

HOUSEHOLD GARDENING AND URBAN AGRICULTURE IN VANCOUVER

**Summary report of the Vancouver Gardening
and Urban Agriculture Survey**



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Part of the research project, *Urban agriculture, policy-making, and sustainability: A mixed-methods comparative study*. Co-Principal Investigators: Eugene McCann, Simon Fraser University & Nathan McClintock, Portland State University.

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INTRODUCTION

This report provides the findings of the Vancouver Gardening and Urban Agriculture survey which was distributed to 4,977 households in four neighbourhoods across the City of Vancouver: Grandview-Woodlands, Strathcona, Renfrew-Collingwood and Kerrisdale. The results of the survey were combined with a mapping of the frequency of household gardening in these neighbourhoods, based on online aerial and street-level imagery. The report also outlines the findings of the related Vancouver Community Garden survey, which was distributed to 26 community gardens in or in close proximity to our study neighbourhoods.

These surveys are part of a wider study entitled Urban agriculture, policy-making, and sustainability, led by Dr. Nathan McClintock of the School of Urban Studies and Planning at Portland State University in Portland, Oregon and Dr. Eugene McCann of the Department of Geography at Simon Fraser University, in Vancouver, British Columbia. It is funded by the U.S. National Science Foundation (award #1539750). This project incorporates geospatial and survey data, interviews and focus groups with urban agriculture (UA) advocates, practitioners, policymakers, as well as an analysis of policy and discourses surrounding UA's role in urban sustainability. In particular, we are examining urban agriculture policies and practices in both Portland, OR and Vancouver, BC in order to understand how they contribute to the development of urban spaces, as well as the ways in which UA practitioners, advocates and policy-makers facilitate urban food production. A nearly identical survey was distributed to households in Portland, OR. Data from both surveys will be used to compare the gardening practices and motivations between the two cities.

Mapping Residential Gardening in Four Vancouver Neighbourhoods

In order to understand where residential gardening is taking place in our four study neighbourhoods, as well as whether home gardening is taking place in some neighbourhoods more than others, we used the Bing Maps aerial imagery included in the ArcGIS 10.3 software package. We systematically scanned each neighbourhood for possible gardens, which are often recognizable based on the right angles of raised beds, parallel rows of vegetables, etc. We then used Google Maps Streetview to crosscheck our results in cases where a garden would likely be visible from the street or alleyway. Each garden was classified as a front, back, boulevard, or side garden and assigned to a specific property lot. To calculate the concentration of gardens, we divided the total number of gardens in a neighbourhood by the total number of property lots. This information is displayed in Figure 1 and in Table 1.

