

URBAN FARMING IN VANCOUVER

by

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ABSTRACT

There is a new generation of urban agriculture emerging in North America. Labelled urban farming, this modern urban agriculture industry is tapping into the economic potential for local, organic food. An ethnographic study of six urban farmers growing food in Metro Vancouver reveals that the act of growing *and marketing* food in the city is an expanding and dedicated business. The study focused particularly on newly emerging highly urbanized farm enterprises in the Vancouver area. Urban farmers are embedded in the community as land stewards, local suppliers of seasonal vegetables and educators. This industry has a light ecological footprint, with organic, small-scale planting techniques and local marketing. While not a lucrative industry, it proves to be a formidable lifestyle choice, with several non-monetary benefits. Most importantly, this study provides the first baseline data and theory regarding the extent and viability of this emergent type of commercial urban agriculture in Vancouver.

Keywords: Urban farming; urban agriculture; Vancouver; farmers markets; community supported agriculture (CSA); urban farmers; commercial urban agriculture; local food economy

Farming is one of the most challenging professions. Farmers master many trades to successfully grow, market and distribute food to our plates. We can survive without many of our daily purchases but without vegetables, fruits and grains we will perish. We should hold farmers in the highest esteem for the nourishment they provide. Yet, farmers are notoriously under valued for their services.

To all farmers – thank you for your hard work.

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GLOSSARY

Brownfield Site	A site which previously had industrial activity on it.
Community Gardens	Garden space provided by local government and developers for residents to grow food products and flowers. The space is maintained by the group of users. In the city of Vancouver, community gardens are only used for recreational purposes, and it is commonly understood that the products from the garden cannot be sold.
CSA	Community Supported Agriculture project. Customers buy a share in the farm's harvest. The amount of produce depends on the bounty of the harvest. In traditional CSAs, the customers share in the risks of crop failure. The customers also share in the workload on the farm. In non-traditional CSAs, the customers rarely help with the workload, and some farmers grow extra produce as a buffer in case of crop failure. Also referred to as garden share or harvest share.
Food Products	All edible food grown on or from the land. Examples include vegetables, fruits, eggs, honey, edible flowers.
Farmers Market	An organized market where farmers sell food products directly to the consumer. Farmers markets in Vancouver include crafts and prepared food vendors.
Food Systems	The ways that people produce, obtain, consume and dispose of their food (Mendes, 2006, pg 1).
Food Security	When all people, at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (FAO, 1996).
Garden Share	See (non-traditional) CSA.
Green Space	Land in the city dedicated to growing plants.

Harvest Share	See (non-traditional) CSA.
Kombucha	A fermented live culture health drink made by fermenting tea and sugar with kombucha culture (Seeds of Health, n.d.).
Landowner	The owner of the private land (if not the farmer), where food products are grown.
Market Garden	A farm stand on the same site as the garden plot, where the farmer sells food products directly to the consumer.
Organic Farming	Farming without the use of synthetic herbicides and pesticides.
Off-Farm Income	Income generated from jobs and businesses not directly related to the farming business. For instance, one or both partners may have a full-time or part-time job, which generates income from non-farming activities.
Peri-urban	The area immediately surrounding a city or municipality, also referred to as the rural-urban fringe. It is a mixture of settlements, countryside and natural spaces (Bryant and Charvet, 2003).
Pocket Market	An emergent alternative retail marketing arrangement for connecting urban consumers with local food producers. In this model, community-based organizations act as local food brokers, purchasing fresh, healthful food from area farmers and food producers, and selling it to urban consumers in small-scale, portable, local food markets (Evans & Miewald, 2010).
Social Enterprise	A non-profit organization, which engages in commercial activities to support the mandate of the organization.
Social Media Marketing	The use of social media to market a business in conjunction with educating consumers about the social benefits of the business (socialmediamarketing.org, 2010). Platforms for social marketing include Twitter, Facebook and web blogs.
SPIN farming	Small-Plot INTensive farming. SPIN farming can be urban, sub-urban, peri-urban or rural. SPIN farming does not require mechanical tools for daily operations, and is usually conducted on plots less than one acre in size (SPIN Farming LLC, 2010).

**Urban
Agriculture
Enterprise**

An urban farming business.

**Urban Farmer
(or Farmer)**

The individual(s) who practice urban farming.

**Urban
Farming**

An entrepreneurial activity combining the practices of growing and marketing food products in urban spaces for urban consumers. Also referred to as entrepreneurial urban agriculture and commercial urban agriculture.

WWOOF

World Wide Opportunities on Organic Farms, a volunteer based program where individuals gain experience working on organic farms worldwide. Positions range from a few weeks to many months (Wwoof Canada, 2009).

1: INTRODUCTION

1.1 New Generation Urban Agriculture

There is a new generation of urban agriculture growing in the back alleys, front yards and rooftops of the urban realm in North America. The products are displayed on farmers market tables and in the local fare of restaurants, and may have only travelled a few hundred metres from garden to plate. Urban farming, as it has been coined, has begun to tap into the economic potential for growing *and marketing* food in an increasing number of cities across the United States and Canada.

Urban agriculture has established a solid footing in the policy, planning and land use of urban space in North America (Mougeot, 2006). The social and ecological benefits of urban agriculture, in fostering community, increasing health and exercise, and reducing dependencies on fossil fuels are widely known and gaining appreciation throughout North America (see Chapter 3). Presently, the focus of urban agriculture in North America is predominantly recreational. Community gardens, backyard and balcony plots supplement vegetables and fruit to their caretakers in the summer, and provide the novelty of “freshly picked” herbs and lettuce, while building community and reducing carbon footprints (see Chapter 3).

Urban farming, the growing *and marketing* of products in urban areas, is a new generation of urban agriculture, fostering the same social and ecological

benefits, while exploiting the economic potential of the local food economy. Although urban farming is widely practiced in developing countries (see Chapter 3), urban agriculture, as a generator of economic activity, is a more recently emerging phenomenon in North American municipalities. There is reason to suggest that urban farming will increase as the local food economy (LFE) in North America expands (see Chapter 4). The LFE fosters new economic opportunities for urban food growers by providing a range of accessible markets to sell niche products, such as local, organic, and urban grown foods. This research study focuses on urban agriculture as an economic activity in Vancouver. The aim of the study is to investigate the commercial aspects of operating urban farming enterprises in Vancouver.

Chapter 1 briefly introduces urban farming, the newest brand of urban agriculture emerging in Canada, poses the research question and briefly outlines the research findings. Chapter 2 presents a brief synopsis of recreational and commercial urban agriculture activities in Vancouver. Chapters 3 and 4 set the conceptual framework of the study. In Chapter 3, the practice of urban farming in North America is explained. Urban farming in the North American context is compared to recreational urban agriculture in the same setting and urban farming practices and policies in developing countries. Chapter 4 shows how the expanding local food economy in North America provides a new market venue for urban grown produce. The methodology of the research study is extensively explained in Chapter 5. A collective description of the in-depth urban farming practices for the six research participants is portrayed in Chapters 6 to 10. In

addition, each chapter provides a brief interpretation of key aspects of the data collected. Finally, major conclusions and theories, and recommendations for policy makers, are highlighted in Chapter 11.

1.2 The Research Question

This research project explores the practice of entrepreneurial urban agriculture in the highly urbanized sections of Vancouver. In the Vancouver area, a handful of growers produce food on small urban plots in highly urbanized areas of the city. Their farming practices convert land designated for urban residential, commercial or industrial use to agriculture use in the urban core of Metro Vancouver. Examples of converted spaces are rooftops, patios, front lawns and back yards. The farmers are currently selling their products using producer-direct strategies, such as farmers markets and through harvest share programs. These small-scale intensive non-mechanized urban enterprises are a relatively new genre of urban farming and not widely practiced in the Vancouver area, or the rest of Canada. According to the 2006 Census of Agriculture, there are 2618 farms in Metro Vancouver (Metro Vancouver, 2007), which includes land zoned for farming and protected by the region's Agricultural Land Reserve. These operations differ greatly in size, proximity to an urban core, historic land use, use of equipment, marketing strategies, and products. This study focuses on the highly urbanized farmers who comprise a small subset of all urban farmers: who operate primarily on newly emerged, non-mechanized farms, with close proximity to the urban core.

This emerging agriculture industry has many unanswered questions. This research paper describes the practices and operations of these urban farms in the Vancouver area. It explains how these urban farming enterprises function by understanding the relationship between landowner and urban farmer, marketing and distribution systems used by urban farmers, and the growing and business practices established. Specifically, this research project aims to answer the following question: What are the key factors in operating an urban farming enterprise in Vancouver?

The scope of this research study is exploratory as it is the first study to describe these newly emerging highly urbanized farming enterprises in Vancouver. This study aims to document the extent of urban farming in Vancouver, while answering key questions about the business operations of the urban farming enterprises under analysis. Key research questions posed to the urban farmers include: What are they growing and how they are growing their product? Where are they selling their products? How much are they earning? Are their operations viable? What motivated them to enter this industry, stay in the industry or leave it? These questions (and more) are answered and analyzed in the results section, Chapters 6 to 10.

There was no preliminary hypothesis guiding this research study. The methods of data collection and analysis are based in grounded theory. An ethnographic approach revealed a deep understanding of each urban farming enterprise and the group of six farming enterprises. Qualitative analysis that is

rich in detail opens a window into this industry, which has not been viewed before.

The results reveal key attributes of these urban farming enterprises in Vancouver. The urban farmers practice organic intensive growing techniques, grow a diversity of food products and require specific agriculture related skills to operate their unique businesses. Land access is an interesting, and critical, aspect of urban farming. Land ownership is not common and requires urban farmers to forge unique non-monetary relationships with landowners. Networking and community interactions are paramount for knowledge exchange, marketing and labour support. Marketing venues and strategies vary between the farmers, although a diversity of markets seems essential to the financial success of all urban farming enterprises in this study. Incomes varied among farmers, although none earned substantial amounts. In addition, low returns on investment of time is a common theme among the urban farmers. Contrastingly, high job satisfaction is also a common theme. Some urban farmers display high ingenuity for spin-off revenue generating projects, and have found a way to supplement their urban farming income with additional revenue. All farmers from this study farmed again in the 2010 season.

The key attributes of urban farming in Vancouver were used to construct three theories about these urban farming enterprises from the 2009 growing season. The theories are accompanied by specific recommendations to policy makers. Implementing the recommendations could potentially enhance the viability of future and current urban farming enterprises in Vancouver.

