts - indicated by Square data, representing an increase in the motivation of the UBC community towards supporting local and sustainable foods, **within 2 years** of opening (medium-term).
3) To increase by **25%**, the baseline of Sprouts customers that are aware of the importance of supporting sustainable food systems, by evaluating opinions from key informant interviews, **within 6 months** of opening (short-term).

Evaluation Plan:

- **Square data** is an analytic software that can generate quantitative reports of dish being sold at Sprouts. Those reports will be looked at and compared monthly.
- **Stakeholders Interviews, Surveys & focus groups** will be used to collect qualitative data to assess the success and future directions, if needed, of the program.
- **Profit monitoring and evaluation** provide quantitative data assessing the economical sustainability of Sprouts.

Introduction

Sprouts is a non-profit volunteer-run organization at the University of British Columbia (UBC), promoting and encouraging the accessibility of affordable, sustainable and healthy food. In September of 2018, Sprouts will be reopening its cafe and grocery outlet in the recently renovated “Life Building” - formerly known as the Student Union Building. With this location change, Sprouts has increased their kitchen space, acquired more equipment to work with, and created the perfect opportunity to revamp their previous menu.

Seedlings, one of Sprouts’ many initiatives, is a cafe in the Thea Koerner House in the northwest corner of UBC Vancouver campus. The expanded menu at Seedlings consists entirely of vegetarian and organic menu items, as well as aims to source as many ingredients locally as possible. Sprouts’ new location aims to follow the essence of the menu at Seedlings, while developing their new menu items with the public nutrition expertise of the FNH 473 students. An important consideration for this project is the new central location of Sprouts. Since this location is closer to the student union building, recreation center, pool and bus loops, Sprouts will be catering to a different crowd. The cafe is revamping their menu to better suit the busy “on-the-go” student life. Therefore, the “sit-down” menu from Seedlings will not be ideal for Sprouts’ “take-away” vision.

By utilizing our knowledge in nutrition and health program planning, our team has helped Sprouts develop new nutritious and affordable menu items, that cater to their new clientele and stay true to the core values of their organization.

Situational Assessment and Planning Framework

I. Problems

The 2016/7 UBC Annual Report on Enrolment reports that UBC Vancouver community consists of 54,232 undergraduates and graduates, thus students comprise a large percentage of our target population (Redish & Mathieson, 2017). The rising housing costs in Vancouver, British Columbia, and increasing tuition at UBC, contribute to the problem of food insecurity, and force students to compromise on basic needs such as quality and quantity of food (Kershaw, 2017).

Students are challenged by the affordability of nutritious food due to their high prices. At a Canadian university, Reynolds et al. (2018) observed 37.2% of students as food insecure, 11.5% as severely food insecure, and 25.7% as moderately food insecure. In a study on risk factors at a mid-Atlantic university, Payne-Sturges et al. (2017) found 16% of students to be at risk of food insecurity and 15% to be food insecure. Problems reported among food insecure students included eating less (69%), being hungry (69%) and an inability to eat balanced meals (80%) (Payne-Sturges et al, 2017). Therefore, this reiterates rising rates of food insecurity among university students.

At UBC, *sustainable* options promoting locally sourced foods are limited to Seedlings and Agora Cafe. Seedlings Cafe, initiated by Sprouts, offers local, plant-forward and organic foods by partnering with Roots on the Roof, UBC Farms and other organic suppliers (Sprouts, 2018a). Meals are at low costs; for example, main entrees are $4.00, meal-sized salads are $3.75, baked goods are $1.00 and an entrees with a side salads are $5.50 (Sprouts, 2018a). This bridges gaps in affordability by offering nutritious foods at modest prices within the UBC community. Agora Café (2018) operates on similar concepts of plant-based and locally- sourced foods, while focusing on affordability. Despite affordable pricing, both Seedlings and Agora are not centrally located, making it less convenient for busy UBC

students to access healthy and sustainable food.

The new Student Union Building (SUB), also known as “The Nest”, is the largest central food hub offering a variety of options such as sushi, sandwiches, curries, soups, and smoothies. Prices range from $5-15, and nutrient dense meals are at the upper range (AMS, 2018). Fast food examples include Pit Pub burgers, Pie R Squared Pizza, IWana Taco, and Grand Noodle Emporium - entrees ranging from $7-11 (AMS, 2018). The healthiest option at the SUB is Porch, which is similar to Sprouts. The porch builds nutritious bowls and wraps for $8 - expensive relative to Agora and Seedlings (AMS, 2018). The new Sprouts location will be in the Life Building, adjacent to The Nest, offering an accessible location for affordable and nutritious meals within the UBC community.

II. Behaviours

A. PROBLEM: Affordability, Costs & Student Financial Burden

Financial resources for students are already limited and remaining monetary allowances are tightly budgeted. This results in behaviours such as limiting consumption of food, starvation, and eating unbalanced meals due to scarce funds for purchasing adequate amounts of quality, nutritious foods (Payne-Sturges et al, 2017). Within a student budget, sales of less nutritious options enforce behaviours of selecting less healthy options. Thus, affordability is an impactful factor on food choice behaviours.

Consequently, students may lack the motivation to eat healthfully and sustainably, which has implications for food security. Elevated stress levels and adverse moods are behaviours closely correlated with food insecurity, and may contribute to lower academic performance (Payne-Sturges et al, 2017). Reynolds et al. (2018) also identifies potential academic and health implications linked with this significant risk of food insecurity amongst students. Thus, Vilaro et al. (2017) has established affordability and stress as two of the most important determining factors of student food choice behaviours.

B. PROBLEM: Limited Sustainable and Locally Sourced Food Options

The limited sustainable food options at UBC may exacerbate the lack of awareness and food literacy towards the origins of foods, cultivation, and impact on the environment. With few options, students are not encouraged enough to purchase local foods and support local farmers. This manifests as a lack of motivation to increase food literacy to learn about sustainable eating and limits informed food decisions. Despite cost as a determinant for buying sustainably, Dahm et al. (2009) observed that student consumers purchase food based on personal beliefs systems, and detected positive attitudes towards availability of organic food options increasing in a vast majority of students. This further demonstrates the need to match students' awareness on food systems with sustainable food options at UBC.

