UBC Social Ecological Economic Development Studies (SEEDS) Sustainability Program Student Research Report

Seedlings Café

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Executive Summary

Seedlings Café is a student-run food outlet at the University of British Columbia with a mission to prepare sustainable, vegan food sourced from on-campus producers and organic distributors (MacEwan et al. 2016). Seedlings Café has one of the lowest ecological footprints of the campus food outlets. Only a single bag of garbage is produced every semester, and the kitchen is powered by renewable energy (MacEwan et al. 2016). The goal of this project is to standardize the ordering procedures of Seedlings Café to minimize food waste from their kitchen. Our three main objectives were to: 1) collect and analyze the sales data to optimize weekly purchasing to minimize food waste; 2) create an order spreadsheet to standardize inventory and ordering; 3) design an infographic conveying Seedling's Café farm to table lifecycle. Daily sales peaked between 11:00 am and 1:00 pm. Weekly sales numbers varied during academic terms mostly due to midterm exams and reading week break. The curry bowl was the most sold menu item, followed closely by the chickpea burger. There was a positive correlation between curry bowl sales and total sales. We created an order spreadsheet in Microsoft Excel and produced an infographic poster to inform Seedlings patrons of the sustainability characteristics of the menu offerings at Seedlings Café. We recommend the following practices based on our analysis of sales data: food preparation should stop after 2:00 p.m.; food preparation should be based on projected daily sale quantities plus 10% to ensure enough food; salads should be prepared individually to reduce food waste; and orders from the supplier should be jointly

purchased with Sprouts to reduce costs and meet the minimum amounts needed for purchasing from large distributors.

Introduction

Institutional food procurement strategies are used by North American university campuses to strengthen local food systems (Hdrlicka et al. 2011). For example, the University of California at Berkeley aims to increase the amount of sustainable food purchased from campus outlets to 20% by 2020 (UC Berkeley 2016). As well, Yale University agreed to increase plant-based food options by 15% by 2016 (Yale Sustainable Food Project 2007; 2016).

Campuses can create positive food system changes by establishing strong ties between farmers and consumers and increasing transparency in production and distribution chains (Hassanein 2008; Barlett 2011). There are four main components of a sustainable campus food project: improvements in procurement, menus and kitchen operations; integration of academic and co-curricular food sustainability programs; direct-marketing of farmers' markets and community supported agriculture (CSA) shares; student opportunities for hands-on experience in campus gardens and farms (Bartlett, 2011).

Seedlings Café is a student run, non-profit organization at University of British Columbia (UBC) that aims to advance campus sustainability by promoting a vegan diet through sourcing local and organic foods. The café's main strength is using environmental ethics and social responsibility principles for operations. Seedlings does not use any disposable cutlery, mugs, plates or bowls and produces only one bag of garbage each semester, which tremendously reduces waste. They compost all food

scraps, which are then processed on campus for landscaping. Seedlings Café sources produce from the UBC Farm, Orchard Garden, and Roots on the Roof when in season. Seedlings is powered by Bullfrog Energy, a renewable energy provider that produces one kWhr of clean energy for every kWhr used by the consumer (MacEwan *et al.* 2016). Seedlings provides students with healthy and affordable meals, which helps improve student wellness. For sustainable practices to continue, it is imperative to manage the inventory efficiently.

Seedlings Café aims to meet all four of the above criteria proposed by Bartlett (2011). Seedlings Café tailors their menu according to the seasonality of local produce. Seedlings Café prioritizes purchases of campus-grown produce and offers engagement for students to take on leadership roles in a campus-based food outlet. In 2005, AGSC 450 students working on a SEEDS project reviewed the UBC campus food system's sustainability. They noted a lack of locally sourced food within the UBC campus (Adlparvar et al. 2005). AGSC 450 students compared Seedlings Café's mission statements with the values of other university campus sustainability initiatives. They concluded that Seedlings Café's sustainability practices were sound, but more work was needed to refine their economic sustainability.