2: URBAN AGRICULTURE IN VANCOUVER

Vancouver has a strong, and growing, engagement with urban agriculture. Despite the scarcity of available land due to high population density, urban agriculture is thriving and expanding in Vancouver. Although the land potential for urban agriculture in Vancouver has been documented by academics, the city and non-government organizations, the economic potential for urban agriculture is unknown. Current urban agriculture practices in Vancouver are predominantly recreational. This recreational practice is reinforced by City of Vancouver policies and by-laws, while economic activities are unsupported or discouraged. The interest from academics and urban agriculture actors in fostering entrepreneurial urban agriculture in Vancouver has been repeatedly addressed in working papers, theses and assessments, yet there is no research specifically evaluating this aspect of urban agriculture.

2.1 The State of Urban Agriculture in Vancouver

Urban food gardens have been emerging over the city of Vancouver throughout the past decade. In 2002, 44% of city of Vancouver households grew food in their backyard, on patios or in community gardens (Levenston, 2002). Currently, up to 80% of the more than 50 community gardens in Vancouver are producing food. According to Devorah Kahn, the former food policy coordinator at City of Vancouver, the supply of community garden plots in Vancouver has not kept up with demand (Groc, 2008). The latest evidence of the strength of the

urban agriculture movement in Vancouver can be seen at City Hall. In March 2009, Mayor Gregor Robertson dedicated a portion of the lawn at City Hall to a food producing community garden (Ward, 2009). The trend indicates an increasing practice of growing food in the city. In 2006, City of Vancouver committed to introduce 2,010 new food producing urban garden plots by 2010 (City of Vancouver, 2010a). The number of new plots exceeded the challenge by the end of 2009. The addition of 2029 plots tripled the number of previously existing food producing gardens in the city (City of Vancouver, 2010a).

Even as the interest in urban agriculture competes with land use types for scarce highly valued land, there are areas of Vancouver, which still show great potential for future food production. Currently, only 10% of the 263 roof top gardens in Vancouver are producing food, mostly for co-ops, restaurants or social programs (Davis, 2002; Kaethler, 2006). In a recent quantitative assessment of the potential for urban agriculture throughout Vancouver, Kaethler (2006) found 77 potential sites for urban agriculture on city leased or city owned land. Twenty of the 77 sites were significant in size, over 10,000ft².¹ Although 16 of the sites were situated on impervious surfaces (such as pavement or poor soil), these sites would allow for growing food in containers or raised beds (Kaethler, 2006). Public corporations, such as Translink and BC Hydro, could provide additional sites along their right-of-way corridors. Only a small portion of the Arbutus Street corridor is currently used as urban agriculture space (Kaethler

¹ 10,000ft² is equivalent to about 0.23 acres, and 930m². This study uses the imperial size, rather than metric, for land, since this is the most popular form in the literature, and the most common language used by the farmers.

2006). It appears that the potential for producing food and the economic growth related to food production in Vancouver is largely untapped. In another study, conducted in 2001 using aerial photos and GIS analysis, City Farmer, a non-profit urban agriculture organization, estimated the land base potential for growing food in Vancouver (Levenston, Blecha, Schendel & Houston, 2001). It was estimated that at least one third of the land space in each standard Vancouver block could be used to grow food. The value is potentially much greater if paved surfaces, balconies, and decks are used (Houston, 2001).

In the past decade, Vancouver has emerged as a strong leader in food policy (even after a late start compared to other Canadian cities such as Toronto). In July 2003, a motion to support a 'just and sustainable' food system was adopted by the municipal council (Mendes, 2006 pg 1). A Food Action Plan was created within a few months, and within a year the Vancouver Food Policy Council was elected (City of Vancouver, 2007). By 2007, the Vancouver Food Charter was drafted, which identified five principles² of a just and sustainable food supply (Vancouver Food Policy Council, 2007). Recently, Vancouver dedicated the highest number of paid staff to food policy than any other Canadian city – in 2005, two full-time staff dedicated to food system planning and food security, and five elected officials (Mendes, 2006). Even Toronto, which is considered a trail blazer for food policy at the municipal level, only had one and a half full-time staff and one elected official at the same time (Mendes, 2006). Currently, there is a number of City of Vancouver staff in departments outside

² The five principles include community economic development, ecological health, social justice, collaboration and participation, and celebration (Vancouver Food Policy Council, 2007).

social planning, whose jobs support the food policy mandates. This number is difficult to quantify since their level of involvement in food policy changes as projects and mandates change (Mendes, 2010). The Food Policy Council works together with the Vancouver School Board, Board of Parks and Recreation, community groups, and non-profit and neighbourhood organizations to support urban agriculture projects, such as community gardens and Greenstreet programs, with expertise and political will. Yet, these programs receive minimal to no financial support from City of Vancouver (City of Vancouver, n.d.).

2.2 The Economic Potential of Urban Agriculture in Vancouver

There are good reasons to expect a future increase in urban agriculture in Vancouver. Yet it is uncertain what role entrepreneurial urban agriculture will play in this future. The potential and real economic contributions of urban agriculture in the city of Vancouver are completely unexplored. Furthermore, the political support for commercial urban agriculture is inconsistent and largely absent in Vancouver.

There is limited data addressing the economic contributions that an increasing interest in urban agriculture could make to the City of Vancouver or its residents. In 1980, City Farmer estimated that 6515 acres³ of public and private land suitable for urban agriculture was available in Vancouver – enough to produce food sufficient to feed the entire city (Levenston, 1995). Most interesting, the author concluded that the economic retail value of the food produced would be between \$100 and \$300 million annually (Levenston, 1995).

³ 6515 acres is equivalent to 283,793,400ft² or 2637 hectares.

Although the amount of available land has decreased due to development, the economic retail value of the food potentially produced is likely still significant. In a more recent study, the potential revenue from sales of food products, which could be grown in the Southeast False Creek neighbourhood of 10,000 projected residents, was estimated to worth over two million dollars annually (Holland Barrs Planning Group, 2002). Based on these figures, there is economic potential in Vancouver for farmers to develop commercial urban agriculture enterprises. Yet the full potential is undocumented.

Vancouver's political climate is favourable to develop recreational urban agriculture production, but is lacking in support of commercial urban agriculture enterprises. The City of Vancouver's current working definition of urban agriculture lists community gardens, farmers markets, hobby beekeeping, shared garden plots and edible landscaping, but does not address private commercial urban agriculture enterprises (City of Vancouver, 2009). The goals of the urban agriculture activities, as described by the City are limited to enhancing food security, reducing the ecological foot print and increasing social interactions (City of Vancouver, 2009). Some city policies indicate that the city is unsupportive towards the economic opportunities associated with urban agriculture, as evidenced in the recent amendments to the chicken and apariary by-laws. Even as the city repealed by-laws to support backyard chickens in June 2010 and hobby bee keeping in 2005, Vancouver city council denied small-scale commercial activities the selling of eggs and honey (City of Vancouver, 2010c; City of Vancouver, 2005). Currently, city land is only available for food

production to develop community gardens and edible landscaping projects. Community gardens are defined by the City as purely recreational and must be operated by a non-profit organization (City of Vancouver, n.d.). Commercial private enterprises in these spaces are not allowed; and market gardens (see glossary) are not supported. It is apparent that economic opportunities are not part of the current political agenda for urban agriculture in Vancouver.

The lack of support does not mean commercial aspects of urban agriculture could not be beneficial to the city of Vancouver. In 2005, the Vancouver Food System Assessment listed key findings to address food security issues in Vancouver. The assessment found that in Vancouver, “local food enterprise development must be a central component of the capacity building and redesign of the entire food system” (Barbolet et al., 2005, pg 25). The assessment strongly recommends an entrepreneurial approach to urban agriculture, which encourages social enterprises (Barbolet et al, 2005). Kaethler (2006) suggests that commercial urban agriculture enterprises be considered at a number of the 77 potential urban agriculture sites available in Vancouver. For example, a commercial urban farm is recommended at 3580 Walker Street and a farm stand at Nanimo and Charles streets in Vancouver (Kaethler, 2006). In a strategy framework paper developed for Vancouver planners and decision makers, Robert Barrs (1997) advocated to seriously consider urban gardening as a for-profit venture in the city of Vancouver. The potential economic importance of commercial urban agriculture has been echoed in the local literature for over a decade, but there are still no studies documenting the extent or potential of urban

farming enterprises in Vancouver. Therefore, the data gathered in this research study is much anticipated and long over-due.

3: URBAN FARMING

Urban farming is the new generation of urban agriculture in North America. The practice of growing *and marketing* food in the cities of the United States and Canada is gaining momentum. Commercial urban agriculture is not novel to many global cities, but it is relatively new to North American urban centres.

Over the past few decades, the benefits of urban agriculture have been extensively documented by researchers locally and globally, by the International Development and Research Centre (IDRC) and Rural and Urban Agriculture Foundation (RUAF). The social, health and ecological benefits are widely understood and present in academic literature universally. Yet, the real and potential economic benefits are not as well understood. Real economic data in lesser developed countries is not documented to the same extent as social and ecological benefits. In North America, economic data on urban agriculture is absent. It is an unexplored section of the urban agriculture practice.

This section will explore the current climate of the urban farming industry in North America and globally. It sets the context of this emerging industry by outlining a working definition for urban agriculture entrepreneurial activities in North America and the challenges and obstacles to the industry. Most importantly, the knowledge gaps in our understanding of urban farming are

identified. To best explain and understand urban farming, we must first (briefly) explore the broader scope of urban agriculture.

3.1 Urban Agriculture: The Broad Scope

Urban agriculture is widely practiced across the planet. According to Jac Smit in the widely cited book, *Urban Agriculture: Food, Jobs and Sustainable Cities* (1996), about 800 million individuals around the world are engaged in urban agriculture-related activity. This translates to about 15 to 20% of global food being produced in cities (Smit, Ratta & Nasr, 1996). Most significantly, recent studies indicate that urban agriculture is a global activity on the rise (Mougeot, 2006).

The benefits of urban agriculture are far reaching. Increased environmental and nutritional health, improved food accessibility for marginalized groups, street and greenspace beautification, and perceived economic opportunities make urban agriculture a catalyst for developing sustainable communities in Vancouver and across the globe (Barrs, 1997; Feenstra, McGrew & Campbell, 1999; Kaethler, 2006; Redwood, 2009; Smit et al., 1996; Veenhuizen, 2006). Some known health benefits to the grower include physical activity, an increase in fresh vegetable and fruit consumption, and a decrease in chemical pesticide and preservative consumption (Dunnet & Oasim, 2000; Mougeot, 1994). Growing food products in cities can benefit the environment by reducing the transportation of produce from other countries or communities, increasing local soil fertility, reducing pesticide use, recycling organic waste material, and increasing plant and insect biodiversity (Mougeot, 1994; Redwood,

2009; Smit et al., 1996). In North America and Europe, community gardens can increase food security, and provide a venue for community involvement, creative expression and recreation (Dunnett & Oasim, 2000; Feensta et al., 1999; Larson, 2006). The practice of commercial urban agriculture could provide these same benefits, in addition to supposed revenue generation and boosts to the urban economy where it is practiced.