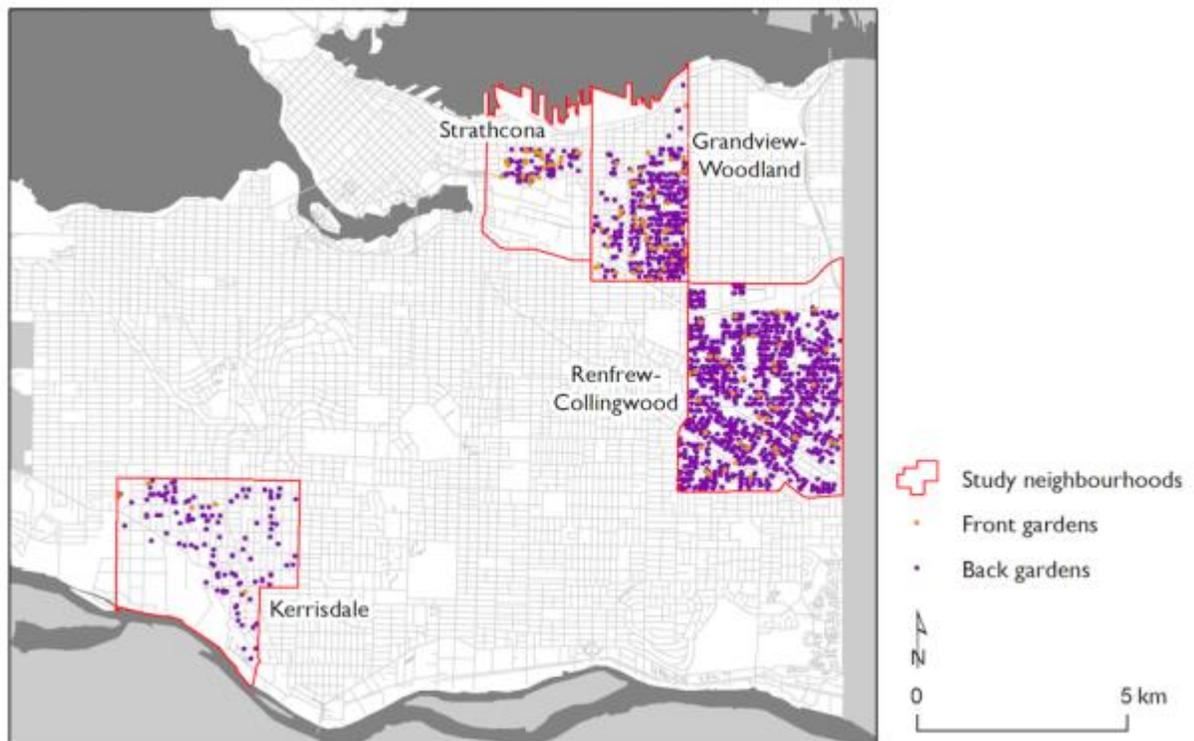


Figure 1: Map of front and back yard gardens in select neighbourhoods

The neighbourhood break-down of gardening in Table 1 reveals that Renfrew-Collingwood has the highest percentage of residential lots containing a front or backyard garden at 17%, followed by Strathcona (14.2%) and Grandview-Woodland (13.6). Kerrisdale has a much lower concentration of household gardening with only 3.6% of residential lots containing a garden. Throughout the study area, backyard gardening is much more prevalent than front-yard gardening, with Strathcona having the highest concentration of front-yard gardens.

Table 1: Gardening by Neighbourhood

Neighbourhood	Total residential property lots	Residential lots with gardens		Residential lots with front gardens		Residential lots with backyard gardens	
		N	%	N	%	N	%
Kerrisdale	3,490	126	3.6	6	0.2	121	3.5
Strathcona	717	102	14.2	21	2.9	85	11.9
Grandview-Woodland	3,947	538	13.6	47	1.2	495	12.5
Renfrew-Collingwood	8,650	1,469	17.0	45	0.5	1,435	16.6
Study area	16,804	2,235	13.3	119	0.7	2,136	12.7

The Vancouver Gardening and Urban Agriculture Survey

The Vancouver Gardening and Urban Agriculture survey was intended to measure the level of gardening taking place in the selected neighbourhoods, what motivates that individuals to garden and the level of support that individuals have for urban agriculture in the city. In this report, we have presented responses from gardeners as well as a break-down by individual neighbourhoods.

The survey was sent out to randomly selected households in the neighbourhoods of Grandview-Woodland, Strathcona, Kerrisdale and Renfrew-Collingwood. In selecting these neighborhoods, we wanted diversity in the socio-economic and ethnic make-up of our sample. Overall, we received 453 surveys. Results can be generalized with a margin of error of +/-7% to the overall population of the four neighbourhoods. Response rates from Grandview-Woodland,

Strathcona, Kerrisdale, and Renfrew-Collingwood were 12.7%, 17.0%, 8.1%, and 7.2%, respectively.

Who Gardens in Vancouver?

Who Gardens?

Gardeners in our sample tended to be female, a homeowner, over the age of 35, Caucasian, living as a couple either with or without children and with an annual household income of \$50,000 or more.

