

“Pick Me” Christchurch

Adrianna Gateley

Emily Mace

Kaitlyn Stringer

Sneha Johari

University of Canterbury

in conjunction with Healthy Families Christchurch and the Christchurch City Council

May 2017

Christchurch is home to approximately 1,760 public fruit and nut trees, many of which are currently under utilised. This presents an untapped and exciting opportunity to increase the food resilience of Christchurch. Foraging in general is a fun activity that can be enjoyed by all ages, facilitate learning through experience, and provide an opportunity to reconnect people with their environment and their communities. Thus, the purpose of the following research is to determine the major enablers and barriers to the use and stewardship of public fruit and nut trees in Christchurch. This research is a compilation of survey responses from people residing near parks containing public fruit and nut trees, as well as a control group of randomly selected residents around the city, and ten semi-structured interviews with key figures in Christchurch's food resilience network. Alongside an international literature review on best practices concerning urban agriculture design, the results from this study will be used to put forth several recommendations to the Christchurch City Council on how to foster a stronger culture of foraging and fruit tree stewardship in Christchurch.

Table of Contents

Acknowledgments.....	4
Introduction.....	5
Experimental Part 1 - Semi-structured Interviews.....	6
Experimental Part 2 - Neighbourhood Surveys.....	9
Literature Review.....	16
Limitations.....	17
Recommendations.....	18
Conclusion.....	21
Reference and Appendices.....	22

Acknowledgments

The “*Pick Me*” *Christchurch* research group would like to take this opportunity to thank the following people for all the assistance they have provided over the course of this project:

Our community partners Nina Perez from Healthy Families Christchurch and Tony Moore from the Christchurch City Council for giving us the opportunity to gain some field work experience. Tony, Nina, Peter Wells and our professors Simon Kingham, Eric Pawson and Rita Dionisio for their ongoing guidance throughout the development of our research question and methodology. The key figures who were happy to spare us some of their time for the semi-structured interviews. To all of our surveyees who took 5 mins out of their day to allow us to collect this data. Finally, thanks to all the participants of GEOG402 for all their questions and for making us think outside the box.

Introduction

Christchurch has a vision of being the best edible garden city in the world and has adopted a comprehensive food resilience policy to help guide and support this idea. The objective of the policy is to have a city where all people have access to healthy, affordable, and locally grown food to support healthy and active lifestyles (Christchurch City Council, 2014a). A large body of literature supports this theory, and demonstrates the vast number of positive impacts that community gardens can have. For example, a community-based participatory research study conducted by Carney et al. (2012), found that families who enrolled in an education program on planting and maintaining organic gardens, reported higher frequencies of vegetable intake, stronger family relationships and an increased sense of food security following the program. This is echoed in a number of studies which reported broad community health benefits in addition to increased food security (Corrigan, 2011; Gatto et al., 2015; Ober Allen, 2008; Blake et al., 2009). Known in New Zealand as “The Garden City”, Christchurch has a strong natural and cultural garden heritage, represented by 29 registered community gardens and an estimated 1,763 public fruit and nut trees (CCGA, 2017; Gates, 2015). Christchurch therefore has a strong foundation for increasing the food resilience of its city. The problem that persists however, is that many of the public fruit and nut trees are under-utilised and neglected. The purpose of this study is to uncover what **the enablers and barriers to the use and stewardship of public fruit and nut trees in Christchurch** are, with the intention of putting forward a set of recommendations to the Christchurch City Council to foster a stronger culture of foraging and fruit tree stewardship. The research will be split into three parts; a survey of residents living near parks, including the use of a control group to standardise results, semi-structured interviews with key figures in Christchurch's Food Resilience Network, and finally, an international literature review to help inform recommendations. It is hypothesised that the greatest barrier to the use and stewardship of public fruit and nut trees in Christchurch is not just that people are unaware of the existence of these trees, but also that they are not able to pick and care for them themselves.

Experimental Part 1: Semi-structured Interviews

To gain further insight into the possible barriers and enablers to the use and stewardship of public fruit and nut trees in Christchurch, the group undertook ten semi-structured interviews with key figures in Christchurch's food resilience network. The people contacted included community development advisors, community board members, arborists and park rangers, as well as experienced foragers, educators, and leaders of charitable organisations. To begin with, these people were contacted, introduced to the purpose of the research, and invited to a semi-structured interview. If no response was given, a follow up contact was made. Depending on the interviewees availability, at least one student researcher met with this person at his or her location of choice. On one occasion, the interviewee was unable to meet in person, so a phone call was arranged. The semi-structured interviews were relatively informal to create an easy conversational environment. However, several standard questions were asked to prompt discussion about specific topics (see appendix 1). Six of the ten interviews were recorded after being granted permission by the interviewees. To ensure confidentiality, the interviewees were informed that if the information gathered from the interview was to be published, then contact would be made to inform the interviewee. Interviewees were also informed of their ability to withdraw from the interview at any time. Unfortunately, given the time constraints of this research project, not all key figures originally identified could be interviewed.