The likelihood of purchasing organic, local and sustainable food increases when students feel in positively supporting sustainable agriculture (Giannetti, 2016). Sustainable crops come with a cost, but it is outweighed by student's beliefs. Using education as a tool to increase consumer demand may lead to a greater presence of sustainable food outlets. Porter et al. (2017) identified food origin as an emerging predictor of willingness-to-pay (WTP) when a majority of students were observed to willingly pay premiums for "real" food. Studies show increased awareness for students regarding sustainable agriculture and why it matters. The lack of sustainable food options on campus significantly impacts food choice behaviour when there is limited knowledge thus lowering demand for sustainable food.

C. PROBLEM: Convenience and Nutritional Value

Busy student schedules make it challenging to dedicate time for grocery shopping and meal preparation. Accessibility plays a significant role in food choice behaviours (Vilaro et al., 2017). Evidently, the surge of meal delivery services such as Foodora, and UBEReats are prime examples of less time and willingness to prepare meals, thus convenience is a crucial factor to consider (Takeuchi, 2017). Driving factors of meal selection behaviours at

The Nest are ease and convenience. Students experience burdens of living on campus with limited food selection. In residence, students may be away from home for the first time and lack food literacy (i.e. cooking skills). Fast foods may be accessible and time efficient, yet less nutritious. With the vast selection of convenient fast food competitors on campus, students are inclined to purchase convenience foods - behaviours that have implications on health.

Typically, higher fat content foods (i.e. pizza, fries, etc.) tend to taste better, and are inexpensive enforcing these food choices. Vilaro et al. (2017) also remarks that students eat for satiety and preventing hunger during long schooldays. Fatty foods are often cheaper and more satiating, which may also contribute to the selection of less nutritious options. On The Nest's food and drink site there is no nutritional data to inform student food choices (AMS, 2018). Nutritional information (i.e. caloric, fat data) can result in positive behaviors that encourages the purchase of fewer fat/calories overall per day (Normand & Osborne, 2010).

III. Mediating Factors

A. Individual

Factors that make the situation worse: Dietary preference and personal belief will predispose individuals to different preferences (Deliens et al., 2014). For example, individuals may avoid certain foods based on the taste, texture, and ingredients or if it doesn't align with their culture or religion. Time and convenience is also another factor that make the situation worse. Depending on what students prioritize as more important (Deliens et al., 2014), this will impact whether students will take their time to acquire something that may be healthier even if it was inconvenient.

Factors that make the situation better: At baseline, individuals who understand the importance of nutrition and how eating the right foods can favourably affect health will be more ready to adopt changes to their diet (Deliens et al., 2014). Therefore, those with prior nutrition knowledge would be more likely to purchase at Sprouts knowing that they offer

nutritious options amongst other food vendors on campus.

B. Interpersonal

Factors that make the situation worse: Evidence suggest that lack of parental control and peer pressure amongst university students can negatively influence individual's choices when it comes to food (Deliens et al., 2014). Often, parental control decreases as students transition from secondary school to university (Deliens et al., 2014). Without parental control, students feel as if they have the freedom to eat what they wanted (Deliens et al., 2014) and that may not always be something healthy. Peer pressure can worsen the situation as well. In a group, students will often follow the behaviour of others (Deliens et al., 2014). For example, if a group of friends wanted to go to a fast food chain, individuals who wanted a healthier option may simply adopt the social norm.

Factors that make the situation better: Interestingly, social support such as family and friends can make the situation better by supporting healthy eating which will encourage individuals to adopt these behaviours (Deliens et al., 2014). Having many platforms (such as Facebook pages and Instagram) to reach the UBC community can make the situation better by influencing the students as a group. If everyone in the community favoured healthy eating practices, then it will be more likely for those outliers to adapt healthy behaviours as well (Deliens et al., 2014) using the peer pressure logic mentioned before.

C. Environmental

Factors that make the situation worse: Student's mindset around food prices play a big role in individual's food behaviours. If students believed that unhealthier food options are more affordable than healthier foods then they would be less likely to find healthier foods on campus (Deliens et al., 2014).

Factors that make the situation better: UBC Food Services centers their food values around providing healthy and wholesome options (UBC Food Services, 2018). By making healthy

and sustainable options more available and accessible, students will more likely to purchase them compared to unhealthy options (Deliens et al., 2014). Additionally, raising awareness of healthy eating behaviours may increase susceptibility to healthy foods (Deshpande et al., 2009) and UBC Food Services takes responsibility to improve the health and wellbeing of the community (UBC Food Services, 2018).

IV. Health Behaviour Theories

A. How information gathered in the situational analysis was analyzed

Information in our situational assessment was gathered through studies conducted on populations similar to our target population and applied to the health behaviour models in consideration that these studied populations may share similar traits, characteristics, and be influenced by similar constructs. Some information was obtained via communication with our community partner, and analysis of the information provided by Sprouts on the popularity of menu items sold through the cafe (Square data). Survey data from Sprouts customers regarding preferences and what they would like to see sold at Sprouts was collected by an online, voluntary Google survey.

B. Social Cognitive Theory (SCT) (Hammond, 2018) (National Cancer Institute, 2005)

Rationale: The SCT was chosen as it is based on the premise that learning does not occur in isolation, but rather in a social context. It allows analysis of individuals' behaviours on an interpersonal level. Several factors are considered in the SCT including: *observational learning, self-efficacy, outcome expectations,* and *behavioural capability*, however the most relevant to our project are as follows. *Reciprocal determinism*: Sprouts customers affect what is sold through their dollar, as well as through the completion of surveys (Brondizio, Personal Communication, February 2, 2018). Similarly, since taste and cost are main determinants in food choices, Sprouts has an effect on customers' purchases through the prices they set, and what items are offered (Vilaro et al., 2017). *Reinforcements*: One

influencing factor on food choice is cost. Sprouts is a not-for-profit organization, and offering the lowest prices possible will positively reinforce students' engagement in purchasing meals at Sprouts (Dahm et al., 2009). The convenience of food is another influencing factor (Vilaro et al., 2017). If students find that Sprouts Cafe is located far away from their classroom buildings, this would negatively reinforce student's decision to purchase meals at Sprouts.

C. Social Ecological Model (SEM) (National Cancer Institute, 2005)

Rationale: The SEM addresses that there are several levels of influence on the behaviour individuals, with the individual at the centre and varying levels of influences. The concept of having both an effect on the environment while also being affected by the environment (i.e. reciprocal causation) is addressed. The following factors are considered: *public Policy*, *community*, and *interpersonal*, however the most relevant to our project are as follows. *Organizational*: Sprouts is operating under the following limitations: a strict purchasing policy to provide affordable options (Sprouts, 2018b); choosing local, in-season items sold by specific vendors (UBC Farm, Horizon…), organic when possible, and; items that are sold must be vegan. *Individual*: individuals who value sustainability, healthy, and vegan eating are more likely to purchase from Sprouts. Consumers were found to act according to their beliefs and attitudes regarding food (Dahm et al., 2009).