Overall, gardeners in our sample tend to be female, over the age of 35, Caucasian, living as a couple either with or without children and with an annual household income of \$50,000 or more. About 77% of gardeners report owning their home. There does not appear to be a significant difference between those who garden and those who do not although there was a higher percentage of couples without children who did not garden.

Gender

Overall, we received twice as many responses from women than from men.

<i>Table 2: Gender of Food-Growing Respondents</i>	Female	Male	Other
	63%	35%	7%

Age

The average age for food growing respondents is 53. The age of food-growing respondents are grouped into fifteen-year groups in the table below.

<i>Table 3: Age of Food-Growing Respondents</i>	> 65	65 - 50	35 - 50	20 - 35	<= 20
	25%	33%	31%	9%	1%

Ethnicity

Table 4 below shows that 71% of respondents who garden are white compared to non-food growing respondents, of whom only 63% identified as white. Therefore, in our sample the food growing cohort is less ethnically diverse than the non-food growing cohort.

<i>Table 4: Ethnicity of Food-Growing Respondents¹</i>	White	Chinese	Other
	71%	21%	13%

Family Structure

Single adults without kids accounted for the smallest percentage of food gardeners. Meanwhile, houses with two adults and children, extended families, or groups of housemates tended to have slightly more representation among food gardeners, although this did not appear to be a significant difference.

<i>Table 5: Types of Food Growing Households</i>	Couple With Kids	Couple Without Kids	Extended Family	Single Adult With Kids	Single Adult Without Kids	Group of Housemates	Other
	35%	30%	11%	3%	9%	6%	7%

¹ When reading this table note that respondents were able to select multiple ethnic identities and so the sum of populations by ethnic group may exceed the total number of respondents.

Income and Poverty

All respondents skewed toward higher incomes with food growing respondents earning slightly more than non-food growing respondents, the majority earning \$50,000 annually or more (the median family income in Vancouver is \$67,090). This is likely a reflection of the cost of living in this city and also that the survey targeted individuals living in detached homes.

<i>Table 6: Annual Income of Food Growing Respondents (\$)</i>	0 - 15k	15k - 25k	25k - 35k	35k - 50k	50k - 75k	75k - 100k	100k - 150k	>= 150k
	2%	6%	9%	5%	18%	12%	22%	25%

At the same time, there were food-growing respondents to our survey who fell below the poverty line. As shown in Table 7, Renfrew-Collingwood had the highest percentage of gardeners who fell below the low-income cut-off (31%), compared to Kerrisdale where only 5.5% did.

<i>Table 7: % Food-Growing Respondents Above and Below Poverty by Neighbourhood</i>	Kerrisdale	Grandview-Woodland	Strathcona	Renfrew-Collingwood
Above Poverty	79.5%	75.8%	68.2%	55.8%
Below Poverty	5.5%	16.1%	18.8%	31.9%
no data	15.1%	8.1%	12.9%	12.4%

Educational Attainment

The majority of gardeners had either a Bachelor’s or Graduate degree.

Table 8: Educational Attainment of Food Growing Respondents

Some High School	High School/GED	Some College	Trade School or Associates Degree	Bachelor’s Degree	Graduate Degree	None of the above
4 %	8%	11%	10%	32%	34%	2%

Food Gardeners and Gardening Practices by Neighbourhood

Food gardeners indicated the neighbourhood in which their garden was located. While responses were fairly evenly distributed across all four neighbourhoods, the largest response rate was from Renfrew-Collingwood.

<i>Table 9: Food Gardeners by Neighbourhood</i>	Strathcona	Grandview-Woodland	Kerrisdale	Renfrew-Collingwood	Other²
	20%	25%	17%	29%	9%

In our four study neighbourhoods, 83% of food-producing respondents had gardens in their backyard. Half of gardeners also have plants in pots while a third of gardeners have gardens in their front yard. An exception is Kerrisdale, which had fewer front yard gardens than the other neighbourhoods surveyed.