The following people participated in these semi-structured interviews:

1. Gray Crawford - Manager, Social Services - Christchurch City Mission
2. Nicky - Director - 0800Hungry
3. Andrea Taylor - EnviroSchools Regional Coordinator - Environment Canterbury
4. Joanna Wildish - Social Media Coordinator - Otautahi Urban Foraging Facebook Group
5. Ian Dunbar - Shirley Community Development Worker; accompanied by Dave Kennedy - Retired local Teacher and friend of Mr. Dunbar
6. Tony Moore - Principal Sustainability Advisor - Christchurch City Council
7. Nina Perez - Settings Coordinator - Healthy Families Christchurch
8. Dieter Steinegg - Arborist Citywide - Technical Support Team

9. Peter Wells - Project Leader for Otakaro Orchard - Christchurch Food Resilience Network
10. Katie Smith - Senior Advisor of Urban Regeneration - Christchurch City Council

Across all interviews, three key messages emerged for the use and stewardship of public fruit and nut trees in Christchurch. These were: Christchurch needs *education* on the growing and maintenance of fruit and nut trees, Christchurch needs *assistance* in the growing and maintenance of public fruit and nut trees, and *social networks* connect people with shared information and services that support food resilience.

Education

A commonly raised barrier to the use and stewardship of public fruit and nut trees was a lack of knowledge about what, where, when, and how to grow food. Speculation about people's connection with food, and the skills necessary to grow, cook, and preserve food have been lost over the past two generations. This may be why people lack the ability to identify fruit trees, when the fruit becomes ripe for picking, and are likely to be daunted by the challenge of growing fruits and vegetables on their own. This issue was thought to be exacerbated by socio-economic factors, as there is a significant cost involved in establishing a garden at home. The issue of cost was raised by Andrea Taylor, the Canterbury Representative for Enviro Schools. She is concerned that the most food insecure schools that are most in need of this education do not have the funding to participate in the Enviro Schools program, which is an education program aimed at fostering a more environmentally adept and sustainably driven generation. Ian Dunbar recalled a number of rental properties in Shirley that were recently bulldozed and replaced with cheaper, higher density housing without gardens. Both Andrea and Ian worry that without gardens in their homes, children are less likely to develop the environmental skills that they learn in school. Also, when school gardens do exist, no one is available during the Summer months to steward them. This leads on to the second key message, which is that assistance is needed in the growing and maintenance of public fruit and nut trees.

Assistance

In terms of knowing what to grow, people are not always drawn to the most robust fruit trees. For example, heritage trees that are more disease resistant and likely to survive the colder months, produce more bitter fruit than the genetically modified fruit we are accustomed to eating from supermarkets. Also, less robust fruit from (for example) a blackboy peach tree that has fallen to the ground is rendered inedible and contributes to waste. Therefore, in addition to taste being a barrier, some fruit trees need closer attention and care than others, which takes time and effort that people are not always prepared to

give. What our survey will later reveal is that a lot of people cannot appreciate the benefits of growing their own food and would rather purchase food from the supermarket.

Among the key public figures that were spoken to, there was a consensus for the establishment of an organisation to steward Christchurch's public fruit and nut trees. This would solve the problem of trees being neglected, and the health and safety requirements that prevent people from maintaining them themselves. A story was shared of a community working bee, whereby everyone met to tidy up the local community garden; however, Christchurch City Council sent an email warning people not to bring their lawn mowers due to health and safety regulations. In flourishing case studies, such as Chesterfields, there is a small but committed group behind its success. However, many people may show interest to begin with, but become busy or lose interest later. Most of the key figures that were spoken to agreed that for public fruit and nut trees to survive and flourish in Christchurch, one or more people should be employed by the council to monitor and maintain these. This is taking place at a community garden in New Brighton, whereby a gardener is paid to look after the community's crops. Furthermore, while there may be enough produce from public fruit and nut trees in Christchurch to supplement people's diets, they cannot be relied on due to the seasonal and weather effect on fruit availability. Instead, a foraging expert believes that more centralised urban food hubs are needed to make a difference to the food resilience of Christchurch.

Social Networks

Finally, several of the key figures that were spoken to identified social networks as an enabler in the use and stewardship of public fruit and nut trees. The Press map detailing the location of fruit trees in the Red Zone was believed to be successful in generating public awareness. However, this map may not be accurate as many trees have since been pruned back to allow for easy maintenance of the grass. Facebook groups such as Otautahi Foraging have proven more effective, as they facilitate information sharing and timely accounts of the locations and conditions trees. Not only this, people can advertise any excess produce they have at home, which results in less wastage and more food resilience. Social networks such as these connect people with a shared interest in foraging and enable the sharing of information and services that enhance the food resilience of their community.

