

Trinity College Food Systems Network Internship Report

Summer 2019

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Introduction

This summer I was an intern for the Trinity College Food Systems Network which was an opportunity extending from the inaugural year of the Trinity One Butterfield Environment and Sustainability Stream. The focus of the internship was building technical skills and sharing knowledge across various urban food production initiatives spanning Trinity College and Edible Campus at the University of Toronto Scarborough (UTSC). This was combined with an independent study which consisted of a literature review conducted on a chosen topic relating to sustainable food systems. This report will detail the projects I took part in both in groups and independently and how they have collectively influenced my interests and future work.

Edible Campus

Sowing the Seeds

The introduction to our summer internship began with Edible Campus at UTSC. The program coordinator Beatrice Lego was our supervisor, and provided us with a breadth of technical skills relating to sowing seeds, greenhouse care, transplanting, and maintenance and harvest in the field. Although we were only on site once a week, this portion of the internship provided a holistic perspective into what goes into a full growing season in an urban setting in Southern Ontario. Starting out in a greenhouse at the Science Wing, we planted all of our seedlings in biodegradable pots and kept them in water trays to keep them hydrated at the roots. Due to the seasonal delay, we trained some of the plants so they wouldn't be shocked by the cold when transplanted. For example, we would take the kale seedlings to the rooftop outside of the greenhouse while watering, so that they could adjust to the wind and temperature. Seedlings grown in the greenhouse included varieties of tomatoes, peppers, squash, melons, kale and herbs.

UTSC Farm

The UTSC farm is a fairly new feature at the Scarborough campus. It is a 10 acre plot of land located behind the athletics fields that are across from the Toronto Pan Am Sports Centre. There are currently 6 productive raised beds, potato towers, and an experimental rice patch. The land was previously occupied by a landfill so there is some skepticism amongst outside faculty and admin about contamination in the food being grown. Despite having soil tests and inclosed infrastructure around all existing food plots, this skepticism ended up being a barrier to implementing a market plot that would have more direct contact with the soil. We initially planned, marked out and prepped mounded beds on a 5x10 m plot but due to the regulations we did not end up following through. We improvised by using milk crates lined with landscape fabric to plant some eggplant and tomatoes, however this did not match our desired scale of production.



Left. *Raised beds and potato towers at UTSC Farm* Right. *Milk Crates at market plot*

UTSC Rooftop

Adapting to this limitation, we focused primarily on the rooftop, which was initially designated as an educational space with a diverse selection of crops and fewer seedlings for each variety. Although the rooftop is not designed for market scale production, we ended up harvesting enough to display at the markets each week (see Table 1.), and made up for low yield by providing free samples. While this is not what we had planned, it sparked engaging conversations with customers who were consistently intrigued

by foods such as cucamelons and ground cherries which were often unfamiliar. Because the rooftop is intended for engagement and education, these exchanges fulfilled its goals. Table 1. is representative of what the FSN interns harvested on Wednesdays and does not include what was harvested throughout the rest of the week by other volunteers.

Table 1. Sum of Weekly Harvest from Edible Campus Rooftop Garden

Item	Total Quantity Harvested (g/kg)
Kale	3.18 kg
Garlic scapes	2.01 kg
Snow Peas	2.35 kg
Rhubarb	856 g
Swiss Chard	1.32 kg
Salad greens	1.51 kg
Spinach	387 g
White Radish	170 g
Red Radish	360 g
Service berries	3.64 kg
Strawberries	582 g
Chives	104 g
Parsley	119 g
Dill	366 g
Basil (multiple varieties)	188 g
Mint	117 g
Carrots (red and white)	2.116 kg
Cucamelon	46 g
Ground cherries	173 g
Tomatoes (multiple varieties)	2 kg



Left. *Jumbo melon at UTSC rooftop* Right. *Example of weeks harvest for farmers market*