The social and ecological benefits of urban agriculture globally have been widely studied. Conversely, the economic benefits of urban agriculture activities are supported with very little empirical data. The perceived economic benefits are widely discussed, but empirical data is missing (Redwood, 2009). In North America as well as lesser developed countries, economic benefits are discussed in a socio-economic context, which is rarely quantified. For instance, the socio-economic value of urban agriculture in the community has been observed and documented in Vancouver. Low income individuals benefit indirectly from food grown in the city and donated to organizations such as the Richmond FruitTree project and the Urban Aboriginal Community Kitchen Gardens which provide food and services to communities in Vancouver (Barrs, 1997; Kaethler, 2006). Yet these benefits are challenging to accurately quantify. As a result, the true economic benefits of these urban agriculture projects are undocumented. In less developed countries, urban agriculture most notably benefits poor urban residents socially and economically by increasing their food security, freeing up cash which would be used to purchase food, and even supplement income by selling surplus produce (Mougeot, 2006; Redwood, 2009). Similarly, the

benefits are rarely quantified into dollars and cents. With little empirical data, it is unknown whether the perceived economic benefits accurately represent the true economic contributions of urban agriculture. For further discussion of economic potential see 3.4: Economic Feasibility of Urban Farming.

3.2 Urban Farming Defined

For the purposes of this paper, I used the term **urban farming**, rather than urban agriculture, to describe entrepreneurial, commercial and economic activities of urban food production in North America. I crafted a definition for this term to adequately reflect the paradigm shift in how North Americans practice and experience urban agriculture. Although the most popular definition of urban agriculture includes processing and marketing, in North America urban agriculture focuses mostly on food production and is predominantly associated with food security and recreation, not economic generation. **Urban farming**, as defined for this paper, **is an entrepreneurial activity combining the practices of growing and marketing food products in urban spaces for urban consumers.**

The most widely accepted definition of urban agriculture was conceived by Jac Smit (1996) and adapted by Luc A Mougeot (1999). The definition below is published in a thematic paper, in *Growing Cities, Growing Food*, titled Urban Agriculture: Concept and Definition.

Urban Agriculture is an industry located within (intra-urban) or on the fringe (peri-urban) of a town, a city or a metropolis, which grows or raises, processes and distributes a diversity of food and non-food products, (re-)using largely human and material resources,

products and services found in and around that urban area, and in turn supplying human and material resources, products and services largely to that urban area (Mougeot, 1999, p. 10).

This definition broadly encompasses all possible locations, products and associated economic activities, including marketing. Yet, Mougeot (1999) admits that most working definitions of urban agriculture refer to the production phase of agriculture. Since most definitions of urban agriculture globally ignore the profitability and entrepreneurial aspects of the activity, the term urban agriculture is not adequate to discuss the activities of my research. Furthermore, definitions tend to associate urban agriculture activities with a specific socio-economic class – the poor – even when economic aspects are included in the definition. Redwood (2009) states that “urban agriculture is about food self reliance: it involves creating work and is a reaction to food insecurity, particularly for the poor” (p. 1). Mougeot (1999) acknowledges that the relevance of the definition is historically, culturally and geographically dependent. The context of urban agriculture in the South and North differ because the practices have evolved under different cultural and economic influences. Therefore, these practices cannot be adequately distinguished using the same definition. In the South, where commercial urban agriculture has been present longer than in the North, most economic activity is in the form of subsistence farming or supplemental income, but rarely private enterprise (Redwood, 2009). In North America, historically, urban agriculture is a recreational activity built on the ideals of social and environmental sustainability. To avoid ambiguity between global differences

in urban agriculture, I chose to use a completely different term, urban farming, to discuss economic urban agriculture activities in a North American context.

There is also ambiguity around the terminology for commercial urban agriculture in North America. Two factors contribute to the confusion. Firstly, there is no common term in the academic literature to describe this emergent commercial urban agriculture movement in North America. Commercial urban agriculture in North America has been referred to as entrepreneurial urban agriculture, entrepreneurial gardens, city farming or for-market city farming by academics (Feenstra et al., 1999; Kaufman & Bailkey, 2000). Secondly, the history of commercial urban farming in North America is brief. The earliest projects are not even 30 years old; and by the year 2000 only 77 urban farming enterprises were documented in Canada and the United States (Kaufman & Bailkey, 2000). In Vancouver, the history is shorter. City Farm Boy, a pioneer of small-scale urban farming in Vancouver, has only been in operation since 2006 (City Farm Boy, 2009). Urban agriculture as a commercial activity has come to the attention of mainstream North America only recently. A brief scroll through the City Farmer News website⁴, a recognized leader in urban agriculture issues, reveals a plethora of stories about urban agriculture enterprises popping up all over the United States, and occasionally in Canada, over the past two to three years. These enterprises are commonly referred to as urban farms, when food products are sold. This term, urban farming, emerged recently in news stories,

⁴ The City Farmer News: News Stories from “Urban Agriculture Notes” compiles and links news stories on urban agriculture topics from a range of media sources. The website can be found at www.cityfarmer.info.

blogs, websites and grey literature and is gaining popularity and understanding through media and non-scholarly sources. I decided to use urban farming, rather than commercial urban agriculture or entrepreneurial urban agriculture, to reduce ambiguity and reach a wider audience. Since a commonly accepted definition for this term is absent from any literature, I compiled a definition for the term based on literature from academic and non-academic sources. The definition refers to social and private enterprises.

It must be noted that the some authors researching urban agriculture in the South use the terms urban agriculture and urban farming interchangeably (Mougeot, 1994; Mougeot, 2006; Redwood, 2009), but the terms do not always refer to entrepreneurial urban agriculture activity. For this reason, it is important to realize that the definition put forth in this paper refers specifically to urban farming activities in Canada and the United States.

3.3 Urban Farming in Context

Urbanites in lesser developed countries, disconnected from the conventional global food system, have been growing and selling produce commercially within the city limits for decades. Commercial urban agriculture has provided employment, income and food security for low and middle-income families in Latin America, Africa and Asia (Hovorka, 2004; Mougeot, 1994; Redwood, 2009). With recent spikes in oil prices and the downturn of the global economy, North American cities may be in a similar circumstance very soon. The social and economic environment in North America is prime for urban farming to flourish, but major gaps in the data need to first be filled so the

economic case for these activities can be made. Furthermore, the emerging industry currently faces challenges of political apathy and financial insecurity.

Urban farming is a fast emerging industry with the potential for growth in urban centres around the globe. Commercial urban agriculture has been gaining momentum at various capacities around the globe for a number of decades (Veenhuizen, 2006). Approximately one quarter, or 200 million, of the 800 million urban farmers globally are producing for market (Smit et al., 1996). Some authors believe the urban farming industry will be one of the main new drivers of sustainable urban development, globally and locally, in the future, because of its many social, economic and environmental benefits to cities (Blay-Palmer & Donald, 2006; Feenstra et al., 1999; TFCP, 1999; Veenhuizen, 2006). Yet, as Kaufman and Bailkey (2000) point out, urban farming is still in “embryonic stages” in North America. Urban farming faces many challenges and there is still much research that needs to be done on its real economic contributions to the urban economy.

Urban farmers play an integral role in the local economy and community. In urban centres across North America, urban farming enterprises historically have been erected as a means to generate income on land which is vacant or temporarily unproductive (Kaufman & Baikley, 2000; TFPC, 1999). Most enterprises produce fresh vegetables, herbs, flowers and fruit on one⁵ to two acres of land (Feenstra et al., 1999; Kaufman & Bailkey, 2000). Direct marketing through Alternative Food Networks (AFNs) initiatives, such as farmers markets

⁵ One acre is equivalent to 43,560ft².

and harvest shares are the primary enablers in marketing the produce. In fact, most urban farming enterprises first start selling their produce at farmers markets (Veenhuizen, 2006). This direct marketing venue offers the opportunity to learn marketing skills and develop business contacts to help urban farming enterprises secure more lucrative markets, such as restaurants or retailers (Feenstra et al., 1999; Feenstra et al., 2003). It is widely suggested that urban farming enterprises have the potential to generate long-term economic sustainability for its community. A British study quoted in the Vancouver Food Charter Backgrounder claims that consumers purchasing from outlets in the local, rather than global, food system have greater return (2.9x vs 1.4x) to the community's local economy (City of Vancouver, 2007, p. 2). Money spent at local food stores will circulate in the local economy when these businesses spend their money locally, for instance, to pay taxes, buy inputs locally, and employ staff, which in turn spend some of their money locally on entertainment and living expenses (Sacks, 2002). This notion is echoed in a document published by the Toronto Food Policy Council in support of urban farming enterprises. It states that communities, "where more local and sustainable food economies are being re-established, reveal a greater percentage of the value of production remains in the community and greater long-term financial benefits might result" (TPFC, 1999, p. 8). Unfortunately, there is little data to show the actual direct economic impact of urban farming within the local economies of North America, since there has been very little research on this newly emerging industry.

The context of most urban farming enterprises explored in the literature is community economic development. Urban farming enterprises in the United States have emerged as a means to combat issues associated with fast urban and suburban growth, and inner city deterioration, such as poverty, (un)under-employment, lack of workforce training, and malnutrition (Feenstra et al., 1999; Kaufman & Bailkey, 2000; Veenhuizen, 2006). The positive social impacts of such small-scaled enterprises can be especially important to empowering vulnerable groups, building human and social capital and providing long-term community benefits. These enterprises provide job training for youth and adults, particularly in low-income neighbourhoods (Feenstra et al., 1999). Training youth is essential to the longevity of the family farming industry, since the mean age of farmers in British Columbia and across North America is 60 years old (Mullinix et al., 2008). Most importantly, workers develop a broad range of skills in business, marketing, horticulture, landscaping, environmental stewardship and leadership. Such human capital is essential for economic development to proceed in a community (Feenstra et al., 1999; Feenstra et al., 2003).

Urban farming enterprises are not without their challenges. Even as community economic development (CED) programs, urban farming enterprises are disadvantaged at receiving financial support from government sources. Presently, urban agriculture enterprises lack recognition and funding support from all levels of government. In the United States, the United States Department of Agriculture provides subsidies and financial assistance to other agri-business without prejudice, but not urban farms (Kaufman & Bailkey 2000).

In Canada, the Canadian and provincial governments and non-government agencies support farmers financially with disaster assistance and micro-lending, yet urban farming enterprises are excluded based on low production volume and operation size. Urban farming enterprises are severely under-recognized and under-financed, further reducing their economic viability.