Experimental Part 2: Neighbourhood Surveys

Method

The parks investigated were Dickens Reserve in Addington, Chesterfields in Christchurch Central, Churchill Park in Shirley, and St Albans Park in St Albans. For each area surveyed, the investigation began with a site visit to the corresponding park before visiting houses in the surrounding area. Surveying of Dickens Reserve was conducted between 1500 and 1800 hours on Friday 28th April 2017. Unfortunately, due to a combined effect of cold weather, other commitments, and a low success rate, the Chesterfields surrounding area was surveyed over three different days. Surveying of Chesterfields was conducted on Monday 1st of May 2017 between 1630 and 1730 hours as well as on Thursday 4th May 2017, between 1600 and 1730 hours, and Friday 5th May 2017, between 1600 and 1630 hours. Churchill Park's surveying was conducted between 1400 and 1530 hours on Wednesday 3rd May 2017. The majority of surveys for the area surrounding St Alban's Park were obtained on Thursday 4th May between 1630 and 1800 hours, the rest were collected on Friday 5th of May between 1700 and 1730 hours.

The path walked for each area is marked in red in figures 1, 2, 3 and 4. All doors within the path walked were knocked on unless it fell into one of the following exceptions: homes in which the door could not be seen from the footpath, doors that featured a "do not knock" sticker as seen in Figure 5, properties with gates, and properties with dogs. The exception of properties with gates was later overcome, as most properties had gates. On the occasion that someone was happy to participate, the resident was provided with a survey information sheet (see appendix 2), and informed that they could withdraw their participation at any time. The interview would then commence and the interviewer would fill in each answer relative to the response. A copy of this survey can be observed in Appendix 3.

It was decided that the best time to survey people was on weekdays after 1600 hours, as this is typically the time when people are home and when the working day has ended. It was also decided that no surveying would be conducted after 1800 hours, as approaching people after 1800 hours is an invasion of privacy (this is typically dinner and family time). Surveying of Dickens Reserve deviated from this time and started at 1500 hours for two reasons: it was the first area to be investigated and thus it was unknown how long surveys would take, and secondly, the surveying was conducted during school holidays, so it

was presumed that residents would be home looking after children. However, there was a very low response rate until after 1600 hours due to the lack of families in the area. Finally, due to time pressures resulting from group member schedule conflicts, it was decided that Churchill Park would be surveyed outside of the aforementioned time period.