² Those respondents falling in the “Other” category provided inexact descriptions of their neighbourhood or have their primary garden located outside of the neighbourhood in which they live.

<i>Table 10: Locations of Gardens</i>	N/A	Backyard	Frontyard	Boulevard	In Pots	Other
Grandview- Woodland	1%	83%	33%	6%	51%	6%
Kerrisdale	2%	90%	14%	3%	40%	3%
Renfrew- Collingwood	0%	88%	33%	4%	40%	1%
Strathcona	0%	74%	36%	11%	51%	7%

Consumption of Grown Produce

Seventy-nine percent of food growing gardeners supplemented their diet during the growing season with produce that they grew themselves. However, 21% reported that the produce they grew did not contribute at all to their total diet despite having grown it. Respondents in Kerrisdale and Renfrew-Collingwood reported eating more of their own grown produce than those in Grandview-Woodland or Strathcona.

<i>Table 11: Consumption of Produce</i>	None	< 10%	10 - 25%	25 - 50%	50 - 75%
Grandview- Woodland	23%	39%	28%	9%	1%
Kerrisdale	25%	27%	37%	6%	5%
Renfrew- Collingwood	15%	39%	39%	6%	1%
Strathcona	22%	36%	36%	5%	0%

Food Producing Animals

Across all neighbourhoods only 6% of respondents reported keeping food-producing animals. Strathcona and Kerrisdale had the highest proportion of respondents who keep chickens or bees. The low number of households keeping food producing animals in Renfrew-Collingwood is surprising given the relatively large lot sizes in that neighbourhood.

Table 12: Percentage of Respondents Keeping Food Producing Animals

Strathcona (n=75)	10.67 %
Kerrisdale (n=63)	7.94 %
Grandview-Woodland (n=108)	3.7 %
Renfrew-Collingwood (n=91)	3.3 %

Top Five Reasons for Growing Food

The top reasons for growing food were fairly consistent across the neighbourhoods, relating mainly to: access to fresh produce; health; recreation; knowing the source of food; and sustainability. In fact, across all reasons for growing food, neighbourhoods gave similar rankings with only slight variation, although the healthy qualities of home grown food appear to be more highly valued by respondents in Kerrisdale and Renfrew-Collingwood than the other two neighbourhoods. However, those living in poverty reported "food security" as a motivation significantly more frequently than those not living in poverty; similarly, those in poverty reported "sustainability" significantly less than respondents not living in poverty.

Table 13: Top 5 Reasons for Growing Food

Grandview-Woodland	Kerrisdale	Renfrew-Collingwood	Strathcona
1. Access to fresh produce			
2. Recreation	2. Recreation	2. Recreation	2. Know source of food
3. Sustainability	3. Health	3. Health	3. Recreation
4. Know source of food	4. Know source of food	4. Know source of food	4. Sustainability
5. Health	5. Sustainability	5. Sustainability	5. Health

Why do People in Vancouver Garden?

For respondents in all neighborhoods, access to fresh produce was the number 1 reason people gardened. Recreation, sustainability and for health reasons were also among the top 5 reasons.

Additionally, several respondents commented that they had grown up with a garden or on a farm, so gardening for them was a way to reconnect with their family heritage. For example, one respondent said, “When I was a kid, we had large gardens, and lived in a rural agricultural area. This and having a computer-based job motivate me to get outside whenever I can.” And another said, “When I owned property, I had the land to plant. My father grew vegetables for our family and it seemed the natural thing to do.” Several respondents said that they gardened as a way of teaching their children about where food comes from as well as broader issues of sustainability and ecology. For example, one respondent said, “[I have a garden in order] to spend time with my children in the dirt and acquaint them with earth, self-sustenance and sustainability”. Another said,

“[We garden] to educate our son (9 years old) about bug-plant-bird relationships, about plant growth, soil.” Finally, some respondents noted the therapeutic benefits of gardening, including improved mental and physical health. As one individual noted, “[Gardening is] good for mental health. Very meditative.”