D. Limitations of the situational analysis

While the situational analysis addresses the environment within UBC, external factors that may contribute to students' health behaviours are not included. This may include students who live off campus, and may have many food options outside of the UBC community, or students who choose to go off campus for food.

Project Goal and Objectives

Goal:

To improve the accessibility of affordable, nutritionally-balanced, and locally-sourced food options for the UBC community; therefore improving environmental, economic, and social sustainability.

Objectives:

1) To increase by **25%**, Sprouts' profit - indicated by Square data, representing an increase in the UBC community's perception that locally-sourced, healthy food *can* be affordable, **within 1 year** of opening (short-term).
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Description of Project Outputs

I. 2018 survey data and results

We were asked by our community partners to recommend one main dish, one side dish or salad, and one baked good recipe that could be used in the new Sprouts. Before we started choosing our recipes, we wanted the collaboration of the UBC community in shaping their experience at the new Sprouts location. Through our data collection phase, we were able to successfully collect over 131 responses. We did so by distributing an online Google survey through social media outlets, to potential stakeholder groups who would most likely visit Seedlings or Sprouts. In the survey, we asked "what dishes would you prefer", "what type of cuisine would you prefer", "what type of baked good would you prefer", and "what type of side dish would you prefer", as well as if they had any additional comments or suggestions. These questions helped us generate useful and meaningful results that provided guidance during the development of new menu items. In this way, Sprouts customers are influencing their environment, which relates back to the SCT construct of reciprocal determinism (National Cancer Institute, 2005). From the results, we were able to gather that people preferred "takeaway" verses "sit-down" dishes, almost 50% preferred comfort foods and roasted vegetables as a side dish, and there was an even split between muffins and cookies for a baked good.

II. Newly revamped menu recipes

Our 2018 survey data and results helped us to generate the newly revamped menu recipes. Based on the survey results we were able to choose and create recipes that people wanted to see and would most likely purchase at sprouts. With the input of our community partner, we made several tweeks to recipes that were found online (besides the baked good

recipe) in order to produce nutritious, delicious and locally sourced foods on UBC campus. Additionally, we took into consideration of the seasonal variability of the different ingredients and how accessible these ingredients are for Sprouts while keeping in mind of their purchasing policy. We did this by referencing their price list from UBC Farm and Horizons which were provided by the community partners upon request. Furthermore, we had to keep the cost of ingredients in mind as Sprouts like to have their dishes to be about $4 and the baked goods to be around $1-$2 at cost. The limitations that the purchasing policy enforced on our recipe development is an example of how food choice can be influenced at an organizational level, as discussed in the SEM (National Cancer Institute, 2005).

The Harvest Bowl was chosen as the main dish as our community partner had suggested a rice type of dish. It mainly consists of brown rice, sweet potato, brown rice, kale, and a sunflower seed butter dressing. A roasted vegetable salad that consists of beets, potatoes, carrots, onion, and squash was chosen as the side dish. Our community partner preferred the cookie over the muffin, so one of our project members created a recipe for Super Seedy Power Cookie which mainly consists of chickpeas, peanut butter, honey, applesauce, dates, and pumpkin and sunflower seeds.

III. Menu item nutritional analysis (EaTracker)

In addition to creating new menu items and recipes, another key output of our project is providing Sprouts with a qualitative dietary analyses for each finalized recipe. Nutritional analyses were conducted for each recipe using EaTracker in order to ensure that the recipes are nutritionally adequate and in alignment with Sprouts' and our project goal. Each ingredient was entered into EaTracker and the data for macronutrient and micronutrient were produced for each recipe. The nutrient analysis of our recipes is a

reinforcement, as referenced by the SCT (National Cancer Institute, 2005). For example, if students were to note that the Roasted Vegetable Salad provides almost 6 servings of vegetables, this would be a positive reinforcement which would increase the likelihood of students purchasing food at Sprouts. As a future initiative for Sprouts, encouraging students to increase in food literacy regarding purchase and consumption of locally-sourced and sustainable food options could be introduced through an "informed dining" program. Customers can be provided with nutrition information of menu items served at Sprouts in order to inform healthy food choice decision making.

IV. FNH 473 report & Newsletter

This report is a synthesis of all our outputs and how we applied our selected health behaviours to obtain these outputs and their importance. We hope that it will serve as a point of reference for future projects that want to carry on the same goals and promote the same health behaviours. Our report is another example of how food choice can be influenced on an organizational level (National Cancer Institute, 2005). Since our project, recipes and logic model are all included as portions of this report, these outputs may shape the menu which is offered at Sprouts, any further community projects done through Sprouts, and the organization of Sprouts as a whole.

Evaluation Plan

Success of health promotion projects lie in the ability to measure the impact of an intervention on specific health promotion behaviours established by the project (PHO, 2015). We devised an evaluation plan to assess our goals and objectives, and to establish the efficacy of our intervention via measures of whether they can be accomplished in the future. The following are our proposed strategies that would most effectively evaluate the extent of our achievements, and ensure sustainability of Sprouts as an operation.

I. Square Data & Profit

The 2017 square data and point of sale data, provided a year-end profit report which allowed us to tabulate popularity of dishes, profit generation and foot traffic. When the new Sprouts opens, monthly and annual analysis of the data can determine the popularity of new menu items. The previous years data will be the baseline to evaluate increases in sales as a result of our intervention. This can be used as an ongoing method of evaluation and Sprouts can utilize this data to introduce new menu items if dishes prove to be unpopular.

Sprouts' new location anticipates a similar pricing scheme to Seedlings, where items are sold with a 15% mark up from the raw ingredient costs (RFCs) (Brondizio, personal communications, April 2, 2018). Sprouts must be careful when pricing, to profit enough to cover raw food and overhead costs. There are no overhead costs in facility rental fees and no employee wages at Sprouts. Evaluating profit margins is another quantitative measure of attaining our objectives while sustaining Sprouts as a business. Sprouts must be able to afford organic and locally sourced ingredients that appeal its clientele who are health-conscious and sustainably aware. Gross profits cover RFCs to maintain consistent quality of sustainable options, allowing the lowest possible prices - helping to increase awareness and motivation towards choosing sustainable foods.