Our project goal was to standardize and optimize the ordering procedures for Seedlings Café and help promote their commitment to sustainability. Our objectives were to collect and analyze sales data, optimize purchasing volume, create an order spreadsheet, and create an infographic highlighting Seedlings' farm-to-table initiative.

Methodology

Literature Review and Sales Data analysis

We conducted a primary literature search using Web of Science. Keywords of "campus", "sustainability", "food outlet" were used to generate our search. We downloaded sales data from the online platform Square (https://squareup.com/ca) which Seedlings Café uses as its point-of-sales device. Square offers a suite of tools designed to analyze sales metrics and allows the user to download sales data into .cvs files for use in *Microsoft Excel* (Excel). We used Square's online tools to find the peak business hours and exported raw data for further analysis with Excel. Two sets of data were exported: a weekly report for January to April and September to December 2016 and for January 1 to February 28, 2017. We analyzed the quantities of food sold per week and per term to find the top four sale items, the peak time for their sales and the total quantities sold. We compared the total sales and each of the top four items to find if any single item influenced the total sales more than the others. We determined the best time to stop making food by analyzing when the total sales dropped below 15% of the total in the afternoon. Finally, we calculated an average figure for ordering quantities for the rest of the 2017 Term 2 (March-April).

Order Spreadsheet

We created an order spreadsheet to use weekly raw *Square* data to estimate the amount of ingredients needed to fulfill the next week's demand for the top four items based on quantities required for current recipes. We included an overhead multiplier to increase the order by 10% to ensure enough ingredients are bought to fulfill the orders. We created a summary sheet showing weekly sales data and the ingredients to be

ordered for the next week. We wrote an instruction sheet to explain to the user how to input the *Square* data to obtain the next weeks order. We included additional instructions on how to modify the order spreadsheet in case recipes are modified (Appendix II).

Infographic

An infographic poster is a practical and efficient way to explain Seedling Café's sustainable practices and 'farm to table' lifecycle to customers. We had several interviews with the Kitchen Manager Ilana Marder-Eppstein to plan a design illustrating Seedlings Café's sustainability and values. We used *Illustrator*, *GIMP*, *PowerPoint*, *Google Draw*, *SVG* file converter *and Preview* softeare tools to create the infographic. *Procurement List*

Seedlings Café staff made a transition towards serving only vegan food and asked us to revise their procurement list. We removed Avalon Milk and added The Orchard Garden, an on-campus source of produce to update the current list (Appendix 1).

Results & Discussion

Seedlings Café sold 4,789 food items, 1,050 baked goods, and 3,098 beverages with gross sales of \$25,014.65 in 2016. The breakdown of the gross sales is as follows: \$18,246.75 in gross food sales, \$1,361.25 in gross baked goods, and \$4,468.75 in gross beverage sales (Table 1 in yellow). Since Seedlings offers discounts to volunteers and board members, net sales totalled \$16,191.90 (Table 1 in yellow). There was a large reduction in revenue from volunteer discounts. Volunteer discounts ranged between 1.3- 22.1% of the gross sales depending on menu items. In total, volunteer

discounts reduced gross profit by 11.8% or \$2,147.85 (Table 1 in green). For example, for salads alone, revenue was reduced by close to \$1000.00 dollars due to volunteer discounts (Table 1 in red). Interestingly, salads were the top seller in February – April 2016 after Spring Break (Fig. 1). The top four items by gross sales were not the same as by quantity sold (Table 1).

Table 1. Seedlings Café food, baked goods and beverages sales during January to April 2016 and September to December 2016.