City Regulations Affecting Food Production

When asked whether city regulations had affected their food production, 10% of food growing respondents indicated that they had. One-third of these were due to watering restrictions but a number of respondents found that regulations on the number and types of animals that could be kept are too restrictive. Additionally, there were a handful of complaints that food could not be grown in traffic circles as part of the Green Streets program.

City Support of Urban Agriculture

Support of urban agriculture by municipalities can take on a number of forms, from providing land for community gardens, to workshops for gardeners to tax breaks for homeowners who garden. When asked whether the city of Vancouver should support urban agriculture and food gardening, 93% of respondents believe that it should. In terms of specific actions respondents felt that the City should take, the top 5 are presented in Table 14 and discussed in more detail below.

Table 14: Top 5 things the City of Vancouver should do to promote urban agriculture

1	Provide education
2	Facilitate creating more community gardens
3	Facilitate access to growing medium (soil and/or compost)
4	Facilitate access to tools
5	Encourage gardens on City land

There were numerous other suggestions made. Some included facilitating produce-sharing among neighbours or local charities, more food-producing plants managed by city staff on city property, the creation of demonstration gardens, and requiring space for community gardens in neighbourhood planning and private development plans.

What Would Increase Food Production?

When asked what, if anything, would help the respondents grow more food, the top three responses were: more free-time; more skills/knowledge; and more space (for the ranking of all options see Table 15). The least important factors were: access to a community garden; ability to make money from growing produce; and less restrictive regulations. Respondents who provided additional comments for the “Other” category noted things such as better health, more sunlight, and fewer pests.

Table 15: Ranking of what would help respondents produce more food

1	More free-time
2	More skills/knowledge
3	More space
4	Tax incentives
5	Better access to supplies
6	Home ownership
7	Nothing
8	Other
9	Access to community garden
10	Ability to make money
11	Less restrictive regulations

Across the neighbourhoods, the rankings were very similar, although there were some differences between responses from Kerrisdale and the other three neighbourhoods. Kerrisdale's second most frequent response was "Nothing. I'm not interested in growing any more food", which suggests that those living in that neighbourhood are most satisfied with their ability to grow food. Also in Kerrisdale, better access to gardening supplies ranked quite low where in the other neighbourhoods it was the 4th or 5th most selected option. Similarly, the ability to make money ranked at the bottom in Kerrisdale but it was higher elsewhere. Kerrisdale respondents also ranked access to community garden a few tiers higher than did respondents from the other neighbourhoods.

Involvement with Urban Agriculture Organizations

In total, 11% of survey respondents have been involved in urban agriculture-related organizations. The strongest level of involvement was in Strathcona, and the lowest in Kerrisdale.

Table 16: Urban Agriculture Organization Involvement

Strathcona	20%
Grandview-Woodland	11%
Renfrew-Collingwood	9%
Kerrisdale	6%

This 11% is broken down into the table below showing how many respondents are involved in the various kinds of organizations (Table 17). Organizations coded “education” provide instruction to gardeners or children (as in school programs) on how to garden or the importance of growing food. One common example of an education organization was the UBC Farm. “Community” organizations are those that are a part of a community centre or neighbourhood house and/or emphasize making community connections. The DTES Neighbourhood House and Renfrew-Collingwood Food Security Institute are typical examples. “Support” organizations are those that provide assistance to urban agriculture organizations in a variety of ways including consultation, equipment provision, and economic support. One example is Farm Folk / City Folk which provides works on developing a local food system. “Environmental” organizations, which focus on enhancing ecological sustainability, include Hives for Humanity and the Environmental Youth Alliance.

Table 17: Type of Organization Gardeners are Actively Involved With (No. of responses)

Community Garden	20
Education	18
Community	16
Support	14
Charity	13
Policy	10
Environmental	8
Government	3
Farming	1

Community Garden Survey

We received a total of 55 surveys from community gardeners who either responded to the household gardening survey or a second survey sent out specifically to community gardens in the four neighbourhoods that are part of this study. The community garden survey was distributed via email to community garden coordinators who were asked to distribute to their members. We received responses from members of nine different gardens.