Farmers Market

We started the farmers market on June 26, and sold seedlings for the first few weeks. Following confirmation that we would not have a designated market plot at the farm, Beatrice instructed us to harvest from the rooftop. Some additional produce was harvested from the existing raised beds at the farm by the Edible Campus Work Study Students on Tuesdays which we then sold at the market the following day. The customer demographic was predominantly families and Scarborough residents who lived off campus or were not affiliated with the university. The lack of student presence was surprising considering that it was student run and located on campus. The accessibility of the food, both in terms of affordability and utility may be useful to consider for next year. We plan to provide surveys following the market to find out how we can better serve those who were present and not. Throughout the summer, many customers requested crops that were not available to them, or were surprised about crops that we did have, that were culturally familiar. These unprompted conversations were especially fulfilling for me personally as it reflected the need targeted in my independent study, on the lack of available food that is both culturally accessible and locally grown. Many people also referred to the diversity in preparation that goes along with different crops as well as the related health benefits. I wasn't expecting the the applied work at

UTSC to have such a tangible connection to my research and these conversations bridged the gap between literature and lived experiences that I had not yet experienced first hand in Toronto.



Left. *Edible Campus Farmers Market stand* Right. *Charles Deng and Rachel Ready at UTSC Farmers Market*

Trinity College Food Systems

Raised Beds

One of the main applied projects at Trinity was the implementation of a garden behind the St. Hilda's residence building. The plans for this garden went through many different stages, and adjustments were made according to the physical space as well as changing project goals. Initially we were focused on the accessibility of the space, specifically the implementation of wheelchair accessible beds. However, we adapted our design to focus on understanding how the plants would engage with the environment, taking into consideration spatial factors such as sun exposure and water absorption. Final design plans included two 4x8 ft raised beds, which we adapted from this sites guide

(<https://www.instructables.com/id/Cedar-Raised-Planter-Beds-Built-for-Square-Foot-G/>). Due to changes in the design of the raised portion of the bed, the trellis design we had was not compatible so ideas for how to frame it are still in progress. We ordered the lumber and cut them to size with the support of Tim Connelly (TC Facilities Manager) and some of his staff. We then constructed the beds in the St. Hilda's yard and filled them with triple mix soil from Homeland Garden Centre. The quality of the soil was great, however added nutrients are recommended for next year, as an imbalanced proportion of nitrogen was

observed in the plants. This was apparent in the abundant growth and deep green colour in the leaves, as well as the lower yield of fruit which can be balanced with added phosphorus. We also lined the beds with landscape fabric to regulate contact with soil below, as tests for contamination have not been conducted.



Left. *Raquel Serrano and Nathan Postma building the raised beds* Right. *First completed bed*

Professor Spiegelhaar encouraged us to plan our crops both to reflect what we were growing at UTSC, and also to consider the nutritional properties of plants, however due to time restraints we did not fulfill the latter. The selection of plants as well as the timing of transplanting were also not aligned exactly with UTSC because our raised beds were built after we had started planting with Edible Campus. Planning the crop selection and planting schedule prior to the growing season for future years would make the season more productive, and Beatrice Lego is a great resource for this information. That being said, having the freedom to experiment with the plants this summer was a valuable experience and allowed us to observe what worked and didn't work in the specific context of the beds, which differed from growing patterns at UTSC or even the rooftop at Munk. Marigolds, nasturtium and all the kale and greens were very successful in their growth. Specifically the mesclun mix, kale, and pak choy grew abundantly but bolted quickly. This was likely due to the timing of transplanting, but pruning techniques will also be considered for next year. The spinach plants also bolted shortly after planting, and we did not get a harvest from

them. In addition to the greens we planted cucumber, jumbo melon and watermelons. The cucumber and watermelon were inactive for all of July, however both melon plants are now productive. More research into spacing and shading plants will be done prior to next year's selection.