Item	Qty	Gross Sales	Discounts	Net Sales	Discount
Curry Bowl	1200	\$4,800.00	-\$369.32	\$4,430.68	7.7%
Salad	1206	\$4,522.50	-\$998.44	\$3,617.06	22.1%
Stew	1047	\$4,188.00	-\$416.50	\$3,771.50	10.0%
Chickpea Burger	806	\$3,224.00	-\$331.86	\$2,892.14	10.3%
Toast	203	\$507.50	-\$9.93	\$497.57	2.0%
Granola + Yogurt	109	\$391.25	-\$4.83	\$386.42	1.2%
Pancakes	102	\$357.00	-\$10.36	\$346.64	2.9%
Side Salad	62	\$93.00	-\$2.54	\$90.46	2.7%
Granola + Soy Milk	24	\$84.00	-\$2.27	\$81.73	2.7%
Oats	13	\$45.50	\$0.00	\$45.50	0.00%
Potato Fried	17	\$34.00	-\$1.80	\$32.20	5.3%
Total Food	<mark>4789</mark>	\$18,246.75	-\$2,147.85	\$16,191.90	11.8%
Total Baked Goods	<mark>1050</mark>	\$1361.25	N/A	N/A	N/A
Total Beverages	3098	\$4468.75	N/A	N/A	N/A

The most popular food items varied from week to week (Fig. 1). Curry bowls were most popular during the September to December 2016 period and during January and February 2017. The curry outsold every other food item on the menu when available. This trend was independent of salads and stew sales. Curry bowl sales highly affected total sales (Fig 2). When curry bowls were not sold during the week of October 9th, there was a 25% drop in total sales even though the chickpea burger sales increased (Fig. 1). This may suggest customers prefer curry bowls did not order food or bought cheaper items as an alternative.

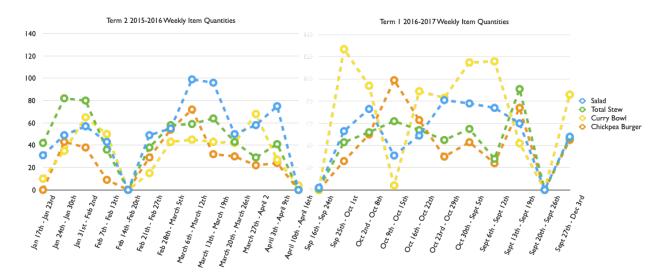


Figure 1. Weekly sales of top sellers during the months of January to April and September to December 2016. The x-axis represents Monday to Friday periods. The y-axis represents the quantity sold.

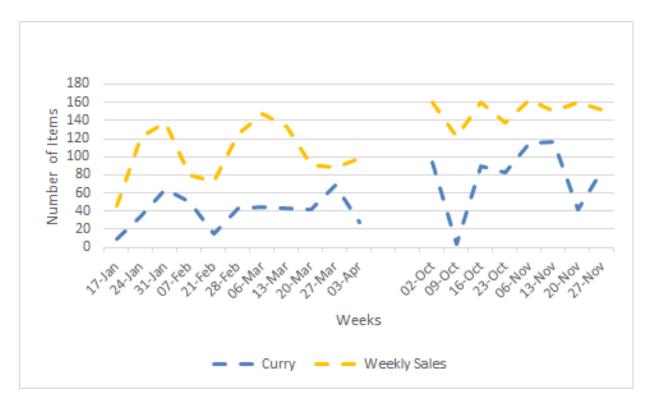


Figure 2. Total sales and curry bowl sales for Monday-Friday periods during the months of January to April and September to December 2016.

Peak business hours

Seedlings Café is open from 9 am to 4 pm from Monday to Friday during the UBC academic year. Seedlings had 55% of the total daily sales occur between 11am-1pm. After 2.30 pm, sales drop off sharply with only 10% of total sales (Fig. 3).

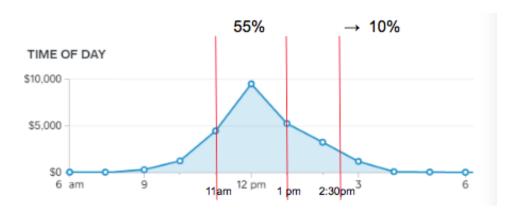


Figure 3. Total Sales from 9 am – 4pm during the months of January to April and September to December 2016.