Who participates in community gardening in Vancouver?

Survey respondents were an average age of 49, they tended to have lower incomes and live in small households. They usually live in multifamily

In terms of demographics, there are a few significant differences between those who are household gardeners compared to those who indicated that they are members of a community garden. Community gardeners tend to be younger (average age, 49) than household gardeners, (average age, 55) while home gardeners are somewhat more diverse in terms of age. Nearly half of all community gardeners fall into the 35 - 50 age category. Community gardeners tend to fall into lower income brackets. For example, 21% of community gardeners fall into the 0 to \$24,999 annual household income bracket, compared to only 9% of household gardeners. At the same time, 46% of household gardeners report an average household income of \$100,000

or more, compared to 35% of community gardeners. Additionally, community gardeners tend to live in smaller households to be a single adult living alone, as compared to household gardeners, who are more likely to be living as a couple either with or without kids. Not surprisingly, the majority of community gardeners reside in multifamily housing, either an apartment (70%) or duplex or townhouse (13%), with a smaller percentage (17%) living in a detached house. Only 35% of community gardeners surveyed reported owning their homes, as compared to 77% of home gardeners.

Gardening Practices

Most community gardeners in this survey have an individual plot (93%). While the majority (57%) did not have to wait to get a

community garden plot, 43% did report having to wait, in some cases up to two years. Nearly all respondents (95%) grow food in their plots, and report eating a fairly significant amount of the produce they grow; 41% responded that between 10% and 25% of their household's fruit and vegetables come from their garden during the growing season.

Reasons that people participate in community gardening are varied, and include: wanting to connect with neighbours; desiring access to fresh, organic food; and enjoying the exercise associated with community gardening (Table 18). One respondent commented that they gardened to "meet neighbours, enjoy nature...[I] enjoy respite and therapy of gardening." Another wrote, "Access to organic food, [to] teach my child where food comes from, [and for] recreation." And another explained, "[To] be closer to nature, grow herbs, community networking, learn more about local farming."

Table 18: Top 5 Reasons for Growing Food

1	Access to fresh produce
2	Recreation
3	Know food source
4	Sustainability
5	Environmental reasons

While the ranking of the motivations for gardening are similar between community and household gardeners, there were also some significant differences. Unlike household gardening, community gardeners stress the importance of building community and connecting with others in those spaces. For example, while 61% said that to connect with friends, family or neighbours was either very or extremely important

reason that they gardened, only 28% of household gardeners said that this was a significant motivation for their gardening. Community gardeners also tend to rank environmental reasons as important motivator to their gardening. While 72% of community gardeners say that environmental concerns are either very or extremely important, only 52% of household gardeners place the same emphasis on the environment.

Experiences with Community Gardening

The vast majority of community gardeners surveyed are either very satisfied (54%) or satisfied (37%) with their experience with community gardening; only 4% are somewhat unsatisfied. The primary issues that gardeners experience were loss of produce through vandalism and stealing (26%), conflicts with other users of the park (15%) and the need for volunteers (10%). There were several other issues raised by gardeners including the potential loss of garden space due to redevelopment of land and conflicts about how to be socially inclusive in lower income neighbourhoods. Theft and vandalism were noted as a common problem. One respondent noted, "Theft from the garden plots is common. There's not much that can be done to reduce theft and maintain the garden as a space for all community members to enjoy. But it is unfortunate." Strategies to address theft can also cause conflict among gardeners. For example, one gardener wrote about the tension surrounding trying to discourage theft from the garden and being inclusive,

"Many gardeners seem to have a very difficult time sharing the space with non-gardeners and rather than being inclusive have sought out ideas of exclusion i.e.; taking the picnic benches out

of the garden...wanting to put up a big fence around the garden and have it locked up...”.