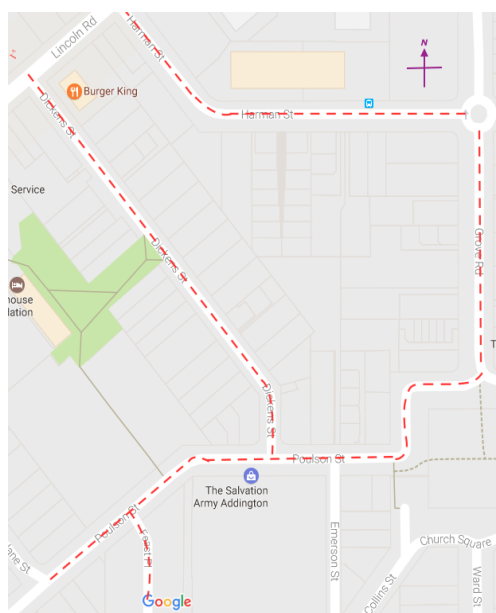


Figure 1: Path walked when surveying the area surrounding Dickens Reserve

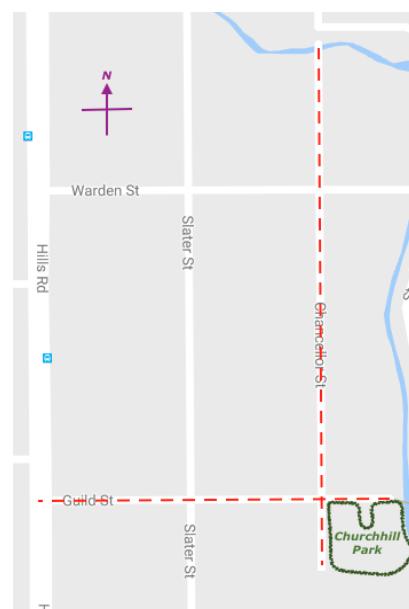


Figure 2: Path walked when surveying the area surrounding Churchill Park

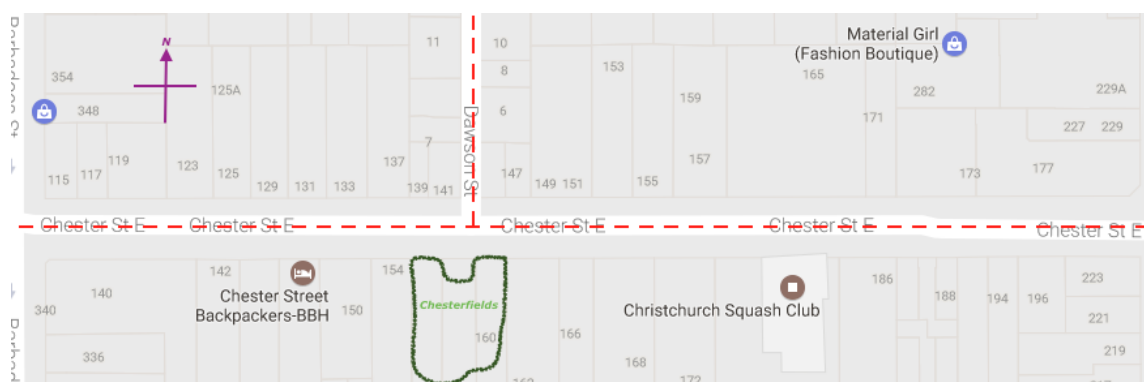


Figure 3: Path walked when surveying the area surrounding Chesterfield Park

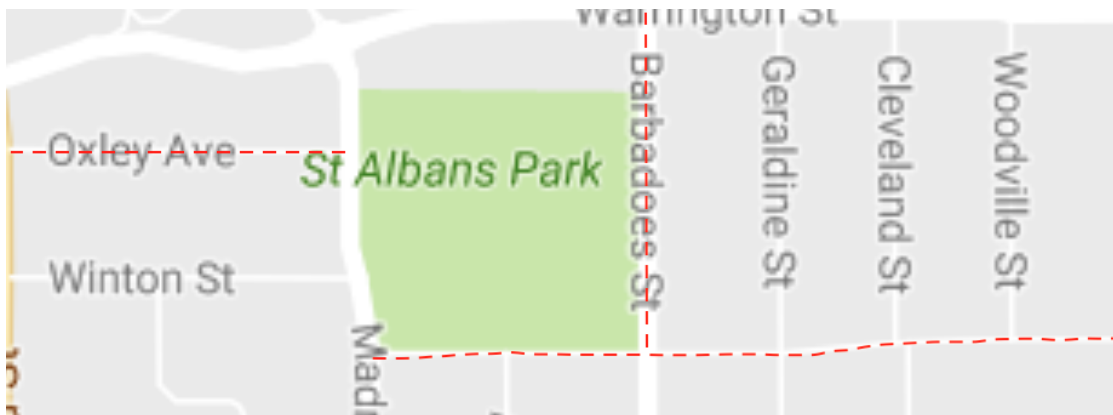


Figure 4: Path walked when surveying the area surrounding St. Albans Park



Figure 5: Photo showing the “do not knock” sticker. Houses with this sticker were not approached.

Summary of Findings

The 51 respondents of this study closely resemble the demographics of Christchurch as a whole, with slightly more Māori and Females surveyed in total. The sample disproportionately represents the 19-65 age group, as the respondents of this age bracket totaled 80% compared with the Census 67% (Stats New Zealand, 2013).

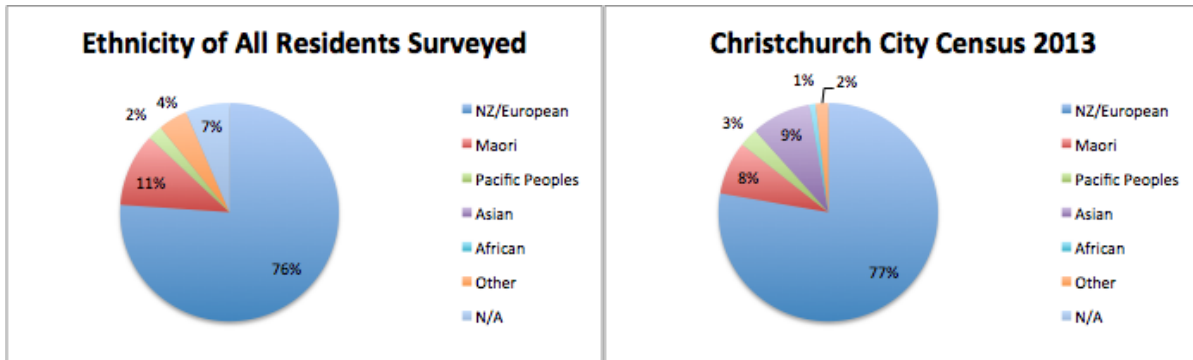


Figure 5: Ethnicity of Respondents Compared to Christchurch (2013 Census)

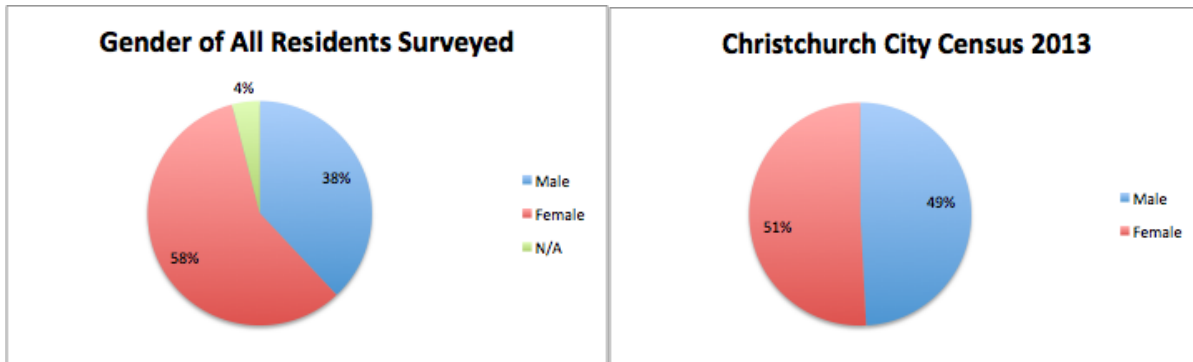


Figure 6: Gender of Respondents Compared to Christchurch (2013 Census)