Increases in Square data sales and profit would measure an increase of customers

and their exposure to awareness and motivation to eat sustainably and locally sourced meals to reach our objective of 25%. Increases in consumers at Sprouts also has implications on their beliefs that sustainable eating can also be affordable. Higher profits as a result of increase in sales could be funneled back into the organization to produce higher quality options that will positively influence UBC community perception that locally-sourced and healthy foods can be affordable, thus supporting the first objective of our project.

II. Key informant Interviews

Key informant interviews with Sprouts staff and customers will be designed to collect qualitative data to assess the program success. This will help to attain ideas and comments from key stakeholders - enabling them to contribute significance into the process of shaping Sprouts. Staff interact with consumers, and have firsthand experience with purchases of new menu items. Their observation of best-sellers, and overall customer satisfaction will be an asset to evaluate popularity of dishes. Interviews at one and six months after opening can assess increases in knowledge of the UBC community around the importance of supporting sustainable food systems, attitudes towards accessibility and affordability with the new location and menu, and consider suggestions for future modifications to further achieve objectives.

III. Satisfaction Surveys

Administering a baseline satisfaction survey will generate anonymous quantitative data when Sprouts reopens to determine the percentage of customers who currently choose to eat sustainably, locally sourced, and healthy food options. A follow-up after 1 year to conduct a similar survey will establish whether new location and menu have motivated consumers to choose healthy and sustainable food options. Close-ended survey questions will be easy to tabulate and analyze collected data. Comparing results from both surveys will measure percentage of change in awareness and motivation for sustainable food decisions.

Conclusion

Overall our team enjoyed the development and implementation of our community project with Sprouts. Reflecting back on this project, we gained lots of knowledge and experiences which will prove beneficial during the transition from university to work, and thereafter. We gained experience working with a sustainable food initiative, enhanced our professional skills of data collection and analyzation, and practiced costing recipes, identifying profit margins and conducting nutritional analyses. We want to thank Maira Brondizio (kitchen manager) and the extended Sprouts executive team for their contributions of time, knowledge and communication. This project has taught us many important lessons that will be relatable and useful in the future. We learned that projects do not always go as planned, which made us aware of the importance of establishing agreed upon expectations at the start of the project (i.e. deadlines/due dates). In addition, we learned that communication with community partners can be unpredictable and inconsistent, therefore we became aware that patience and adaptability are key to a successful project.

Moving forward, we recommend that Sprouts conduct a focus group to test the new menu items and collect feedback of any recommendations. Alongside the opening of Sprouts, we suggest they host a sustainability or food literacy workshop, to spread the word of the new location, new menu and knowledge. In the long-term, continued evaluation should include monitoring sales and collecting feedback, to maintain customer interest. Our team feels privileged to have had the opportunity to develop menu items for Sprouts, and are excited to see our work positively impact the health of the UBC community.

Authors' Contributions

Emma Burger: What a great way to practice and connect what was learnt in lecture to the real world. I enjoyed working with my group and helping Sprouts achieve their goals to improve food insecurity and food system sustainability. My main contributions to the project written report were the goal and objectives section, as well as the conclusion. I also contributed my time and knowledge to developing the title page and table of contents, as well as thorough editing and refinements of the overall written report. My contributions to the revamped menu included the idea for the roasted vegetable salad, along with its scaling, costing and nutritional analysis for Sprouts.

Jennie Graham: This project has been a great learning experience to build upon key concepts from our class. I contributed to the problems and behaviours section of the situational analysis, as well as the evaluation plan. I also created the super seedy power cookie recipe and ran my own test runs to reformulate the recipe based on feedback from Maira. I also did the costing and dietary analysis for this recipe.

Emily Hou: Working with a group of students who had the same passion for food, nutrition, and health has made collaborating on this project a wonderful experience. Besides participating in the development, scaling, and costing of recipes for the new menu at Sprouts, I contributed to the final report by writing the mediating factors section along with outputs with Mylo. Additionally, I assisted in reviewing and editing the final report and the newsletter.

Stephane Lahaye: I took primary responsibility in the writing and editing of the introduction, executive summary, and the newsletter for our community partner. Furthermore, I participated in the behaviours section of the situational assessment and planning framework by formatting some of the references into paragraphs.

Suzanna Su: It has been a pleasure to collaborate with an excellent team on a fulfilling and meaningful CBEL project. It was my honour to lead in communication, liaising between our group and Sprouts' kitchen manager, Maira Brondizio this semester. This included weekly emails to facilitate upcoming tasks, asking questions and for clarification, and delivering to her our outputs such as surveys, recipe drafts, and raw food costs and nutritional analyses. The sections of this report that I took primary responsibility in drafting and editing mainly included parts of the situational analysis (problems and behaviours), evaluation plan, synthesis of information from appropriate peer-reviewed literature sources, and assembling resources found in Appendix C. I also partook in the final editing of sections for this report for both grammatical errors and formatting in compliance with report instructions as indicated.

Mylo Williamson: Working on the Sprouts recipe development project with my fellow class members was a wonderful learning experience. I took initial responsibility in the delegation of tasks for the group presentation and final report writing. I contributed to our final written report by writing the Health Behaviour Model section, and assisting Emily Hou in writing Project Outputs section. I also participated in editing and refining the final written report. As with all of our team members, I contributed to the development, scaling, and costing of recipes for recommendation to Sprouts.