Estimation of the March-April 2017 sales from January-February 2017 sales data

We calculated sales of 590 curry bowls, 317 salads, 135 chickpea burgers, 513 s stews for Jan-April 2017 by dividing three quantity sold from January to mid-February by the number of weeks, then multiplied by the 10 week sales period to obtain a total predicted sales for Jan-April 2017. Based on this calculation, the weekly average quantities for the main menu items should be 59 curry bowls, 32 salads, 14 chickpea burgers and 51 stews.

Order Spreadsheet

Seedlings Café is currently ordering from wholesale distributors, Horizon and Pro Organics, to supplement ingredients not provided by campus-based food producers.

Orders are submitted at the end of each week for delivery the following week.

Distributors require a minimum amount of item purchases to deliver to Seedlings Café.

If a minimum requirement is not met, the order is entered collaboratively with Sprouts.

Our order sheet can help predict the quantities required for the next week's order (Appendix III-V).

Seedlings Café's order varies weekly depending on inventory and sometimes does not meet the minimum quantity needed to fulfill an order from a larger distributor. In such cases, Seedlings Café staff combines the order with that of another student-run café called Sprouts or, orders for two weeks at a time and skips a week of ordering. Our ordering spreadsheet will make creating the weekly order efficient when Seedlings Café needs to combine with Sprouts.

Seedlings Café staff seemed enthusiastic after a first review of the order spreadsheet. We walked one of the stakeholders through our order spreadsheet and

she could use the order spreadsheet using our instruction sheet (Appendix II). We are confident that our ordering sheet is user-friendly.

Infographic

The infographic illustrates Seedlings Café's farm to table lifecycle to convey its mandate of sustainability to patrons and stakeholders (Fig. 4). The cycle starts at the top where the five suppliers are listed. Seedlings Café staff orders produce and ingredients from UBC Farm, Orchard Garden, Roots of the Roof garden, and local organic food distributors. UBC Farm and Orchard Garden supply produce, while contributing to integrating teaching, learning, and research. Roots on the Roof is a student-run rooftop garden on campus. Due to climatic limitations, Seedlings Café staff sources some ingredients and produce from other suppliers. The cycle taking place at the café starts in the kitchen which is powered by Bullfrog power which reinforces the availability of clean energy. Volunteers prepare meals in-house from scratch. The volunteers collect all kitchen scraps which are sent to composting. UBC Waste Management uses the compost for UBC landscaping. Seedlings Café does not provide customers with disposable cutlery, plates and mugs to align with zero-waste practices. The infographic was printed on a 36" by 24" fabric poster to be displayed at the cafe's entrance.



Figure 4. Seedlings Café infographic depicting food suppliers (top) and the process of food preparation, service and waste collection for composting (centre). The infographic was printed onto a 36" x 24" fabric poster for display in Seedlings Café.

Recommendations

Sales

Seedlings Café is volunteer run and offers meals at very affordable prices.

Revenue is affected by discounts given to volunteers during their shifts. These discounts amounted to 12% of gross food sales during 2016. We recommend the removal of the discount for volunteers and a switch to a different kind of benefit such as an end of day take home plan where volunteers would be welcome to take home leftovers to reduce waste.

Business Hours

One of Seedlings Café's Board member's concern is to reduce daily kitchen food waste. We recommend stopping making food around 2.30 p.m. each day since 85-90% of sales occur before 2:30 p.m.

Daily Amount of Food Prepared

We recommend preparing quantities of each dish using our estimation procedure which includes a 10% overhead to ensure orders are met. These quantities are easily calculated using our order spreadsheet. We recommend a reduction in the size of the chickpea burger recipe to make six chickpea burgers per day. We also recommend preparing a minimum of 15 curry bowls, six to seven salad servings and 15 servings of stew per day. These recommendations cut the current amount prepared daily by 50% based on our conversations with a Seedlings Café board members.

Ordering

We recommend ordering with Sprouts to meet the minimum requirement for buying in bulk especially since we suggested reducing the amount of food prepared daily. Orders would require transportation to Seedlings Café and we recommend asking AMS for a grant to secure a bike with a wagon attachment for easy transport across campus.