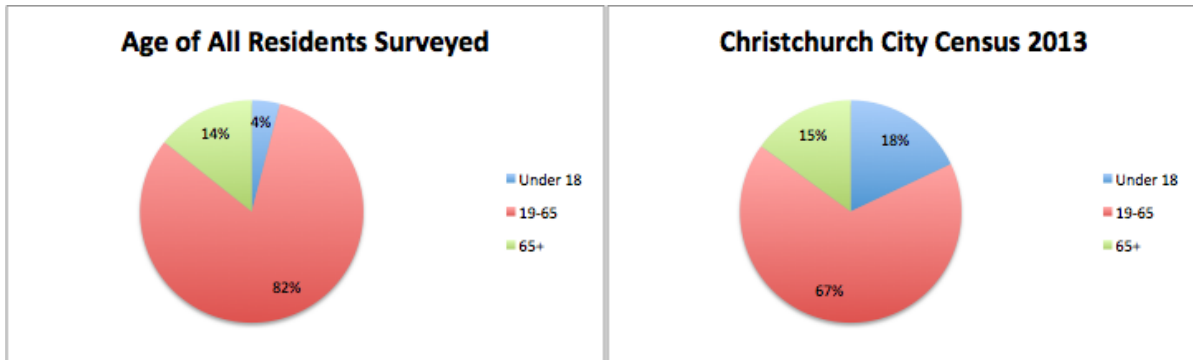


Figure 7: Age of Respondents Compared to Christchurch (2013 Census)

A trend appeared between respondents who were located near parks containing public fruit and nut trees and the control group. Residents near parks not only ate more fruit and nuts compared to the control group, but they were also 11% more likely to have planted edible trees in their own backyard.

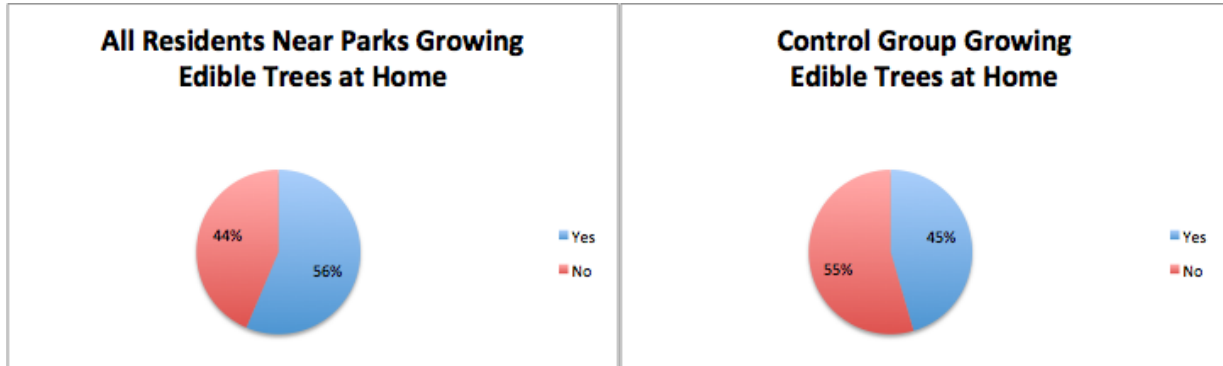


Figure 8: Response to question 1 “Do you grow fruit or nut trees at home?”

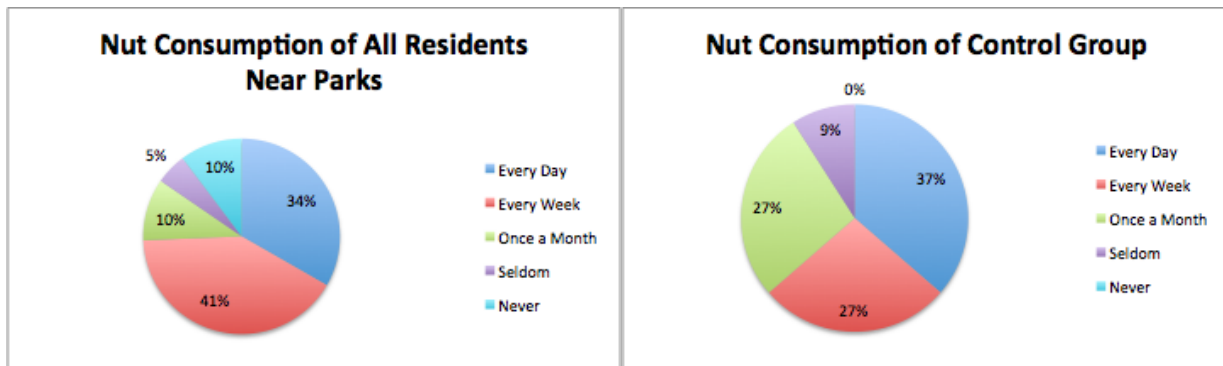


Figure 9: Response to question 1 “How often do you eat nuts?”