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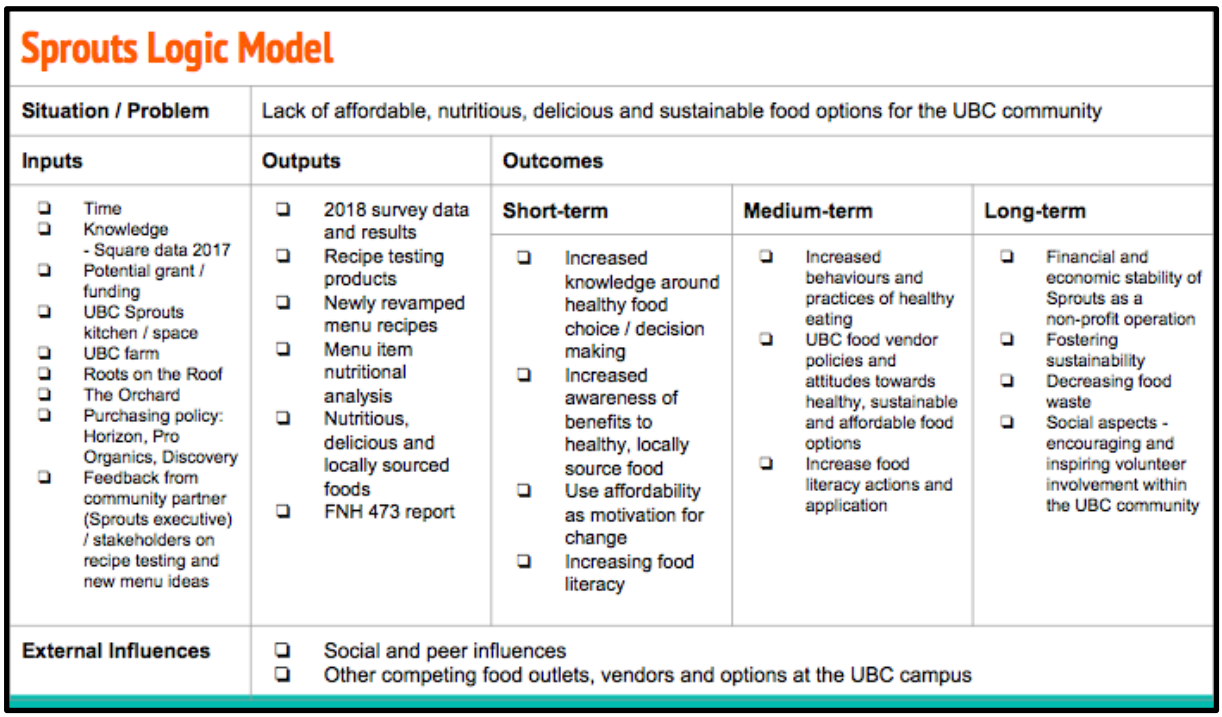
Appendices

Appendix A. Logic Model



Sprouts Logic Model

Situation / Problem	Lack of affordable, nutritious, delicious and sustainable food options for the UBC community			
Inputs	**Outputs**	**Outcomes**		
		Short-term	**Medium-term**	**Long-term**
❑ Time ❑ Knowledge - Square data 2017 ❑ Potential grant / funding ❑ UBC Sprouts kitchen / space ❑ UBC farm ❑ Roots on the Roof ❑ The Orchard ❑ Purchasing policy: Horizon, Pro Organics, Discovery ❑ Feedback from community partner (Sprouts executive) / stakeholders on recipe testing and new menu ideas	❑ 2018 survey data and results ❑ Recipe testing products ❑ Newly revamped menu recipes ❑ Menu item nutritional analysis ❑ Nutritious, delicious and locally sourced foods ❑ FNH 473 report	❑ Increased knowledge around healthy food choice / decision making ❑ Increased awareness of benefits to healthy, locally source food ❑ Use affordability as motivation for change ❑ Increasing food literacy	❑ Increased behaviours and practices of healthy eating ❑ UBC food vendor policies and attitudes towards healthy, sustainable and affordable food options ❑ Increase food literacy actions and application	❑ Financial and economic stability of Sprouts as a non-profit operation ❑ Fostering sustainability ❑ Decreasing food waste ❑ Social aspects - encouraging and inspiring volunteer involvement within the UBC community
External Influences	❑ Social and peer influences ❑ Other competing food outlets, vendors and options at the UBC campus			

Appendix B. Newsletter Report

sprouts

UBC FNH 473 | APRIL 2018

Sprouts Menu Development, Recipe Testing and Evaluation

What better way to solidify knowledge than to apply it. This is exactly what the Sprouts project was all about. This group of nutrition students from the University of British Columbia (UBC) had the opportunity to put our theoretical knowledge to the test. The goal was to design new menu items that will resonate to Sprouts' core values, while being delicious, nutritious, sustainable and appealing to the UBC community.

Being students ourselves was a clear asset to this project since we had, by default, a pretty good understanding and connection with what the UBC community. Being a part of the community, we knew what students look for when contemplating between different food options on campus, which can easily be summarized by time, convenience and affordability. Those were also the same expectations that we received from our Google survey, and what guided us when considering menu options that would honor Sprouts' core values - the accessibility of affordable, sustainable and nutritious food.

It was very exciting to work directly with our community, which kept us engaged throughout the project. Also, as students of the Land and Food Systems Faculty, who could be a better community partner than Sprouts themselves - the leading organization on campus that promotes environmentally, socially, and economically sustainable food.

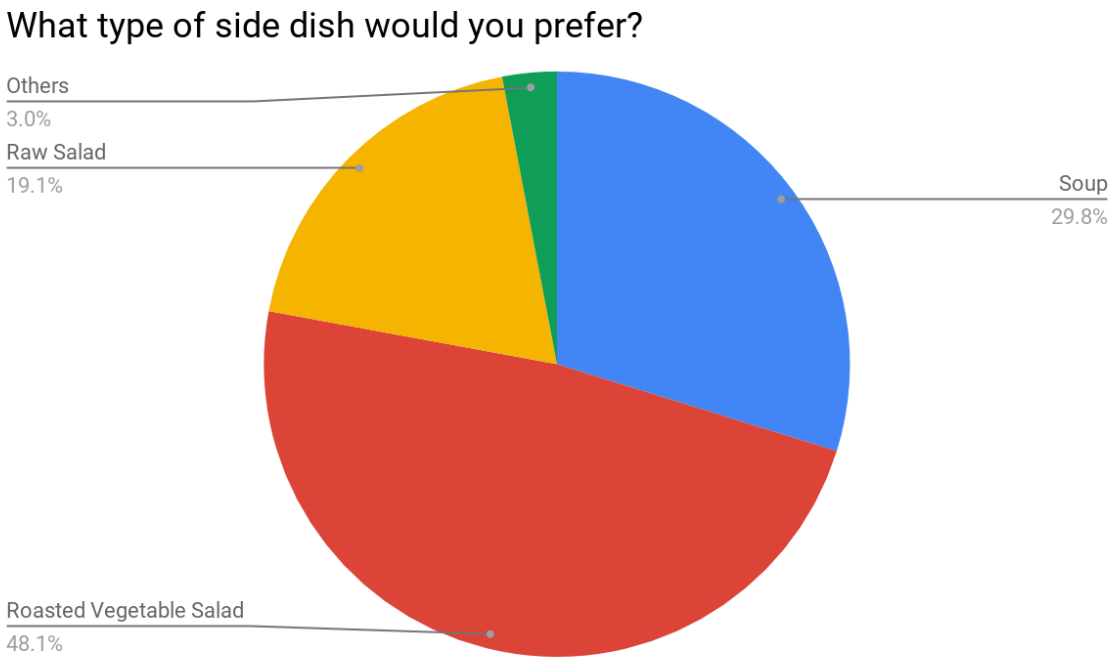
Public Health and the challenges that come with it cannot be fully understood and addressed if knowledge stays within the artificial and organized boundaries of the classroom. We felt privileged to work with Sprouts and to receive a taste of reality with such a strong leader of sustainability. This project also gave us the opportunity to realize how imperative setting goals and deadlines are within a group environment as a foundation for a successful Community Based Experiential Learning initiative.