The recent construction of food policies in Toronto and Vancouver has moved the issue of food production and distribution into the realm of municipal governance in Canada, yet food planning is still sorely overlooked in city planning. Janine de la Salle and Mark Holland, in *Agricultural Urbanism*, discuss the challenges to 21st century food system planning due to the disconnection between agriculture and city planning; the authors claim that, “the permanence of food has been forgotten in city building practice” (de la Salle and Holland, 2010, p. 22). Kaufman and Bailkey (2000) found that there is a general lack of interest in market and non-market urban agriculture by all levels of government in the United States and Canada. In a paper published by the Toronto Food Policy Council, Wayne Roberts and his colleagues critique the neglect of urban agriculture activities in city planning by highlighting a number of missed opportunities for incorporating urban agriculture into Toronto’s Official Plan, the much acclaimed *Toronto at a Crossroads* (Roberts, 2001). Roberts claims that the Plan lacks a detailed land use plan for its visionary principles. Urban agriculture is not given enough attention in the Plan, since food related topics and references only “occupy 0.25% of the 140 page report”, 11 references in total (Roberts, 2001, pg 5). For instance, in one reference the City of Toronto

acknowledges the economic benefits of urban agriculture markets, but does not address the lack of permanency for market garden sites on public and private land as a major challenge in the long-term viability of urban farming enterprises (Roberts, 2001). City planning practices across North America have done little to minimize the major risks of operating an urban farming enterprise. City planners and officials do not recognize urban agriculture as legitimate use of land. As a result they rarely offer long-term land tenure for urban agriculture activities (Feenstra et al., 1999; Kaufman & Bailkey, 2000).

Many planning challenges associated with urban farming enterprises are related to cultural and negative perceptions. There is a bias for agriculture to be a rural, not urban, activity. For instance, the City of Vancouver has a zoning designation, RA, for agriculture activities, but there is only one area in Vancouver zoned RA. This area is limited to the outskirts of Vancouver, yet other areas of the city can support limited agriculture activities. Policies limiting agriculture in city are based on historical bias. Agriculture activities in the past included large equipment, loud noises, offensive smells and chemical use; yet, modern, organic small-scale practices can avoid these offences since they do not use large equipment, or chemical pesticides, making these practices acceptable urban activities. In fact, many aspects of the food sector are an urban activity, including processing, distributing, and consuming (Blay-Palmer & Donald, 2006). The attitude that food production and agriculture are exclusively rural activities needs to change for food production to be incorporated into urban design (Blay-Palmer & Donald, 2006; TFPC, 1999). For this reason, authors Blay-Palmer and Donald

(2006) strategically published their article related to urban food production in *Economic Geography*, a journal not traditionally concerned with the urban economic activity of agriculture. Overall, the current perceptions have hindered urban farming from moving forward on the agendas of local, provincial and federal governments (Kaufman & Bailkey, 2000).

The potential of urban farming enterprises to add social and economic value to cities is well documented in the urban agriculture literature. Yet urban farming enterprises face real challenges of legitimacy, which hinders the movement onto the political and planning forefront. Most important though, there are major questions about the economic feasibility of the industry. This is discussed in the next section.

3.4 Economic Feasibility of Urban Farming

In theory urban farming makes economic sense. The small-scale, intensive business operates with low overhead costs and almost no capital investment (SPIN Farming, 2010). Yet there is a contradiction between potential economic growth cited by urban farming proponents and actual revenue generated from urban farming enterprises in operation. And actual numbers are scarce, which increases the uncertainty of true growth potential of this industry.

The goal of SPIN farming, “Small Plot INTensive farming,” is to reduce expenses to between 10 - 20% of the revenues to maximize net profit from the food sales. There are no land costs since under-utilized urban spaces (such as a lawns, abandoned spaces, and brownfield sites) are used without fees or rents.

The markets are located close to food production sites to reduce transportation costs and time. Urban farms operating according to the SPIN farming practices can potentially turn large profits. Yet the numbers vary. An urban farm in Berkeley, California boasts to make as much as \$238,000 annually on a half of an acre⁶, using small-scale intensive techniques (Devault, 1990). In Philadelphia, an economic feasibility study of urban farming concluded that half of an acre could gross \$120,000 and net a total of \$60,000 for a two-farmer team operating an urban farm (Urban Partners, 2007). SPIN farming claims that one urban farmer can gross between \$24,000 and \$72,000 on a half of an acre (SPIN Farming, n.d.). According to SPIN, these numbers ranged depending on knowledge, experience and the types of crops grown (SPIN farming, n.d.). These numbers are predictions. Real revenue statistics for private enterprise are difficult to find in the literature.

Revenue statistics for urban farming social enterprises are easier to find than for private enterprises, but remain scarce, especially in scholarly sources. There is a noticeable pattern that emerges in the economic patterns of urban farming social enterprises. Although these social enterprises can boast up to nearly one million dollars in sales, their operating budgets often exceed their sales revenue. For instance, Soil Born Farms in Sacramento, CA, has been operating since 2000. Currently its operating budget is \$780,000, but 60% of its revenues come from private foundations and government grants (Christian, 2010). The Sharing Farm, at Terra Nova Rural Park in Richmond, BC, operates

⁶ 0.5 acres is equivalent to about 21,700ft².

in a similar fashion. According to Arzeena Hamir, the Richmond Food Security Society coordinator, in their first year of operation as a social enterprise, the farm estimates to gross \$20,000 in food sales through markets and CSAs, but has an operating budget of \$80,000. In Milwaukee, Growing Power, the most widely known urban farming enterprise produces \$250,000 gross sales on two acres of land, but relies on one million dollars in grants to operate. Greensgrow in Philadelphia is the only example I found of an urban farming social enterprise, which turned a profit – after ten years in the business (Hurdle, 2008). In 2007, Greensgrow net \$10,000; in 2009, they made \$85,000 net profit from the \$825,000 of gross sales from one acre of land (Hurdle, 2008; Christian, 2010). Greensgrow re-invested the profit into their organization to further their social mission. Some of the funds were used to start a community kitchen (Christian , 2010). Long-term economic data such as this is truly scarce in the literature.

The economic figures for urban farming enterprise in the USA suggest that this is not an economically self reliant industry, but the figures cited above are limited to newly emerging social enterprises, whose many goals may not include a profit. The viability of private enterprises is much less clear, mostly because the data hasn't been reported. My study attempts to add a piece of data to a large gap of unknown information in the urban farming context.

There is still a lot to understand about the economic viability, political climate and social planning outcomes of urban agriculture enterprises. To summarize a recurring theme in the current literature, the authors of the widely cited 1996 United Nations publication on urban agriculture found the potential for

urban agriculture to be “largely untapped and undervalued. It is an ill-understood industry” (Smit et. al., 1996, p. 5). And even though the industry is better understood today, a 2009 IDRC⁷ publication quoted the lack of empirical economic data for urban agriculture to continue to be a major obstacle in fully understanding and legitimising this practice (Redwood, 2009). As Blay-Palmer and Donald (2006) concluded more recently, there is evidence that food system planning strategies in a few North American cities create new possibilities for sustainable economic development. Yet there is a lack of literature examining the “actors of innovation and economic development” in the food system within the city (Blay-Palmer & Donald, 2006, p. 397). In my thesis, I attempted to fill parts of this knowledge gap within the context of Vancouver’s urban farming sector. I used my understanding of challenges, benefits and enablers of urban farming discussed above to develop a context for identifying the key factors in facilitating urban farming enterprises in Vancouver.

⁷ The IDRC (International Development Research Centre) is a widely recognized authority on urban agriculture issues and research. The 2009 publication is their most recent comprehensive study.

4: LOCAL FOOD ECONOMY

The local food economy (LFE) is an alternative economy to the ubiquitous, yet unsustainable and increasingly risky, global food economy. The LFE is growing in size in British Columbia and Vancouver. Urban farmers rely on the local food economy to market their products, yet as the LFE grows in market capture and acceptance into the mainstream, it is unknown how niche markets, such as local urban food products, will be able to respond.

4.1 The Local Food Economy in North America

A new food economy is emerging in North America. It started from the impetuses of urbanization, loss of agricultural land, and increased consumer awareness and appreciation for food. As cities sprawl into rural lands, large farms chose to leave the urban fringe for cheaper land farther from the city centre. Small family farms, without means or desire to move, struggle to survive. The new food economy offers an alternative market to the conventional global food system for these small-scale farmers by supporting locally grown and locally processed foods. The new food economy is desirable for consumers who support the creation of a more sustainable, alternative food economy (Donald & Blay-Palmer, 2006; Jarosz, 2008).

This new food economy, dubbed the local food economy, is built on a desire for local, fresh, organic and specialty foods (Blay-Palmer & Donald, 2006;

Donald & Blay-Palmer, 2006). The LFE aims to re-localize and socialize food production, distribution and consumption (Jarosz, 2008). Yet, the definition of “local” is a contentious debate. Local food has been popularly defined by British Columbia residents Smith and MacKinnon (2007) in their book the *100 Mile Diet*, as food grown or produced within 100 miles (160km) from purchase site; whereas, provincial organizations *EatBC* and *Get Local BC* consider the entire province of British Columbia to be local. Both of these definitions have merit. Additionally, a more recent term, “extreme local”, is gaining use. Extreme local can be used to describe food consumed within a few hundred metres from a production site – such as backyard gardening or urban farming. At Canadian farmers markets, a large player in the LFE across Canada, 71% of the vendors drive less than fifty kilometres to market (Farmers Market Canada, 2009). However “local” is defined, the aim of the LFE is to supply food products, which are grown and processed closer to the site of consumption than foods sold through the conventional food system.

The organizations and individuals dedicated to establishing the LFE have a variety of motives. Some are dedicated to environmental sustainability and social justice, some are driven by economic concerns (Blay-Palmer & Donald, 2006; Jarosz, 2008). In general, consumers are concerned about environmental sustainability, and social and health issues related to food (Local Food Plus, 2008). Food produced locally reduces the fossil fuel dependency for transportation miles. The absence of synthetic chemicals on organic produce is healthy for our bodies and the environment. Since produce travels less distance

it can be fresher. Some consumers prefer local produce for its superior taste and nourishment (Blay-Palmer & Donald, 2006; Edible Strategies, 2006; McNally, 2008). Consumers and producers alike may be interested in experiencing the social connections embedded in the direct consumer-producer transactions at alternative food networks (Hinrichs, 2000). Blay-Palmer and Donald (2006) conclude that consumers' anxiety toward food has shaped the new food economy due to "a demand for food production-consumption chains that involve trust and transparency" (p. 391). Bridging the gap of understanding between farmers and consumers, and increasing transparency is possible through direct marketing opportunities, such as harvest share programs and farmers markets (Hinrich, 2000; Jarosz, 2008).