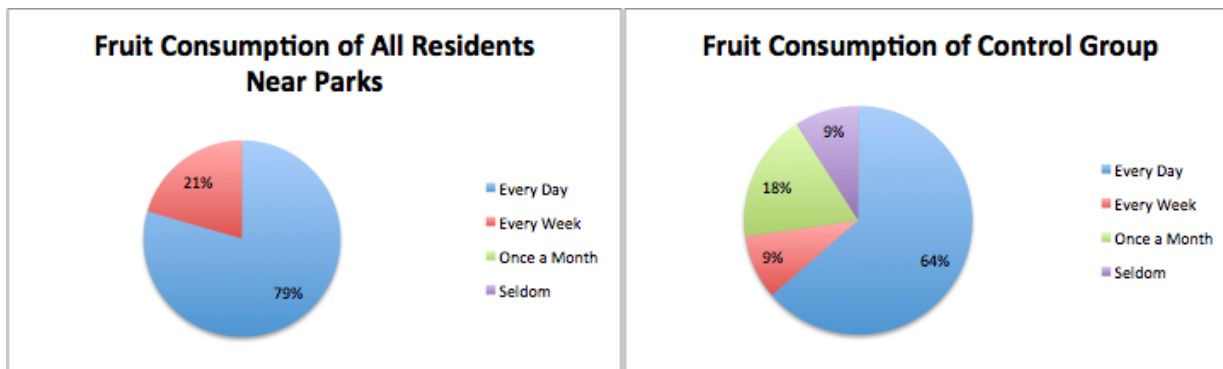


Figure 10: Response to question 1 “How often do you eat fresh fruit?”

There was no discernable relationship between the location of respondents and their general awareness of public fruit trees nor the location of the trees. However, respondents located near parks were 31% more likely to have an interest in stewarding public fruit and nut trees in the future.



Figure 11: Response to question 6 “If you don’t already, would you be willing to care for, and help harvest a fruit or nut tree on public land, or even plant one of your own?”

Barriers and Enablers

To enable the use and stewardship of public fruit and nut trees, an overwhelming number of respondents requested marketing and educational materials from Christchurch City Council. In order of importance, the top three requests were:

1. Signs clearly marking fruit trees.
2. An app with a map including pictures of how to identify the different edible trees and when the produce is ready to pick.
3. A written guide about tree planting and care (Figure 12).

Relatedly, the main barrier to foraging for fruit was identified as unknown location of public fruit and nut trees (Figure 13). This concern was followed by:

1. An anxiety that edible trees may be contaminated.
2. A general lack of time to pursue this endeavor.
3. A general discomfort with the idea of physically picking fruit.