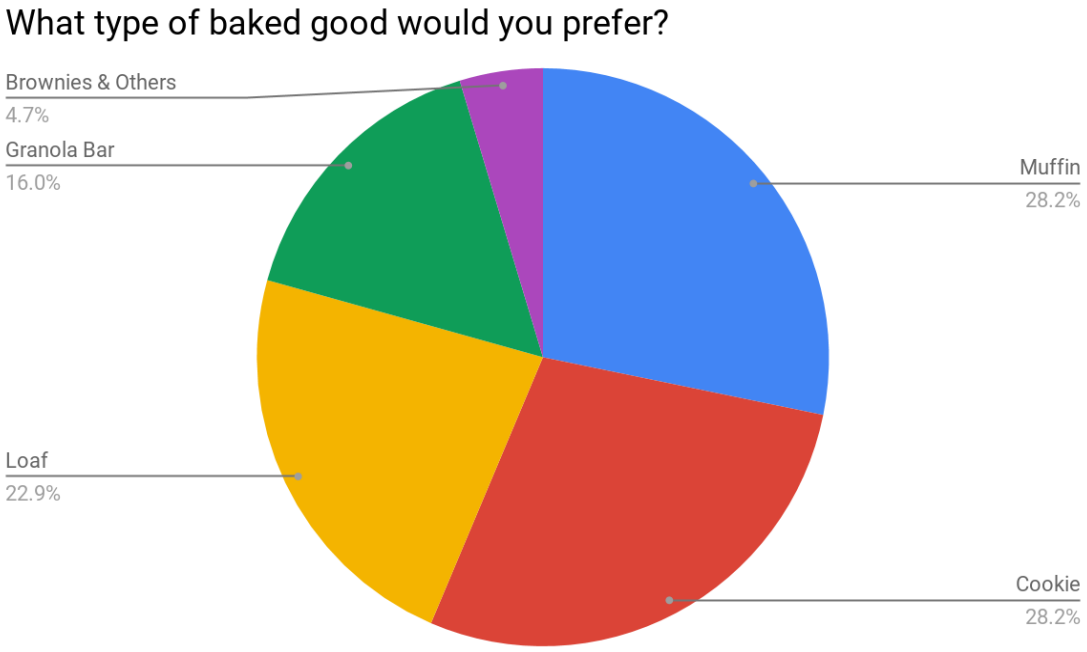
We hope that our recipes will be enjoyed by students and help play a role, through taste and flavor, in educating the UBC community that supporting sustainable agriculture matters, and that supporting Sprouts' initiatives can improve our food system at UBC.

Harvest Bowl
Photo by Marai Brondizio

Super Seedy Power Cookie
Photo by Jennie Graham

Appendix C. Sprouts Google Survey Results





Appendix D. Sprouts Menu Recipes & EaTracker Nutritional Analyses

SPROUTS MENU RECIPES

MAINS

SPROUTS FEEDBACK:

For a main dish: rice or pasta-based, though not a vegan mac and cheese. i.e. pasta primavera, some kind of pesto or a stir-fried rice (keeping in mind a way to incorporate protein).

Photo by: Maira Brondizio (Trial #1)

Harvest bowl

PREP TIME: 15 mins

COOK TIME: 40 mins

TOTAL TIME: 55 mins

Serves: 4

Sprouts feedback: Harvest bowl: chickpeas we do have and work with, but generally we buy them dry and in bulk, so recipes should account for that, especially time-wise. We probably won't have tahini or maple syrup (we do use honey though) or spinach or lime juice. I think that spinach could easily be replaced with kale, which we usually have, but I'm not sure how to deal with the tahini. Other than that I really like the idea of this recipe!

Cost / serving: **$3.44**

Cost / 4 servings: **$13.75**

Ingredients

- 200g dried chickpeas
- 1 sweet potato
- ⅔ cups of brown rice
- 5 cups of tightly packed fresh spinach (or kale)
- 1 tbsp garlic powder
- 1 tsp turmeric
- ½ tsp cayenne pepper
- ½ tsp cinnamon
- 2 cloves of garlic
- 2 tsp olive oil
- 2 tbsp sunflower butter - *homemade by processing sunflower seeds, salt and sugar*
- 2 tbsp Apple cider vinegar
- 1 tsp honey
- chili, salt, pepper

INSTRUCTIONS

1) **PREPARE CHICKPEAS**

- Look through the dried beans and pick out anything that doesn't look like a bean — sometimes a rock or something else from the bulk aisle sneaks in. *If you are using the stovetop to cook the beans, you need to soak the dried beans. There are two options: Long Soak and Quick Soak.*
- Long Soak Beans: Add dried beans to a large bowl and cover with several inches of water. As the beans rehydrate, they triple in size — adding plenty of water is key. Soak the beans 8 hours or overnight. Drain and rinse.
- Quick Soak Beans: Add the dried beans to a large pot, cover with several inches of water and bring to a boil. Boil for 5 minutes then take the pot off of the heat and let the beans sit in the water for 1 hour. Drain and rinse.

COOK CHICKPEAS - STOVETOP

- If using the stovetop, add the soaked, drained and rinsed beans to a large pot. Cover with several inches of water and bring to a boil. Reduce the heat and simmer until they reach your desired tenderness, 1 1/2 to 2 hours (see notes).

COOK CHICKPEAS - SLOW COOKER

- If using a slow cooker, add dried chickpeas and 7 cups of water to a slow cooker. Cook on high for 3 to 4 hours or on low for 6 to 8 hours. *There is no need to soak the beans when using a slow cooker.*

2) **Prepare Sunflower Butter**

Yields: **¾ cup**

Ingredients:

- 1 cup raw sunflower seeds
- 3 tablespoon olive oil
- sugar, to taste
- sea salt, to taste

1. Preheat oven to 350 degrees F. Spread the sunflower seeds evenly across a sheet tray and roast until lightly browned and fragrant, stirring occasionally, for about 20-25 minutes. Be sure to check on them often to avoid burning.
2. Allow the sunflower seeds to cool to room temperature. In a food processor, combine the roasted sunflower seeds with the sugar and salt
3. Place your sunflower seeds into a food processor and blend for about 1-2 minutes or until the seeds look fine like brown sugar, scraping down the sides as necessary.