Alternative food networks (AFN) are the key component of the new local food economy (Brown & Miller, 2008). AFNs include but are not limited to farmers markets, pocket markets, food coops, fruit stands, u-pick and harvest share programs. These networks are defined by distribution of small-scale specialty (often organic and local) food, and are committed to sustainable food productions (Jarosz, 2008).

4.2 The Economics of the Local Food Economy

The local food economy plays an important role in urban farming. Urban farmers use alternative food networks to market their products. Farmers markets, in particular, generate significant revenue for the Canadian economy each year. Operating in the local food economy potentially offers more economic stability than the global food economy for urban farmers.

Economic sustainability is a key motivation for small farmers' involvement in the LFE. Economic uncertainty, due to strong global competition, stagnant prices, increased expenses and the threat of urban sprawl, is one of the greatest challenges facing small-scale farmers in the current global food economy (BC Ministry of Agriculture and Lands, 2008). Players in the LFE operate as external economy firms. According to Vernon (1985) external economies are characterized as small businesses, with minimal fixed capital, unstandardized goods with continually changing processes and products. The small-scale farmers and artisans marketing products in the LFE fit this description. Urban farmers rely on the external economy, other small specialized and uncaptialized firms, to operate their businesses. Urban farmers purchase their inputs such as seeds and fertilizers from small local specialized companies; the farmers rely heavily on outside specialists, such as local farmers markets, for marketing and advertising. Operating in the external economy, instead of the conventional highly integrated (conglomerated) food system, may offer economic stability to some players. Urban farming enterprises, for instance, do not require heavy capital so may be able to weather economic recessions better. These enterprises are highly specialized and produce for a niche market at collective market sites, such as farmers markets, overcoming economies of scale by relying on social integration. Such marketing models may be more resilient to economic crisis (Brusco, 1982). External economy firms contribute more to a region's employment rate than other businesses, through value-added profits,

and more people from the local areas employed in these industries (Vernon, 1985).

Marketing in alternative food networks allow farmers opportunities to be 100% to 200% more profitable through direct marketing and value added production than traditional marketing pathways (Alden, 2008). A generation ago, farmers received roughly 30 cents for every dollar spent by consumers on food; currently, farmers in the global food system receive eight cents or less per dollar (Cabaj, 2008). Eliminating the middle organizations present in the global food distribution chain collects a large portion of the profit between the consumer and farmer (Jarosz, 2008). Feenstra et al. (2003) showed that farmers markets are important in providing business opportunities and promoting business for small-scale (less than \$10,000 in sales) farmers. Farmers markets are “incubators for new business and primary venues for part-time business” (Feenstra et al., 2003., p. 52). AFNs provide a niche market for small-scale farms that large scale, globalized agri-businesses cannot compete in, such as markets for fresh and local food (Alden, 2008; Blay-Palmer & Donald, 2006; Finnamore, 2008). Most notably, food products in the local economy are sold at prices which reflect the real cost of producing food (Olson, 2008). The LFE contributes to a more economically and environmentally sustainable system because it does not rely on transportation subsidies, cheap labour and environmentally detrimental practices used in the conventional food system. In uncertain economic times, such as now, the sustainable nature of the new food economy may prove more resilient and even more profitable than the dominant global food system, for its

players. Yet it is too early to know. The long-term viability of the LFE and AFN is unknown, as they are new industries. Although it is suggested that the LFE will improve the economic viability of those in the agriculture community, because it offers greater profits on product through direct sales, there is no long-term evidence supporting this claim. Furthermore, unless the LFE gains a greater proportion of the food economy market, it will not have enough clout to make real changes to the value of food.

The local food economy has become big business in Canada; but it is still a small player compared to the global entities in the food sector. More than 70% of Canadians believe that purchasing locally grown food helps the local economy and supports family farms. Fewer than 10% believe there is no benefit to purchasing locally (Edible Strategies, 2006). Based on interviews with key players in the food industry, Donald and Blay-Palmer (2006) concluded that organizations in the local and organic food sectors of the new food economy are flourishing despite bias towards the large agri-businesses in the conventional global food system. Farmers markets, in particular, have emerged as a significant part of the food economy recently. In 2008, the impact of farmers markets on the Canadian economy was estimated at \$3.09 billion, with direct sales of \$1.03 billion (Farmers Markets Canada, 2009). This significant economic contribution was mirrored in British Columbia's economy. The combined value of sales at BC's Farmers Markets and surrounding businesses is over one billion dollars (BC Association of Farmers' Markets, 2008). Even if these AFN initiatives continue to expand provincially and nationally in the future,

as expected, they are still miniscule markets compared to the big box grocery stores. Large supermarkets are still the primary shopping sites of most Canadians (Farmers Markets Canada, 2009). Canadians spend over one billion dollars directly at farmers markets annually (Farmers Market Canada, 2009), but \$71 billion at supermarkets (Agriculture and Agri-Food Canada, 2009a) and about \$37 billion for food at restaurants and food service outlets (Agriculture and Agri-Food Canada, 2009a). The local food movement needs to capture a bigger portion of the \$100 billion spent at restaurants and chain supermarket stores to be a viable player in the food economy.

The social, environmental and economic impacts of the local food economy are widely recognized. The local food economy has the potential to be more sustainable and generate greater revenues for the farmers than the global food economy. There is the potential for even greater economic impact if the local food economy can increase its market share of food sales against competitors in the global food economy.

5: METHODOLOGY

The methods for data collection and analysis in this qualitative study are described below. I created a set of criteria to define the type of urban farming practices relevant to this research study. The number of research participants was limited by the small number of urban farmers practicing in the city of Vancouver, at the time the research was initiated. The data from the research participants – four urban farmers and two urban farm groups – was collected and analysed using an ethnographic approach, based in grounded theory. The results were presented as a collective portrait. Common themes emerged which were used to postulate three overarching theories about these urban farmers.

5.1 Data Collection: Qualitative Interviews, Direct Observation and Participation

To tackle the above-stated research goal, I used a qualitative approach. Since there are only a handful of individuals engaged in this type of farming activity in Vancouver, I could not select a representative sample from the group to perform a statistical analysis. In the qualitative approach, I chose to collect data from in-depth interviews with participants, direct observation of the participants' activities related to their urban farming enterprise and participation in the operations of the enterprise. The goal of the data collection process was to

gather an in-depth understanding of each urban farmer and their business. I chose to present the data as an ethnography.⁸

5.1.1 The Participants

In the search for research participants, I identified a number of highly urbanized farm operators in the core areas of Vancouver. According to the 2006 Census of Agriculture, there are 2618 farms in Metro Vancouver (Metro Vancouver, 2007). These operations differ greatly in size, proximity to urban core, land use, use of equipment, marketing strategies, and products. This study focused on newly emerged, non-mechanized farms in high-density areas, with close proximity to the urban core.

A set of criteria was established for the focus of this study. A pool of potential urban farmers was established based on the following five criteria: 1) the urban farms grew and sold mostly food products, 2) the urban farmers produced all their products in the city, without relying on imports to supplement their markets 3) the urban farmers sold their products predominantly (if not exclusively) to Vancouver-based urban markets, 4) the urban farm is established on land which has been recently converted from urban residential, commercial or industrial use to agriculture use and 5) the urban farm operates as a private enterprise, with the intention to make a living from the farming activities.

Most of the 2618 urban farms in Metro Vancouver were eliminated based on these criteria. Criterion one eliminated potential commercial urban farming

⁸ According to Babbie and Benaquisto (2002) in *Fundamentals of Social Research* (pages 307-308), ethnographies aim to study subjects in their natural environment.

operations, such as the commercial greenhouses in Burnaby, located at the “Big Bend Area” on Marine Drive. These operations grow a significant amount of bedding and nursery plants in addition to food products. Criteria two and three eliminated farming operations which are integrated into existing food distribution channels; for example, a restaurant that sources most of its produce elsewhere but might grow specialist herbs or vegetables that cannot be easily obtained in local markets. Criterion four eliminated a number of urban farms, which are part of the Agriculture Land Reserve, as this land has historically been used for agricultural purpose. Most urban farms in the ALR are only urban in the sense that some sections of the ALR fall within the administrative jurisdiction of a Metro Vancouver municipality. Not now or at any time in the past has the land been used for urban activities. Examples of these urban farms can be found in Richmond between No. 5 and No. 6 Road south of Westminster Highway. An exception is Southlands in Vancouver, where the land is designated as ALR, but has been used more recently for urban residential purposes. This criterion also eliminates the commercial greenhouses and market gardens in the “Big Bend Area.” Criterion five eliminated a well know urban farm in Vancouver, UBC Farm. The agricultural activities of UBC Farm are primarily centred on education. The marketing of produce grown on site is a small portion of their wider activities (UBC Farm, n.d.).

The actual pool of potential research participants, which fit the criteria, was quite small. I identified six research participants – four urban farmers and two urban farm groups – for my research project. To identify potential

participants, I networked extensively and searched a variety of sources. To find the urban farmers, I conducted media searches of newspapers, online news, blogs, TV and the websites of local urban agriculture organizations to identify urban farmers. I built networking relationships with information contacts who are directly involved with the Lower Mainland's urban agriculture and local food scene. These contacts connected me with other contacts and potential research participants. This snowball approach to finding potential research participants was necessary in identifying participants for my research project. One limitation of snowball sampling is that it may exclude people outside the known social networks in Vancouver. Starting in May 2009, I investigated various farmers markets and pocket markets in the Lower Mainland to find vendors who grew and sold their products in the city. In addition, I contacted businesses potentially associated with commercial urban growers, such as restaurants and edible landscaping consultants. Locating highly urbanized farmers through their markets was a practical way to access the farmers. At the same time, this method potentially eliminated urban farmers who do not sell through these urban market venues.

The confidentiality of the urban farmers was important. Since this is a small group of farmers, I used a number of actions to protect the farmers and ensure anonymity. All names are pseudonyms. I used the pronoun "she" when referring to all urban farmers in the study.⁹ In some sections of the discussion, I did not mention which specific farmer was involved because it would be possible

⁹ I chose the pronoun she, rather than he, since most of the urban farmers are female.

to identify the individual from the information provided. All research participants signed consent forms to participate in the research study. Upon completion of the thesis, the research participants were given the opportunity to review the results and comment on the information presented before submitting the paper.¹⁰

5.1.1.1 The Urban Farmers

Table 1 describes the six urban farmers and urban farm groups involved in my research. The farmers were separated into two business groups. An urban farm group, such as Eva's farm group, is comprised of many urban farmers sharing land. They work as a team, sharing the workload and dividing the expenses and revenues. Solo Farmers, such as Frieda, work the land and operate their business independently. Solo Farmers may occasionally share the cost of marketing their products with other Solo Farmers. It is not uncommon for Solo Farmers to help other Solo Farmers with their workload and share knowledge. Solo Farmers pay all their own expenses and keep 100% of their revenue.