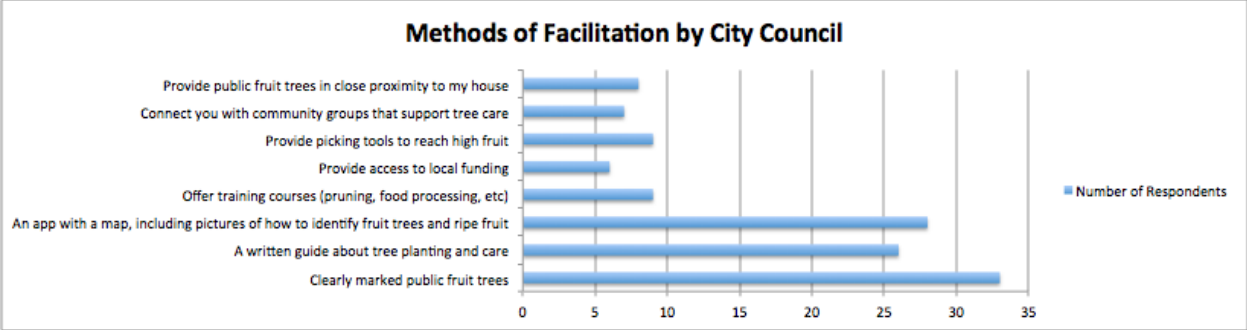


Figure 12: Methods of facilitation by Christchurch City Council

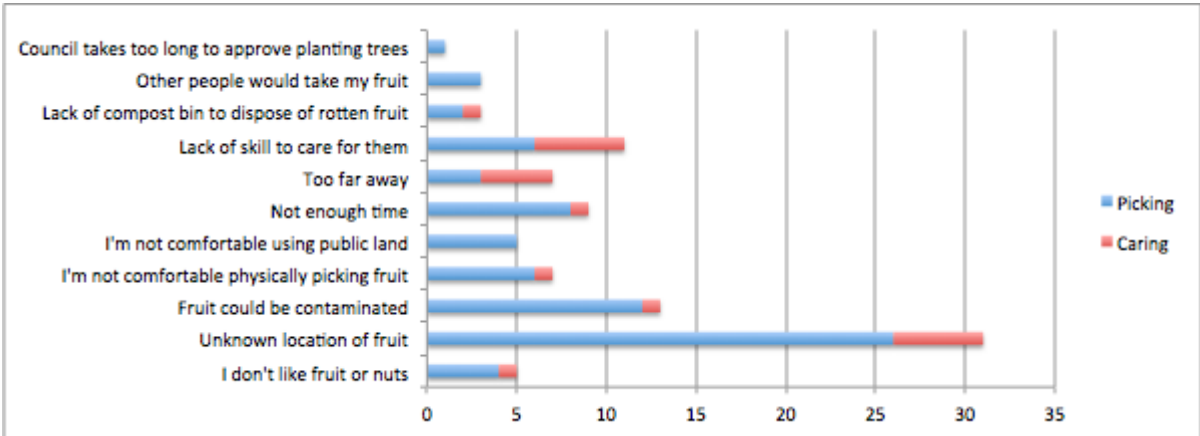


Figure 13: Main Barriers to Picking Fruit and Caring for Trees

Literature Review

According to studies on several edible urban forests around the world, two common success factors include rigidly organizing a network of people, and secondly, making sure that their champions have the support to make decisions and motivate the public at local levels (Warhurst, P., 2012; McLain, et al., 2012; Philips, A., 2013). Examples of these organizations include the “Community Table” in Minneapolis, MN (Philips, A. p. 187, 2013), “City Fruit” in Seattle, WA (McLain et al., 2012), and “Die Plantage” in Munich, Germany (Philips, A. p. 183, 2013). “Die Plantage”, which constructed a 3-acre urban orchard of heirloom fruit trees, found success in a ‘Lifecycle Approach’ to their food landscape. In this approach, the interdependence between maintenance and management is emphasised as food landscapes are dynamic and never the same from year to year; it is this tricky dynamic relationship of each living system that must be mapped step-by-step before the landscape is built (Philips, A., 2013). Without knowing such factors as the pruning and maintenance schedules of each tree, as well as organizing cleaning programs and organic waste disposal, this project may have failed.

Philips went on to recommend that a revolving volunteer workforce be budgeted for in the ongoing maintenance of these parks. Some other lifecycle operational considerations include:

- appropriate harvesting options,
- budgeting for garden coordinators,
- seed collecting and storage for regenerative harvest,
- providing mentorship and training programs,
- water systems for watering and restrooms,
- waste management and compost, as well as
- harvest distribution to name a few (Philips, A. p. 190, 2013).

In 2010, “City Fruit” initiated a Fruit Tree Stewardship program to train and encourage community investment in fruit tree maintenance on publicly owned property, as well as sponsoring classes on pruning, fruit preservation, and pest control; success was declared when “The Fruit Tree Stewards Program indicated that urban environmental stewardship is taking place across wild and cultivated natures on both private and public property in Seattle” (McLain, et al., 2012).

Limitations

Two limitations to the research were identified throughout the course of the project. Firstly, the time constraints of the research project meant that the student researchers conducted less resident surveys than they originally set out to do. They had originally hoped to complete 30 surveys at each park, however this was re-evaluated and reduced to ten. It also meant that not all key figures that were originally identified could be interviewed. This was a barrier to the research as each interview with a key figure provided invaluable insight into the research question. Secondly, it became evident while surveying that many people had little existing knowledge of public fruit or nut trees, and in many cases, it was the first time the interviewee had heard of the concept. This led to difficulty when respondents were asked the open questions 7, 8 and 9 of the survey (see Appendix 3) and often resulted in the interviewers suggesting options for answers. It was originally thought that an inaccurate sample of demographics were collected, however a closer look at the results revealed that this was not the case, and in fact highlighted a strength of the findings (refer to page 13).

Recommendations

Fund a Local Champion

To organize the complex set of tasks and requirements involved in monitoring and maintaining public fruit and nut trees, Christchurch City Council would find it wise to fund an organisation of local champions. These local champions would be employed to facilitate the use and stewardship of public fruit and nut trees by monitoring and maintaining these trees. They should not be viewed as sole caregivers of the trees, but rather guardians who are available to step in when their help is necessary. Ongoing program management between scheduled maintenance and a combination of managing staff and volunteers will be as complicated as it will be rewarding. “Pick Me” Christchurch has the potential to not only provide food resilience to local residents, but also enrich their lives with education, nutritious food, and healthy hobbies much like those achieved in Baltimore, Maryland (Corrigan, 2011).

Marketing

Just prior to the launch of this well organised program, marketing from several different angles is highly recommended. The residents in Christchurch have requested signage to be placed on every tree to address three major issues: 62% of respondents did not know Christchurch has thousands of public fruit and nut trees. Of those who did know about the program, 79% did not know where they are located (Figure 14), and thirdly, many respondents stated that they did not know what these trees look liked, nor when to harvest their fruit. Residents cited an App as another key to the program’s success. Several people stated that a “Pokemon Go” platform would be best, where the user could access location services on an interface showing exactly how far each tree is from their current position (Figure 15). Another App feature to consider pertains to the ripeness of each fruit. By allowing users to color code the location of each tree on a real-time basis, other foragers would know whether there is fruit available, or if the tree has finished fruiting for the year. This method is much like the New Zealand Geo Net app, where users register their perceived shaking from nearby earthquakes (Figure 15). This user inventory is much like the mapping project hosted by “City Fruit” in Seattle, WA, USA. Here, residents are encouraged to contribute to a “grassroots inventory” of Seattle's fruit trees by providing information to a computer-based mapping program, which brings together volunteers. (McLain, et al., 2012)



Figure 14: Residents Aware of Public Fruit and Nut Trees



Figure 15: Proposed Mobile App Functionality

For residents who are less tech-savvy, or prefer to have a hand-held guide to local trees and their stewardship, a hard copy printed guide has been requested as well. On a basic level, this guide should include a map of current fruit trees in the city, when each usually fruits, what the trees and leaves look like, as well as basic care instructions. Some other additions to this annual guide may include recipes for cooking or preserving fruit, troubleshooting for common issues with each type of tree, as well as basics on composting and worm farming.