Infographic

We recommend displaying the printed fabric poster in the Seedlings Café ordering area. This would allow customers to read about the sustainability and forward-thinking policies Seedlings Café staff is implementing. The infographic could also be taken to UBC Club booth days to display and inform people why volunteering for Seedlings Café is important and rewarding.

In conclusion, our recommendations will help Seedlings Café to reduce daily food waste, improve its economic and social sustainability and optimize ordering procedures. Being able to partner with the outstanding student volunteers at Seedlings Café was a rewarding experience. The volunteers were knowledgeable and cooperative, answering our multiple requests throughout the duration of our project.

Literature Cited

- Adlparvar, E., Bruchet, M., Dodd, D., Irvine, J., Leung, T., Powell, J., & Vogt, K. 2005. Sustainable food systems: not in the plan: the incorporation of food systems into campus planning at UBC. [Internet] UBC Social Ecological Economic Development Studies (SEEDS) Student Reports. [cited 2017 Jan 29] Available from https://open.library.ubc.ca/cIRcle/collections/18861/items/1.0108723
- Barlett PF. 2011. Campus Sustainable Food Projects: Critique and Engagement. [Internet] American Anthropologist.113(1):101–115. [cited 2017 Feb 9] Available from https://scholarblogs.emory.edu/barlett/files/2014/01/CampusFood2011.pdf
- BC Ministry of Environment. 2012. British Columbia Greenhouse Gas Inventory Report 2012 [Internet]. BC Ministry of Environment [cited 2017 Jan 29] Available from http://www2.gov.bc.ca/assets/gov/environment/climate-change/reports-and-data/provincial-ghg-inventory-report-bcs-pir/pir-2012-full-report.pdf
- Hrdlicka, S., Tomalty, R., & Bornstein, L. 2011. A new dinner guest: The emerging role of institutions in food system reform. [Internet] Research Report Series. McGill University. [cited 2017 Jan 28] Available from https://www.mcgill.ca/urbanplanning/files/urbanplanning/hrdlickaetalfoodrr11-01efinal.pdf
- MacEwan, A., Passmore A., Zhang E., Zhu K., Bonnell M. 2016. Student Food Security: The Seedlings Café Case Study [Internet]. UBC Social Ecological Economic Development Studies (SEEDS) Student Reports. [cited 2017 Jan 29] Available from https://sustain.ubc.ca/sites/sustain.ubc.ca/files/seedslibrary/SEEDS%20Report%2 02015W%20Seedlings%20Cafe_0.pdf
- UC Berkeley. 2016. Berkeley sustainability & energy: food [Internet]. Berkeley (CA): University of Berkeley. [cite on April 1, 2017] Available from http://sustainability.berkeley.edu/food
- Yale Sustainable Food Project. 2007. Sustainable Food Purchasing Guide [Internet]. New Haven (CT): Yale University.[cited on 2017, Jan 29] Available from http://www.yale.edu/SustainableFood/Purchasing-guide-002.pdf

Appendices

Appendix I. Updated Procurement List as of April 2017.