The urban farmers/farm groups varied in marketing venues and products sold. The major food products are listed in the table below, Kim and the two farm groups also sold flowers. The urban farmers had a variety of markets within which to sell their products (see Table 1: The Urban Farmers). The category of farmers markets includes pocket markets and farm stands. Harvest shares include traditional or non-traditional CSAs (see glossary). Supplemental income

¹⁰ Of the six farmer/farm group, one farmer did not respond to the opportunity to review the results. Within the farm groups, the leader reviewed and responded to the results.

sources are also listed. Related income generators are projects or side businesses, which generate revenue for the urban farming enterprise, but are not directly the activity of growing or selling food products. Examples are farm tours, workshops, and consulting businesses. “Off-farm” employment is a part-time or full-time job, which is not directly associated with the urban farming enterprise. See Chapter 10: Business Operations for further discussion.

Table 1: The Urban Farmers

Name	Organization of Business	Primary Food Products	Primary Market Venues	Supplemental Income Sources
Eva’s farm group	Farm Group	Vegetables, herbs	Farmers Market	Related income generators; “off-farm” part-time employment; flowers
Marivec’s farm group	Farm Group	Vegetables, fruits, herbs	Harvest Share, Farmers Market	“Off-farm” part-time employment; flowers
Frieda	Solo Farmer	Vegetables, fruits, herbs	Harvest Share, Farmers Market	Related income generators
Nazanin	Solo Farmer	Vegetables, herbs	Harvest Share, Farmers Market	Related income generators
Sabine	Solo Farmer	Vegetables, herbs	Harvest Share, Farmers Market	“Off-farm” part-time employment
Kim	Solo Farmer	Vegetables, herbs	Harvest Share	Related income generators; flowers

5.1.2 Interviews

I chose, as part of my qualitative data collection technique, to conduct life-history interviews. The life-histories methodology I used is based on the processes outlined in Chapter 3 of *Doing Cultural Anthropology* (Angrosino, 2002). Over the 2009 growing season I conducted a number of interview sessions. The number of sessions per farmer ranged from three to ten. Each session ranged from one to four hours in length and had an intended focus. However, I was flexible with the focus and allowed the farmers to talk as much as they wanted about any particular topic. It was important to let them speak freely and not impose my suggestions or thoughts, to avoid bias (Babbie & Benquisto, 2002). As I conducted the interviews and learned more about the industry and each individual farmer, I adapted my interview outline to include a broader question set over the 2009 growing season. Since the data collected were not intended to be used in statistical analysis, the questions were not standardized for each participant. To ensure that I covered all the material that I want to glean from each farmer, I composed an interview guideline (see Appendix A). The categories of interest for the interviews include background history, marketing/selling factors, land use issues, business economic factors, and planting regime.

With respect to the farm groups, I did the majority of the communication with the “leader” of the group. The leader was identified as the person who initiated the urban farming operation. I interviewed and observed all members of each farm group at some point during the season. I cross-referenced some of

the data collected from the leader with other members of the farm group. Where the information was different between leader and member, I made a specific note in the results that the data only referred to one member of the urban farm group, not the entire group.

5.1.3 Observations

Ethnographies aim to study groups in their natural environment. I observed the day-to-day business operations of each urban farmer throughout the 2009 growing season. I used direct observation and participant observation to deepen my understanding of the growing and marketing tasks. The observation methodology I used is based on the processes outlined in Chapter 9 of *Doing Cultural Anthropology* (Borman, Puccia, McNulty & Goddard, 2002). The participants were not able to fully verbalize some of the information necessary to my study, such as growing techniques. This data was better gathered through direct and participant observation. The observations took place concurrently with the interviews, spread out over the growing and selling season. Observations were conducted at the various marketing venues, such as farmers markets, at harvest share pickups, and farm stands. Growing techniques, such as planting and harvesting were observed at the farmer's plots. When permitted, I also observed other transactions, such as discussion with the landowners, interactions with volunteers and customers, and contact with the media. The observations corroborated the information gathered from the interviews, as well as offered supplemental data for a deeper understanding of my study (Borman et al., 2002).

5.1.4 Validity and Reliability

Corroborating the information collected during the interviews was essential to ensure the validity of the data. There were two methods I used to corroborate the data gathered in the interviews. These methods also increased the richness of the data collected. In the first method, I cross-referenced the data obtained in interviews with the direct and participant observations, mentioned above. The second method relied on archival data. I searched media clips and farmer's websites and blogs to confirm the accuracy of the data collected from the interviews and observations. These secondary sources added validity to the data collected over the season (Angrosino, 2002). Furthermore, I studied the urban farmers over a period of nearly one year. Multiple interview sessions and long exposure to their practices ensures the data accurately reflects the farmers' practices.

Ensuring the reliability of in-depth research is challenging. A recommended strategy is the "test-retest" method, outlined in the *Fundamentals of Social Research* (Babbie & Benaquisto, 2002). Over a series of interview sessions, I repeated questions, which I had asked in an earlier interview. If the answer was the same, this strengthened the reliability of the information. If the answer was different, it allowed an opportunity to document how practices, ideas and attitudes changed over the course of a growing season. It must be noted that the business operations, growing practices and attitudes of the urban farmers were not static for the duration the research was collected. This is reasonable as many of the urban farmers were only in their first full-year of production. The

results section acknowledges a few of these realized changes in practice or attitude. Periodically cross-referencing the information gathered from interviews with secondary sources, such as media clips and farmer's websites and blogs, increased the reliability of the data gathered at that particular time in the season. The data analysis and data collection followed a transparent set of procedures. The procedures for transcribing and coding data are outlined below in section 5.2.1 and 5.2.2.

5.2 Data Analysis

The qualitative data analysis for this study was based in grounded theory. According to Strauss and Corbin (1998), grounded theory is “theory that was derived from data, systematically gathered and analyzed through the research process. In this method, data collection, analysis and eventually theory stand in close relationship to each other” (as cited in Babbie & Benaquisto, 2002, p. 378). There was no preconceived hypothesis at the beginning of the study. Through the course of data collection, interpretation and analysis, patterns and themes emerged. From these emergent themes, a few major conclusions and theories were constructed. Babbie and Benaquisto (2002) note that, “the key to grounded theory is a combination of grounding concepts in data and researcher creativity” (p. 378). To ensure credibility and avoid researcher bias, it was imperative to outline a set of replicable procedures for data collection and analysis (Babbie & Benquisto, 2002).

5.2.1 Transcribing Data

A research process based in grounded theory is not a linear progression from hypothesis to data collection to analysis to conclusion. It is an alternating process between data collection and data analysis, in the search to reveal patterns (Babbie & Benaquisto, 2002). For this reason, it is imperative to clearly outline the process I used to transcribe, code and analyze the data collected from the research participants.

The following is the methodology I developed and used for transcribing notes from interviews and observations for each session with the urban farmers:

1. Take notes during interviews and participant observations (as able).
2. Add more notes (or more details to the existing notes) immediately after session.
3. Transcribe within a few hours of session.
4. Transcribe as much from memory. The data is recorded in two columns – manifest data and latent content.
 - Manifest data includes data which the farmer said directly in the interview and my direct observations. These data were recorded in the left column of the notes.
 - Latent content was recorded in the right column of notes. Latent content includes observations and points from conversations that would need further understanding and meaning. In the latent content section, I recorded my thoughts and preliminary analysis (in a separate font), which

I used for further analysis as I collected more data (Babbie & Beniquisto, 2002).

5. Record any ideas or questions I had for next interview.

6. Review notes to verify I included all data.

Transcribing was concluded when I could not recall any more details or add any more interpretation.

5.2.2 Coding

The data I collected was analyzed qualitatively. As is common with grounded theory, the data collection and data analysis did not proceed in a linear fashion (Babbie & Beniquisto, 2002).

As the data was collected, I started to see emerging themes and categories. I recorded these themes as memos next to the data (Babbie & Beniquisto, 2002). As I collected more data, I transcribed them into these categories if they fit. New categories emerged and others were eliminated as I collected data. For instance, I originally had time management as a code, since it seemed to be a re-occurring theme early on, but I found this code to be too broad, so I eliminated it and re-coded the notes within it to other more appropriate codes. I used an open coding system to analyze each data set according to three foci (Babbie & Benequito, 2002; Flowerdew & Martin, 2005; Redfern-Vance, 2002). The three foci of the process involved, firstly, thoroughly combing through the data of each farmer, secondly, making thoughts and ideas about what is meant by the data and thirdly, assessing a code to each idea or

sentence. As I coded, different categories emerged, and some categories were merged or changed (see Table 2: List of Codes). In the end, each category was validated because it described important aspects of the business operations, which span across all of the six urban farming operations.

Table 2: List of Codes

Code	Description	Category
Advertising	Any form of advertising, or attitudes or ideas towards advertising.	Marketing Strategies
Attitude	Commitment to the business, work ethic, attitude towards social aspects of urban agriculture.	Business Operations
Business Operation	All business operations except marketing and growing techniques, but not specific to other business operation sub categories.	Business Operations
Entrepreneur	An enterprising attitude or activity.	Business Operations
Experiment	A growing or marketing experiment.	Marketing Strategies
Government	Interactions with government officials, laws, city officials.	Networking
Growing Techniques	Any techniques associated with growing, harvesting and maintaining the food products.	Growing Techniques
Income	Wages, salaries, grants, funding, except income directly associated with a market (this was listed with the market type).	Business Operations
Job Satisfaction	Motivations for engaging in urban farming, job satisfaction.	Business Operations
Landowner	Landowner – farmer interactions.	Land
Land	Land criteria, types of land, size of land, not growing techniques.	Land
Life Style	How the lifestyle relates to business.	Business Operations
Market	Any market venues, marketing techniques and strategies.	Marketing Strategies
Networking	Community interactions, media interactions.	Networking
Perception	Community perception of urban farming activities.	Networking
Skills	Any skills necessary to operate the business – marketing and growing.	Business Operations
Teamwork	Any actions that help (or hinder) the farm groups from working together.	Networking
Volunteer	Any volunteer interactions or projects. This also included mentorships.	Networking

5.2.3 Data Analysis Part 1: Telling the Stories

The stories of the urban farmers and urban farm groups reflect the business operations, growing techniques, marketing strategies, income and lifestyle of this group. To effectively tell the story of the group, while maintaining the confidentiality to each farmer, I compiled a collective portrait of their stories. I followed the qualitative data analysis method described in Chapter 3 of *Doing Cultural Anthropology* (Angrosino, 2002). A collective portrait is described by Angrosino (2002) as “portions of the life experiences of a number of linked individuals put together to form a kind of mosaic of the community as a whole” (p. 37). Creating a collective portrait of the six urban farmers/farm groups was the goal of the first part of analysis.