4. With food processor running, drizzle in oil 1 tablespoon at a time (may need more or less) until mixture is to desired consistency and texture is the same as that of peanut butter.

3) Assemble Harvest Bowl

1. Start by cooking brown rice. Add rice and 2 cups of water to a pot, season with salt and cook for 30-40 minutes or until soft.
2. Preheat oven to 180°C/350°F. Line a baking tray with parchment paper.
3. Rinse, drain, then dry chickpeas. Remove skins for an extra crunchy finish. Mix chickpeas with 1 teaspoon of oil, garlic powder, turmeric, cayenne, salt and pepper. Arrange chickpeas on one side of the baking tray in a single layer.
4. Cut sweet potatoes into bite sized pieces and place them on the baking tray too. Sprinkle with cinnamon and chili. Bake chickpeas and sweet potato for 25-30 minutes.
5. Heat up 1 teaspoon of olive oil in a large pan, add crushed garlic and sauté for 2 minutes. Add spinach, salt and pepper and cook for 3-5 minutes.
6. For the dressing mix together seed butter, lime juice, honey with a little water.
7. Add rice, sweet potatoes, chickpeas and spinach (or kale) to a big bowl and top with the tahini dressing

EaTracker Nutritional Analysis: Harvest Bowl

Nutrients per serving

Calories (kcal)	344.2
Fat (g)	9.8
Saturated Fat (g)	1.2
Trans Fat (g)	0.0
Cholesterol (mg)	0.0
Sodium (mg)	104.5
Potassium (mg)	855.3
Carbohydrate (g)	52.7
Fibre (g)	8.6
Sugar (g)	9.5
Protein (g)	14.2
Vitamin A (RAE)	417.5
Vitamin C (mg)	14.6
Calcium (mg)	123.9
Iron (mg)	5.5
Vitamin D (µg)	0.0
Vitamin E (mg)	5.0
Thiamin (mg)	0.4
Riboflavin (mg)	0.2
Niacin (NE)	4.8
Folate (DFE)	377.2
Vitamin B6 (mg)	0.6
Vitamin B12 (µg)	0.0

Food Groups per serving

Vegetables and Fruit	1.7
Grain Products	0.3
Meat and Alternatives	1.2
Milk and Alternatives	0.0

SIDE / SALAD

SPROUTS FEEDBACK: **For the salad:** I think that the roasted vegetable salad sounds great!

https://www.eazypeazymealz.com/roasted-vegetable-and-quinoa-salad/

Roasted vegetable salad (optional grain add on)
Prep Time: 30 minutes
Cook Time: 50 minutes
Total Time: 1 hour 20 minutes

Sprouts feedback: Roasted Vegetable salad: With the exception of turnips, we could definitely incorporate this recipe into our menu!

Serves: 4
Cost/serving: $3.23
Cost/4 servings: $12.92

Ingredients

3 beets
3 potatoes
3 large carrots
1 onion
1 small squash
3 garlic cloves
2 Tbsp rosemary
Salt to taste (~1 tsp)
Pepper to taste (~0.5 tsp)
¼ cup olive oil

Instructions

1. Preheat oven to 400F.
2. Line two baking sheets with foil or parchment paper.
3. Mince the garlic and divide into two portions.
4. Peel the skins off the beets. Cut beets and potatoes into 1-inch cubes. Toss with salt, pepper, ½ the garlic, ½ the rosemary and enough olive oil to coat vegetables. Spread on a baking tray, and bake in oven for 45 minutes.
5. Cut carrots, onions, and squash into 1-inch cubes. Toss with salt, pepper, ½ the garlic, ½ the rosemary and enough olive oil to coat vegetables. Spread on a baking tray, and bake in oven for 30 minutes (wait until beets have cooked for 15 minutes - so that they are ready at the same time).

6. Once vegetables are cooked and nicely browned (test beets with fork to see if pierces easily), remove from oven and let cool 5 minutes before mixing two trays together.

Note. Sprouts could offer side of grain with roasted veggies for extra cost (something that is already being prepped - eg. rice)

Note. If the vegetables are cooked but not brown, you can turn oven on broil watching carefully to make sure the veggies don't burn. Remove from oven once browned.

Note. Recipe modified from https://www.eazypeazymealz.com/roasted-vegetable-and-quinoa-salad/

EaTracker Nutritional Analysis: Roasted Vegetable Salad

Nutrients per serving

Calories (kcal)	413.5
Fat (g)	14.5
Saturated Fat (g)	2.1
Trans Fat (g)	0.0
Cholesterol (mg)	0.0
Sodium (mg)	826.6
Potassium (mg)	1926.9
Carbohydrate (g)	68.7
Fibre (g)	11.9
Sugar (g)	24.7
Protein (g)	7.9
Vitamin A (RAE)	1592.3
Vitamin C (mg)	51.1
Calcium (mg)	161.4
Iron (mg)	3.9
Vitamin D (µg)	0.0
Vitamin E (mg)	3.5
Thiamin (mg)	0.4
Riboflavin (mg)	0.3
Niacin (NE)	5.9
Folate (DFE)	261.9
Vitamin B6 (mg)	0.8
Vitamin B12 (µg)	0.0

Food Groups per serving

Vegetables and Fruit	5.9
Grain Products	0.0
Meat and Alternatives	0.0
Milk and Alternatives	0.0

BAKED GOODS

SPROUTS FEEDBACK: **For the baked good:** a muffin or cookie that was seed and maybe dried fruit-heavy might be good, but again keeping the pricing in mind (we like to keep things at $1-2)

Super Seedy Power Cookie
Servings: 10

Sprouts feedback: Super Seedy Power Cookie: I like this one, but I'm wondering if you can find a substitute for apple sauce since we would have to make it fresh every time, maybe peanut butter or flax seed egg? I'm not sure about how that would impact the recipe but it's something to consider.