Type of food	Source	Sources Mission	Origin
Produce	Roots on the Roof	Roots on the Roof runs a garden on the roof of the UBC Nest. They aim to grow and harvest food sustainably, conduct food literacy workshops, and provide an avenue for knowledge sharing that facilitates dynamic ways to approach food system issues (Roots on the Roof, 2016).	UBC, Vancouver, BC, Canada.
Produce	UBC Farm	The UBC Farm helps create patterns that lead the way in the development of sustainable and healthy communities integrated with their surrounding ecology (UBC Farm, 2016).	UBC, Vancouver, BC, Canada.
Produce	The Orchard Garden	The Orchard Garden, located in Totem Field, acts like an outdoor classroom which aims to provide the space for a hands-on garden curriculum (The Orchard Garden, 2017).	UBC, Vancouver, BC, Canada.
Nut Butters	Nuts To You	Nuts To You is a Canadian company that started in Paris, Ontario. They aim to bring pesticide free, organic nut butters to Canadians (Nuts to You, 2016).	Paris, Ontario, Canada.
Apple Cider Vinegar	Braggs	The mission of Braggs is to educate people of all ages throughout the world to adopt a healthy lifestyle through optimal nutrition, exercise, positive attitudes and spiritual wellness. Their products are certified organic (Braggs, 2016).	California, USA. Provided through Horizon Distributors located in Vancouver, BC, Canada.
Grains, Produce, Oils, Other (Distributor)	Pro-Organics	Pro Organics is Canada's premier distributor of high quality certified organic fresh foods. They distribute fresh produce, dairy, dried fruit, nuts, beans, grains, flour, and select grocery lines. They source certified organic products from Canadian suppliers as much as possible and work closely with local growers to expand production (Pro-Organics, 2016).	Burnaby, BC, Canada.
Grains, Produce, Oils, Other (Distributor)	Horizon	Horizon is Western Canada's leading distributor of organic, natural products. They are known for their integrity in product selection, providing high quality, organic foods to Western Canada (Horizon, 2016).	Vancouver, BC, Canada.
Bread	Food For Life	Food For Life, Canada aims to bake bread that uplifts, relieves and fills its consumer with strength and energy. They sprout all of the grains they use. The majority of ingredients are organic. All of their ingredients are kosher, non-GMO and use no artificial preservatives, or refined sugars (Food for Life, 2016).	Provided through Horizon Distributors located in Vancouver, BC.

Appendix II. Ordering Sheet Instructions

Instructions To User

Input: Square Raw Data Item Sales exported as a .csv file

Output: Weekly quantities of all items sold and the order total itemized that can be used to inform the next week purchases.

This excel spreadsheet can be used to estimate the weekly order required for the lunch time menu of Seedlings Caféé (Chickpea Burger, Curry Bowl, Thea Salad, Seasonal Stew).

Download Square Data

- 1. Log onto the Square website and choose Sprouts for the business to manage.
- 2. Select Sales on the left-side Task Bar
- 3. Under Reports, find the box that says Seedlings and Sprouts, click on the box and only select Seedlings
- 4. Select the box labeled Summary in the same task bar and switch to Daily view.
- 5. Go to the Sales Taskbar Column and select Item Sales
- 6. On the top Task Bar you can now refine your data to the desired period of time for viewing sales.
- 7. Once you have selected the time-period wanted to be looked at for orders, click on the box labeled Export on the right hand side of the upper top Task Bar.
- 8. Select "Detail CVS" and download the file if it does not automatically download.
- 9. Logout of Square Data when done.

Import Square Data into the Order Summary Sheet

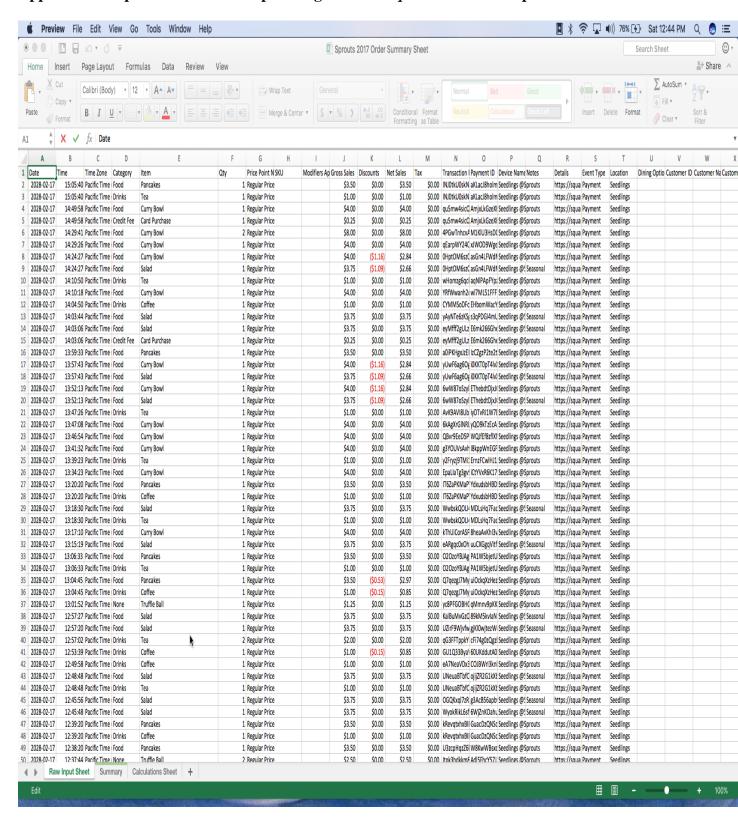
- 1. Open the downloaded .cvs file. It should be labeled "items-year-month-date-year-month-date.cvs"
- 2. Open the Order Summary Sheet and select the Raw Input Sheet
- 3. Copy the entire file from the downloaded .cvs file and paste the file starting in the first cell A1.
- 4. Select the Summary Sheet to view the number of items sold over the time-period and the amount of ingredients suggested to be ordered.