The stories are portrayed in detail in the results section (Chapters 6 to 10). I chose from the emerging categories to highlight the five most prevalent aspects of the urban farming enterprises: land, growing operations, networking and community interactions, marketing strategies and business operations. Each aspect of the urban farming enterprise is explained in depth using examples from each of the farmer’s stories. In this analysis, the farmer’s stories are compared to one another. Similarities and differences between all the farmers, within each category, are presented.

5.2.4 Data Analysis Part 2: Emerging Theories

As the stories of the farmers were told, concepts and theories emerged. These theories were pursued and meaning was drawn from the overarching categories of the farmers’ stories. As this study is not a statistical representation

of the urban farming population, I was not be able to make claims about the larger population of urban agriculture enterprises—city wide or globally. Yet, I was able to present theories about how this study group of urban farmers and farm groups operates. These theories are presented and discussed in Chapter 11. Based on the theories, a number of recommendations to policy makers are included in the Chapter 11.

There is merit to conducting multi-sited ethnographies. The richness of data each urban farmer contributes paints a clear picture regarding these six urban farmers/farm groups. In fact, Redwood (2009) recommends in his conclusion for researchers in urban agriculture “to integrate an ethnographic and anthropological analysis into research protocols in order to yield high value outputs” (p. 241).

Most importantly, the data presented from this analysis is valuable as it is the first and only current description and theory regarding the extent and viability of urban farming in Vancouver. These theories presented in Chapter 11 can be used to formulate potential hypotheses, which can be further explored in subsequent studies of urban farmers in the Lower Mainland and North America.

5.3 Results

The results from the research were organized into five major themes covering land, growing operations, networking and community interactions, marketing strategies and business operations. I talk about the results from each theme in depth in each of chapters 6 to 10. Conclusions about the data from

each theme are discussed at the end of each chapter. The conclusions and data are further analysed where theories about the urban farming enterprise in Vancouver emerge. These theories and recommendations for the success of future farming operations are presented in Chapter 11.

6: LAND

Access to affordable, high quality land is paramount to urban farming. Size, quality, accessibility, and costs differ among the farmers. Since many urban farmers do not own the land that they farm, the relationships with landowners were an important aspect of urban farming practices. Farmers establish land agreements with land from landowners. The details of the land agreement varied between farmers and between farmers and landowners.

6.1 Land Use and Availability

The lands used by the urban farmers are existing garden spaces, raised beds, or converted lawns in urban areas. Both front and backyards are used. Plots at street level and patio space up to the 8th floor were used. The size of each plot ranges from 400ft² to 10,000ft².¹¹ According to the information gathered from the urban farmers, desirable garden plots include some or all of the following:

- Greater than 400ft².
- Good sun exposure (usually south facing). North facing plots or shady plots are usually undesirable.
- Productive soil with high organic matter, good drainage, and recently used for growing garden plants (as opposed to recently converted lawn). Amending soil is time consuming and costly.
- Few weeds.

¹¹ 10,000ft² is equivalent to about 0.23 acres.

- Few (to no) rocks. Removing rocks is time consuming.

Each urban farmer mentioned distance from home when deciding whether to accept land. Nazanin only takes new gardens if they are within one kilometre from her home. By reducing the distance of the gardens from her home, Nazanin reduces her transportation time and carbon emission related to driving to the gardens. Marivec declined a large garden site in part because it was too far from her home and her other gardens. Nazanin, Sabine, and Marivec's farm group have declined garden plots because they were too shady, or too far from their home.

Some farmers plant crops in raised beds with wooden frames. Frieda, Nazanin and Sabine use raised beds for a few reasons. Raised beds are more aesthetically pleasing, and they allow the urban farmers to grow where there is no soil. Constructing raised beds in wooden frames can be expensive for the farmer. Frieda, Nazanin and Kim constructed their own raised beds on some of the plots. Some landowners offered to pay for the expense of the wood for the raised beds, while others already had raised beds on their property. The raised beds are filled with compost, as a growing medium.

Converting unproductive lawn to a productive growing site, by removing lawn sod to create garden space, is a large labour, time, and money investment. There were two common methods used to convert lawn to garden beds. Most farmers had used both methods at some point in lawn conversion. The first method is cutting the top layer of lawn, one to two inches deep and one to two feet in length and width, and flipping the soil over. This kills the grass and retains

the organic matter and nutrients in the soil. Eva's farm group turned the soil three to four times, then incorporated compost into the garden bed. The soil of the garden bed had large clumps of organic matter (less than optimal growing conditions) even after the compost was incorporated. I volunteered with Eva's farm group and with Nazanin when they were removing turned sod from the garden bed. This method is extremely time consuming and hard work. Kim, Marivec's farm group and Sabine used a different method, called the lasagna method, with success. Instead of digging up the lawn, they laid down cardboard on top of the lawn and put soil and compost on top of the cardboard, where they grow the plants. Over the growing season, the sod under the cardboard dies, and the cardboard decomposes. Marivec's farm group noted that one limitation to the lasagna method was access to large pieces of cardboard. For instance Marivec filled "10 station wagons" of cardboard to use at the sites. She noted that there were fewer weeds at the sites prepped by lasagna method versus the flipped sod method.

The quality of soil used is difficult to determine. One farmer conducted heavy metal testing on her plots. However, the resulting information wasn't conclusive because there is currently no Canadian government-approved value for safe levels of heavy metals in soil. There is very little known about the contamination levels in urban soils in Vancouver. Other farmers mentioned concern for their produce if herbicides and pesticides are used in neighbouring gardens.

The number of plots that each farmer manages varies. One farmer only manages one plot. Another farmer manages 18 plots. Each farmer agrees that there is not a shortage of land available in the Lower Mainland for urban farmers. However, Marivec speculates that there could be a shortage of ideal (large, south facing) land soon, especially as development resumes and increases.

6.2 Landowner Relationships

Five out of six of the farmers do not own the majority of the land that they farm. These farmers use neighbours' land to grow their food products. The farmers and landowners have created land agreements suitable for each party. The conditions of the land agreements are similar among the farmers. No money is exchanged between landowner and farmer. The urban farmers maintain informal contracts with landowners. Some urban farmers have written contracts, some urban farmers have verbal agreements. Even the urban farmers with written contracts admit that the contracts are not legally binding. One farmer owns the land that she farms on.

Commitment from landowners ranges between one and five seasons. Nazanin and Sabine ask for a three year commitment from the landowners, but landowners can pull out of the relationship at anytime. The urban farmers feel that a minimum three year commitment is necessary because it takes an investment of time and resources to convert a lawn into a productive growing space. The land will produce more effectively by the third year of planting according to Nazanin and Marivec. Urban farmers do not plan long-term for the gardens unless they own the space. Nazanin will not put up permanent

structures on her properties unless the landowners pay for the materials. Farmers do not plant slow-growing, long-living plants, such as fruit trees or asparagus on land they do not own. One farmer lost a garden in 2010 because the landowner sold their property. This farmer is confident that the new owner is not interested in continuing to lend the land, since the land is likely slated for development. Another farmer could only receive a two year commitment for the land. After 2010, it is uncertain what will happen to her gardens. Two farmers indicated a lack of land tenure as one of the top challenges to urban farming.

No money is exchanged between the farmers and the landowners. There is no rent charged from any of the landowners; the urban farmers do not charge a service fee to the landowners for maintaining the gardens. Nazanin, Sabine and Marivec's farm group offered their landowners access to the food that is grown on the land. The owners could help themselves or they received a full or partial harvest share. Nazanin outlines on paper the expectations she has for the landowner and a description of her practices. Marivec's farm group does not have a written contract, only a verbal contract, with their landowners. In the future, she intends to develop a written contract that outlines expectations of the landowner. She has had some miscommunication with landowners over their expectations for access to the food grown on their land. Eva's farm group's agreement with the landowner requires the farm group to provide 10% of the profits to the landowner. The profit is never expected to be paid in cash, rather in food goods.

Urban farmers have found landowners by soliciting during media interviews, by posting flyers, posting on their website or by word of mouth through other urban farmers or community involvement. Landowners range from young professionals with families to single or married seniors. All urban farmers work with a mixture of landowners. Some landowners are more desirable than others. According to Marivec's farm group, seniors are the most desirable because they do not want as much food and they are pleased to have someone take care of their yard. Favourable landowners are "easy-going" and give autonomy to the urban farmer about what they can grow.

6.3 Analysis

Land agreements between the landowner and urban farmer can be mutually beneficial without the exchange of money. Using yards in the community to grow their product, urban farmers reduce their business operation costs significantly. According to the urban farmers, landowners benefit from the relationship by receiving food, having a maintained yard without paying for a landscaper, and if they are so inclined, they get to learn about urban farming. Yet, urban farmers who work on land owned by others are constantly vulnerable to losing access to the land, and thus cannot plan long-term for their business.

When soliciting land from landowners, urban farmers consider a list of desirable traits including plot size, quality of soil, exposure, and proximity to their residence or other garden plots. Currently there is no shortage of land available for farming, as each urban farmer has been offered more land than they chose to farm.

7: GROWING OPERATIONS

The main growing season, for market purposes, is from April to October (possibly November, depending on weather). At least four of the six farmers grow food plants in the off-season for personal consumption. All urban farmers showed an interest in maximizing the length of the season, by starting transplants early in their homes, and planting immediately when the weather was appropriate. All farmers had very similar growing operations. All farmers practice intensive, organic growing techniques.

A plethora of crops were grown. All farmers had a variety of vegetable and herb crops. Some grew fruits. Some had many varieties of one type of crop. One farmer grew as many as 40 different types of products. Some of the crops include arugula, basil, green beans, faba beans, purple beans, beets, buckwheat, borage, bok choy, carrots, cauliflower, chickweed, chilis, comfrey, corn, cucumbers, dill, eggplant, fennel, garlic bulbs, garlic scapes, green peppers, kale, leeks, mint, peas, potatoes, squash, swiss chard, tomatoes, and turnips. One farmer and both farm groups currently grow flowers (both edible and non-edible) to sell at market and put into the CSA boxes. One farmer is considered growing flowers to sell in the 2010 season. The value of the crops depended on the farmer and the time of year. In general, kale, chard, tomatoes and beets are considered low value, and garlic is currently considered a high value crop.