Suggestions for improving the experience of community gardening include: reducing theft (29%); better organization (20%); and more participation in communal activities such as work parties (20%). When asked what would help increase their food production, the most common response was more space in their community garden, followed by more free time and having access to gardening space where they live. A desire for more gardening space is commonly identified as an issue by gardeners.

City Support for Urban Agriculture

The vast majority (98%) said that the City should continue to support community gardens. When asked what kind of support the City could provide to community gardeners, the most frequent responses were: to make more gardening space available (51%); better access to gardening supplies through grants or other mechanisms (42%); and education or workshop on issues related to gardening (20%). One individual listed what they felt the City could do that would enhance the community gardening experience:

Provide access to space on city-owned land; city staff to prepare site with heavy equipment; start-up funding; designated resource person for community gardens, annual delivery of free compost and regular pickup of weeds and other green material that can't be put into the compost bins.

Several respondents noted the often-long wait-lists for community garden plots, with some waits lasting for more than a year. One person suggested that there be “more gardens throughout the city,

make them accessible to low income families who struggle to provide healthy food for their families, involve schools, teach the children.” Another respondent noted that while Vancouver is doing a “great job at offering places for people to have their own community gardens ... more is always better as more and more high rises are taking over the city skyline.” These sentiments were echoed by a third respondent who suggested that the City make “plots available in poorer neighbourhoods and helping with soil fertilization, tools and seeds. Especially in urban centres.” Another suggestion was to increase plot size as some felt that they are currently too small for producing an adequate amount of food. Finally, there were suggestions around providing an annual stipend for community gardens to develop their infrastructure and the need for a liaison at the City to provide support and advise to community gardeners.

SUMMARY AND RECOMMENDATIONS

Food gardening appears to be a fairly widespread activity in the four Vancouver neighbourhoods we surveyed, with a significant percent of the population engaged in producing at least some of the food they eat. Among respondents to our survey, reasons for growing one’s own food were primarily about having a connection to that food, recreation, and personal health. Sustainability was also an important consideration, as was developing connections with family and friends around gardening. There appears to be less of a motivation to grow food because for economic reasons or to supplement household income. This is likely because the income of the majority of gardeners was fairly high. Because of high housing prices, gardening may be more likely to be practiced by those who are financially well-off, which suggests the need for greater access to gardening for lower income

groups and those living in multi-family housing without access to private yards.

Support for the City of Vancouver's role in encouraging gardening appears to be strong amongst the vast majority of respondents. The main barriers for gardeners for producing more food were time, knowledge, and space. The City could play a role in assisting with improving knowledge around gardening and providing more space in City-owned land.

Specific recommendations:

1. Education is overwhelmingly the most requested action. Suggestions run the gamut from pamphlets or online education describing which plants can be grown here, free workshops, or having local experts that can be contacted or even make house calls. Many wanted basic information and assistance that would allow them to get started with gardening.
2. In general, respondents find community gardens to be a good alternative for those without sufficient space to have a proper vegetable garden, especially as the city densifies. Many are aware of the long waiting lists and would like to see the City do more to facilitate the creation and management of community gardens. Community gardens are a means of encouraging those with lower incomes and/or without access to private yards to produce their own food.
3. There were many suggestions that the City more actively encourage the appropriation of underutilized City land for

individual or community gardens. This relates to another relatively common request: that the City make it easier to get water hook-ups on City land.

4. Many respondents would like the City to make compost and other high-quality growing media more easily accessible. Some appear to be unaware that the City sells compost produced through the green waste program while others find either the cost too prohibitive or the quality to be poor.
5. There were suggestions to make equipment of all types more accessible. The primary suggested mechanisms by which to do this was coordinating at cost bulk purchases, tool sharing/libraries, or by direct subsidies. The most common types of equipment requested were raised beds and rain collection equipment. Some desired free or subsidized “starter kits,” a set of basic tools and consumables that would be everything one needed to begin gardening from scratch.