Modify the Order Summary Sheet

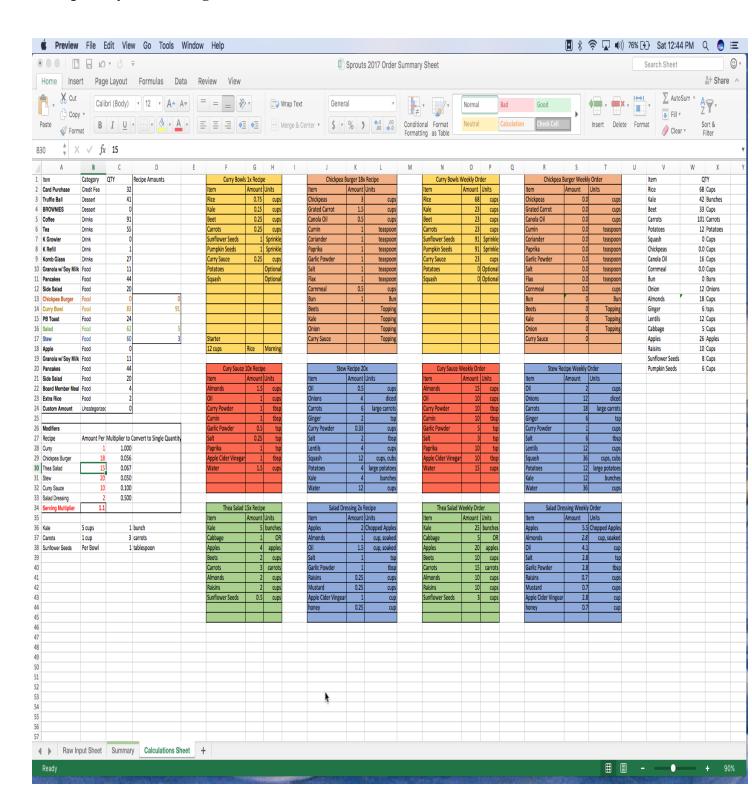
The current spreadsheet is set to calculate the order amount from the standardized recipes from Seedlings multiplied by 10% to account for overhead to ensure food does not run out over the week.

To modify the overhead amount simply go to the Calculations sheet and find the "Serving Multiplier" box (C34). To adjust the overhead amount, modify the value according to how much is wanted e.g. 1.0 = 0% overhead, 1.1 = 10% overhead, 1.2 = 20% overhead etc.

Appendix III. Spreadsheet "Raw Input" Page. Where Square data file is uploaded.



Appendix IV. Spreadsheet "Calculation Sheet" page. Total food quantities of items are calculated, using amounts in standard recipes and adding a 10% overhead to calculate total quantity for each ingredient.



Appendix V. Spreadsheet Summary Page.