Cost / serving: $0.73
Cost / 10 servings: $7.31

Wet Ingredients:
2 cups chickpeas
½ cup peanut butter
2 tsp vanilla extract
1/2 cup honey
2 tbsp coconut oil

Dry Ingredients:
2 cup oats
1 tsp cinnamon
¼ tsp salt
1 tsp baking powder
2 tbsp ground flax
½ cup raisins
½ cup sunflower seeds
½ cup pumpkin seeds

Instructions:

1. Soak and cook chickpeas from dry
2. Preheat oven to 350 degrees. Spray cookie sheet with coconut oil.
3. Process all wet ingredients in food processor until smooth.
4. In a separate bowl, mix all dry ingredients together.

5. Pour the wet mixture into the dry bowl and blend thoroughly until it forms a cookie dough consistency.
6. Spoon out onto baking sheet, flatten out into disk
7. Place cookie sheet into preheated oven.
8. Bake for 12-14 minutes.

EaTracker Nutritional Analysis: Super Seedy Power Cookie

Nutrients per serving

Calories (kcal)	387.3
Fat (g)	17.3
Saturated Fat (g)	4.4
Trans Fat (g)	0.0
Cholesterol (mg)	0.0
Sodium (mg)	95.4
Potassium (mg)	432.2
Carbohydrate (g)	49.3
Fibre (g)	6.2
Sugar (g)	21.4
Protein (g)	13.7
Vitamin A (RAE)	1.1
Vitamin C (mg)	0.9
Calcium (mg)	65.1
Iron (mg)	3.4
Vitamin D (µg)	0.0
Vitamin E (mg)	4.8
Thiamin (mg)	0.3
Riboflavin (mg)	0.1
Niacin (NE)	5.5
Folate (DFE)	92.6
Vitamin B6 (mg)	0.1
Vitamin B12 (µg)	0.0

Food Groups per serving

Vegetables and Fruit	0.2
Grain Products	0.6
Meat and Alternatives	1.0
Milk and Alternatives	0.0

Appendix E. Raw Food Costs & Total Costs per Serving

SPROUTS RECIPE COSTING							
MAINS	Ingredients	Supplier	Metric Amount (	Amounts per pu	Volume <-> Wei	Price as Purcha	Actual Cost
Harvest bowl	chickpeas	WALMART	200g			0.29/100g	0.58
	sweet potato	OH SO NATURA	1	40 lb	0.287lb	69.60	1.74/lb
	brown rice	WALMART	2/3 cup	2 kg	0.123kg	4.47	2.235/kg
	spinach	NEWSTAR	5 cups (tightly pa	4 lb	0.287 lb	19.60	4.9/lb
	garlic powder	WALMART	1 tbsp	320g	8.4g	2.97	0.0093/g
	turmeric	WALMART	1 tsp	40g	2.2 g	1.17	0.029/g
	cayenne pepper	WALMART	1/2 tsp	125g	0.9g	1.97	0.0158/g
	cinnamon	WALMART	1/2 tsp	125g	0.9g	1.97	0.0158/g
	garlic	UBC farm	2 cloves	1 lb	0.013lb	12.00	12/lb
	olive oil	WALMART	2 tsp	1L	0.00989L	7.77	7.77/L
	Sunflower seeds	WALMART	2 TBSP		0.129 cups	1.36/cup	0.175
	Apple cider vineg	Walmart	2 tbsp	1L	0.0295 L	2.37	0.07
	Honey	Walmart	1 tsp		5g	0.8/100g	0.04
	chili		to taste				
	salt		to taste				
	sugar		to taste				
	pepper		to taste				
Total for Rice bowl (cost per 4 servings)							$13.75
Total for Rice bowl (cost per serving)							$3.44
SIDE / SALAD	Ingredients	Supplier	Metric Amount (	Amounts per pu	Volume <-> Wei	Price as Purcha	Actual Cost
Roasted veggie	beets	UBC Farm	3 beets (~1.75 lb	1.75 lb	1.75 lb	$4.00	$4.00
	sweet potatoes (	UBC Farm	3 potatoes (~1.0	1.0 lb	1.0 lb	$2.50	$2.50
	carrots	UBC Farm	3 large carrots (~	1.0 lb	0.5 lb	$2.50	$1.25
	onions	UBC Farm	1 onion (~0.25 lb	1.0 lb	0.25 lb	$5.00	$1.25
	squash	UBC Farm	1 small squash (~	1.0 lb	1.0 lb	$2.50	$2.50
	garlic	UBC Farm	3 cloves (~0.02 lb	1.0 lb	0.02 lb	$12.00	$0.25
	rosemary	UBC Farm	2 TBSP chopped	1 bunch	1/8 bunch	$2.50	$0.31
	salt	Stongs	to taste (~1.0 tsp	1.0 kg	0.01 kg	$2.00	$0.02
	pepper (organic)	Stongs	to taste (~0.5 tsp	42.0 g	2.84 g	$2.69	$0.18
	olive oil	Stongs	to coat (~0.25 cu	3 L	0.06 L	$33.00	$0.66
Total for Roast Veg (cost per 4 servings)							$12.92
Total for Roast Veg (cost per serving)							$3.23
BAKED GOODS	Ingredients	Supplier	Metric Amount (	Amounts per pu	Volume <-> Wei	Price as Purcha	Actual Cost
Super Seedy Pc	Chickpeas	Walmart	2 cups	100g	900g	2.57	0.29
(Makes 10)	Peanut butter	Walmart	1/2 cup	1 kg	0.133 kg	3.97	0.53
	Honey	Walmart	1/2 cup	1 kg	0.133 kg	7.97	1.06
	Vanilla Extract	Walmart	2 tsp	250 ml	10 ml	3.58	0.14
	Salt	Walmart	1/4 tsp	1 kg	00.0142 kg	1.27	0.0018
	Baking Powder	Walmart	1 tsp	340g	11.24 g	2.97	0.1
	Ground Flax	Walmart	2 tbsp	350g	18.6 g	3	0.16
	Oats	Walmart	2 cups	1 kg	0.18 kg	2.97	0.53
	Cinnamon	Walmart	1 tsp	125 g	7.54g	1.97	0.12
	Raisins	Walmart	1/2 cup	750g	113.4g	6.27	0.95
	Sunflower Seeds	Walmart	1/2 cup	500g	113.4g	3	0.68
	Coconut oil	Walmart	2 tbsp	405 mL	30 ml	6.47	0.48
	Pumpkin Seeds	Stongs	1/2 cup	250g	113.4g	5	2.27
Total for seedy power cookie (cost per 10 servings)							$7.31
Total for seedy power cookie (cost per serving)							$0.73

Appendix F. Release Form

Signed & Submitted in Canvas