Conclusion

While the “Pick Me” Christchurch has a great foundation, a few modifications must be implemented to secure the success of the project. As many residents are unaware of these trees, proper marketing and technology-based user interface structures should be implemented. An organisation taking control of direction and administration of daily activities is also highly advised, as research suggests this could be a major enabler to the use and stewardship of public fruit and nut trees in the future. The food resilience situation in Christchurch is indeed a moving target, but through proper planning and consideration, could be greatly improved for generations to come.

References

- Carney, P. A., Hamada, J. L., Rdesinski, R., Sprager, L., Nichols, K. R., Liu, B. Y., . . . Shannon, J. (2012). Impact of a community gardening project on vegetable intake, food security and family relationships: A community-based participatory research study. *Journal of Community Health, 37*(4), 874-881. doi:10.1007/s10900-011-9522-z
- Christchurch City Council. (2014a). *Christchurch City Council Food Resilience Policy*. Retrieved from <https://www.ccc.govt.nz/assets/Documents/Environment/Sustainability/FoodResiliencePolicy06-11-2014.pdf>
- Christchurch City Council. (2014b). *Community profile – November 2014, Shirley*. Christchurch, New Zealand. Retrieved from <https://www.ccc.govt.nz/assets/Documents/Culture-Community/Stats-and-facts-on-Christchurch/CommunityProfile-ShirleyPapanui-Shirley.pdf>
- Corrigan, M. P. (2011). Growing what you eat: Developing community gardens in Baltimore, Maryland. *Applied Geography, 31*(4), 1232-1241. doi:10.1016/j.apgeog.2011.01.017
- Blake, A., & Cloutier-Fisher, D. (2009). Backyard bounty: Exploring the benefits and challenges of backyard garden sharing projects. *Local Environment, 14*(9), 797-807. doi:10.1080/13549830903166438
- Canterbury Community Gardens Association (CCGA). (2017). Garden Directory. Retrieved from <http://www.ccca.org.nz/garden-directory/>
- Gates, C. (2015, April 11th,). *Fruit foraging in Christchurch's red zone*. *The Press*. Retrieved from <http://www.stuff.co.nz/life-style/food-wine/food-news/67690529/fruit-foraging-in-christchurchs-red-zone>
- Gatto, N. M., Martinez, L. C., Spruijt-Metz, D., & Davis, J. N. (2015). LA sprouts randomized controlled nutrition and gardening program reduces obesity and metabolic risk in latino youth. *Obesity, 23*(6), 1244-1251. doi:http://dx.doi.org.ezproxy.canterbury.ac.nz/10.1002/oby.21077
- McLain, R., Poe, M., Hurley, P. T., Lecompte-Mastenbrook, J., & Emery, M. R. (2012). Producing edible landscapes in Seattle's urban forest. *Urban Forestry and Urban Greening, 11*(2), 187-194. doi:10.1016/j.ufug.2011.12.002
- Ober Allen, J., Alaimo, K., Elam, D., & Perry, E. (2008). Growing vegetables and values: Benefits of neighborhood-based community gardens for youth development and nutrition. *Journal of Hunger & Environmental Nutrition, 3*(4), 418-439. doi:10.1080/19320240802529169
- Philips, A. (2013). *Designing urban agriculture: A complete guide to the planning, design, construction, maintenance and management of edible landscapes* (1. Aufl.;1; ed.). Hoboken, New Jersey: John Wiley and Sons Inc.
- Sharma, S. V., Hedberg, A. M., Skala, K. A., Chuang, R., & Lewis, T. (2015). Feasibility and acceptability of a gardening-based nutrition education program in preschoolers from low-income, minority populations. *Journal of Early Childhood Research, 13*(1), 93-110. doi:10.1177/1476718X14538598
- Twiss, J., Dickinson, J., Duma, S., Kleinman, T., Paulsen, H., & Rilveria, L. (2003). Community gardens: Lessons learned from california healthy cities and communities. *American Journal of Public Health, 93*(9), 1435-1438. doi:10.2105/AJPH.93.9.1435

Warhurst, Pam. (2012). How We Can Eat Our Landscapes [TEDSalon London Spring 2012]. Retrieved from https://www.ted.com/talks/pam_warhurst_how_we_can_eat_our_landscapes

Stats New Zealand. (2013). *2013 Census Quickstats about Christchurch City*. Retrieved from http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request_value=14758&tabname=&sc_device=pdf