Crop plan for St. Hilda's Raised Beds Summer 2019



Left. Raised Bed July 3 Right. Raised beds on Aug 22

Trinity Rooftop Garden

Another aspect of our work at Trinity was contributing to the maintenance and data collection taking place at the rooftop garden at Munk, managed by Nathan Postma. At the beginning of the season we

participated in a work party where we filled 80 biotops with vermiculite and soil. This was also an expansion from last year as there were only 20 containers. The data collected over the summer was taken from two samples of four containers; one with tomatoes and one with peppers. We recorded the height of the plants, and number of leaves and flowers weekly. This data was taken for Hila Lali's research compares the rooftop at Munk North to the rooftop and surrounding spaces at Munk South, to quantify how the greenspace mitigates climate related effects on urban infrastructure. It was interesting to compare the growing patterns at the rooftop with the raised beds at St. Hildas, and Nathan and I have discussed how crop selection can be considered in the future to take advantage of each space. For example the raised beds are able to support vining plants such as melons, cucumber and squash, as well as root vegetables that are limited by physical barriers in the biotops. Alternatively peppers, tomatoes and eggplants thrived with the space and sun exposure provided at the rooftop.



Left. Rooftop Garden at Munk North Right. Raquel Serrano at work party

Waste Management and Mitigation

Another project I took on this summer, in partner with Raquel Serrano, was waste management and mitigation. Specifically we were looking at the food waste end of Trinity's food system and the lack of infrastructure for composting in residential buildings. We had three meetings with Tim Connolly to

discuss the addition of green bins at existing organization bins and in common spaces. We also discussed an audit project that would compare the food waste produced by student consumption to food waste created in the process of food preparation, which could direct suggestions for adapted behaviour in the future. This is a project we wish to develop further during the academic year in partner with an established student group such as the Student Food Advisory Committee or the Trinity College Environmental Society.

Independent Study

My independent study this summer expanded upon the general themes from the research proposal I did in TRN141 last fall. I continued to explore urban agriculture as a means to food security for marginalized communities, but narrowed my research topic to focus specifically on the experience of food insecurity reported by immigrant communities in Toronto. The review emphasized the cultural and nutritional deficiencies that are prevalent when adapting to a western food system. With an interest in alleviating food insecurity, I also reviewed the literature on intersections of culture and nutrition that can be applied to crop planning in western urban agriculture initiatives. I plan to continue this research through the TRN299 ROP, combining the literature with community needs voiced at UTSC, to guide and narrow my topic further.

Reflection and Recommendations

In addition to the reflections made above in regards to plant maintenance and planning, there are also some recommendations for the project as a whole that I hope can support the FSN in the future. Most notably I recommend that specific sustainability goals are clarified in developing future internships, so that students can contextualize their work to a broader action plan. This will help students to confine the scale of their projects to the work period, while fulfilling a need that is reflected in an ongoing, long-term project. In relation to food systems specifically, it would be beneficial to clarify the goals of the different growing spaces. For example, the rooftop garden sourcing all greens used in Strachan Hall dining services, or having them solely act as teaching gardens that can be integrated into research projects and

course curriculum for TrinOne. Students may be involved in identifying these goals, and such goals may be updated in future, but going through the process of identifying how and why the spaces are used will ensure sustainability of these initiatives as well as the efforts put into them. The necessity of this is evident in an environment where student participation is limited to the span of their degree. I recommend that these goals be created and updated by a committee of students, faculty, admin, and facilities staff to create cohesion in the execution of our projects and responsibilities.

This also includes establishing internal communication amongst staff throughout the Trinity College Network. For example when exploring waste management and mitigation it was evident that stakeholders of varying positions of power were enthusiastic about supporting sustainability initiatives, however this collective mindset has not been institutionalized and therefore caused barriers in implementing our project. This gap was particularly evident in the facilities department, as lacking time and financial resources were a recurring barrier to adding organic waste collection to staff responsibilities.

Although developing a cohesive network and project goals are necessary to continue expanding a sustainable food system at Trinity, I also acknowledge and express gratitude for the work that has been done thus far. It's very exciting as an incoming second year, to have the opportunity to explore and contribute ideas to this community, and the work put into these internships and research opportunities is greatly appreciated.