7.1 Organic Practices

All urban farmers involved in this study practice organic growing methods. However, none of the farmers are interested in seeking organic certification. There is a general sense shared among the farmers that customers know the farmers and trust them to be honest about their practices; therefore the farmers feel they do not need organic certification. Frieda and Nazanin said they would welcome any customers to visit their gardens and observe their practices. During a market day, I observed Frieda showing customers her garden, upon their request.

All the farmers studied use organic fertilizers. Seasoil, a commercial organic fertilizer, was used by at least three of six farmers. The amount of sea soil used was dependent on the type of plants grown. For example, I observed a farmer adding fertilizer to the garden bed immediately before lettuce was transplanted. She said if too much fertilizer was added to specific varieties of lettuce, it would cause the plant to bolt, to turn to seed early becoming inedible. Two participant farmers used seaweed, collected from a nearby beach, as organic fertilizers on some of their garden beds. One of the farmers noted that using the seaweed was not beneficial. Horse and mushroom manure were also used as a fertilizer. Fertilizer was noted as one of the top three expenses by each of the urban farmers.

All farmers use compost as the main growing medium in new plots. Compost is used to improve the quality of the existing soil in garden plots. For instance Nazanin has very sandy soil in one plot. Sandy soil does not retain

water or fertilizer. It is important to add organic matter (in the form of compost) over the next few years to achieve a good quality soil. Earthworms are also used to improve the quality of soil.

All farmers produce compost onsite, at one or more of their plots. The non-harvestable vegetation from the site (and other sites without composts) was included in the compost. Some farmers added their personal kitchen scraps to the compost. Eva's farm group used the grass and leaves collected from the site in the compost. Nazanin composted weeds and plants, which had finished producing marketable products. Only Marivec's farm group actively solicited organic matter from off-site to add to her compost. Marivec's farm group collected about 100 pounds per week of organic kitchen scraps from a local café, soy mash from a local factory and coffee bean chaff from a local roaster. The organic scraps, soy and bean chaff were free. Alpha pellets, as a nitrogen source, were purchased from a local feed mill to balance the carbon to nitrogen ratio of the compost. None of the farmers intentionally use composting worms. Instead, the compost matures by heating naturally in the sun. No farmers could fulfil the amount of compost needed with onsite compost alone. They brought in compost from offsite facilities.

Pest control methods are organic. None of the farmers use pesticides to control insects, nor herbicides to control weeds. When farmers first noticed insect pests, the pests were removed or killed immediately by hand. Some traps were used. Nazanin used a sugar water and meat trap to catch wasps. Wireworm was a common pest among the farmers. Marivec's farm group tried

companion planting mustard with lettuce to keep wireworm off the lettuce plants. When volunteering with Nazanin, I spent a few hours picking weeds from the bed of newly emerged carrots. This was a time consuming task. I noticed Sabine and Marivec's farm group picking weeds by hand during the interview sessions. Weeds were mostly controlled by crop rotations or by hand picking. Many farmers used bark mulch between the rows to suppress weeds. Plots with few pests are desirable, since pest control can be time consuming and reduce profit. Plots at higher elevations (on patios) seem to have fewer insect pests.

The urban farmers do not use gas-powered tools in the day-to-day operations of the gardens. They use hand powered, non-mechanized tools, such as hoes, shovels, and wheel barrels to remove weeds, insects and rocks. The exception is sod removal. Eva's farm group and Marivec's farm group rented sod cutters to help remove the sod to convert the lawn to garden space.

7.2 Intensive Growing Techniques

Five of the six farmers practice very intensive growing techniques. Most farmers had two or more plantings per plot per season of fast growing crops. Examples of fast growing crops include leafy greens, spinach, radishes and some herbs. Frieda, Nazanin and Marivec's farm group grew leafy greens and radishes in the spring and fall. Once plants had produced their last harvest most farmers removed them immediately and replaced them with other crops. For instance, as soon as any plant was past prime, Nazanin removed the plant and new seedlings were transplanted into the soil. Kim has the least intensive practices. Plants were allowed to go to seed and spread without immediate

interference from the farmer. The plants were not immediately removed to allow new crops to grow.

Crops, which are slow growing, such as potatoes or garlic, only provide one harvest per season (or less). Slow growing crops produce less volume of product on the same plot during a season as fast growing crops. The farmers seem to plant mostly slow growing crops, which were highly desirable at markets and/or high in value. Garlic is an example of a high value crop, which only provide one harvest (or less) per year. Five out of the six farmers grew garlic.

All farmers used starter plants to extend the growing season at the beginning and to maximize the amount of food product produced in the plots. Starters are plants grown from seed in a protective, controlled environment, such as a greenhouse or growing room, and then transplanted into the plots once they are hardier. All the farmers used a greenhouse or growing room to start many of their plants. The greenhouses ranged in size and construction. In addition, some plants were directly sown into the plots. Starters had a “head start” compared to directly sown seeds because they were grown in optimal sunlight, warmth and moisture conditions before being transplanted into the plots. Starters were grown continuously through the season and transplanted immediately after the last harvest was collected from a plant. The number of harvests per plant depended on the time of season and the type of plant. For instance, Kim usually had two harvests per plant of faba beans; whereas, carrots or radishes only had one harvest per plant.

All farmers used a type of cold frame to extend the growing season. At the beginning of the season plastic covers over plastic or metal frames were placed over some plants to insulate them. The insulation promotes faster growth. Examples of plants grown under cold frames were peppers, beets, and lettuce. Cold frames were used at the beginning and end of the season.

7.3 Irrigation

All farmers watered their plots at least once per day, and more often depending on season and plants. Sprinklers and drip systems are common irrigation tools. It was observed that all farmers except one used timers on their irrigation systems. Nazanin noted that timers are good because they free the landowner and the farmer of an obligation to water the plants, which can be time-consuming. The one farmer without timers watered the plants by hand once to twice each day. Watering by hand with a hose took at least two hours each day. This farmer claimed that while watering by hand is very time consuming, timers and irrigation equipment are too expensive. Irrigation costs are noted as a top expense for three out of six farmers. Water was not an expense for Vancouver farmers. Since water is charged at a flat rate, there is no additional cost for landowners.

7.4 Growing Skills

There is a consensus among the urban farmers that knowledge of growing techniques is one of the most important skills of a successful urban farmer. Knowing what to grow and how to grow it is paramount. All six farmers agree

that marketing knowledge is less important than growing knowledge. Five of the six farmers/farm groups have at least one person in the group with a combination of academic training and work experience in agriculture. The amount of academic training ranges from undergraduate school courses in agriculture to completion of a graduate degree in agriculture. Agriculture related work experience varies. Only one farmer grew up on a commercial farm. The remaining five farmers/farm groups do not have direct ties to a farm. One farmer gained experience in small-scale agriculture production by Wwoof-ing (see glossary). Despite their strong academic background in the agriculture, four of the five farmers solicited growing advice from small-scale rural farmers and other urban farmers before starting their own business. Only one farmer did not have any academic training in agriculture when starting her business. This farmer received growing experience by volunteering with a veteran urban farmer before starting the business. She belongs to at least two listserves, which provide tips and information for small-scale organic growing practices. For this farmer, one of the top three greatest challenges to urban farming is acquiring the appropriate growing knowledge.

Kim believes that one of obstacles for people becoming urban farmers is fear. Kim also believes that most urbanites do not have the knowledge to grow food plants. She thinks that people “do not have the faith to watch the plants grow,” meaning they are scared to garden or farm because they have little control over the successful growth of the plants. She believes that people are disconnected with growing food because most have not grown up gardening food

products or working on a farm. Eva also talked about the necessity of having faith while watching the food products grow, as it is stressful investing so much time and money into growing a crop with no guarantee about how much product will be harvested.

7.5 Analysis

Growing skills are essential to the daily operations of an urban farming enterprise. These skills can be acquired through post secondary education combined with work experience. Urban farmers without previous experience growing find this aspect of the business one of the great challenges. Growing techniques are very similar for all six urban farmers and farm groups. They all use organic growing practices, without relying on mechanical tools for daily operations. Five of the six urban farmers use intensive growing practices, which aims to maximize the amount of product grown on the land over the growing season.

8: NETWORKING AND COMMUNITY INTERACTIONS

Urban farmers interacted frequently with other urban farmers and with the rest of the community. These social interactions are mostly positive and mutually beneficial, involving knowledge exchange, commercial exchanges, and volunteer efforts. On occasion, a few of the urban farmers experienced vandalism.

8.1 Farmer – Farmer Interactions

Building relationships and networks varied between the six urban farmers/farm groups. All of the urban farmers in this study are familiar with the other urban farmers in Vancouver. One farmer volunteered for another to gain experience before starting her business. Two farmers exchanged labour (clearing land) for materials (wood for growing mushrooms). Most farmers have exchanged advice on what products to grow and the techniques for growing them. Two other farmers are connected to a listserve which helps urban farmers from all over North America seek advice from each other. Two farmers share marketing space and marketing tools (such as banners) at their local farmers markets. Three farmers pooled resources to buy inputs, such as fertilizer, seeds and compost, at a cheaper price. Three of the six farmers/farm groups are

collaborating to lease five acres of land¹². According to one of the farmers in the group, they share the same visions of how the operation of the land will work.

Farmers solicit land through farming networks. One farmer of Marivec's farm group is a mentor for two new urban farmers. She allowed the new farmers to use a parcel of their land, since Marivec's farm group didn't have enough time to farm this parcel of the land this year. As it turned out, the new farmers weren't committed to farming so Marivec's farm group will farm the land in the next season. Nazanin, Sabine and Marivec's farm group say they have declined offers for land, but have recommended other urban farmers to the landowners.

8.1.1 Farm Groups

In the 2009 season, there were two farm groups – Eva's farm group and Marivec's farm group. One group included five farmers. The other group included three farmers. In one group, one farmer was the coordinator. The coordinator was responsible for initially forming the group, securing the land and arranging the collective market venue. The coordinator also organized and oversaw the other aspects of the project – the community gardens, therapeutic gardens and workshops. The group established a collective work day (Friday) and collective tasks. The planting, harvesting and maintenance of individual crops were the responsibility of that individual. All farmers shared the responsibility of marketing the produce at the farmers market. Some of the farmers chose to market their produce privately at other venues, such as grocery

¹² This was suppose to be happen in 2010, but an agreement with the landowner wasn't established in time for the 2010 season. There is the potential it will happen in the future.

stores, other farmers markets and to local businesses. One of the challenges was deciding on collective prices for the produce at market because some of the farmers view the project as a small business and others view it as a non-profit organization. All farmers of this group worked together again in 2010. There wasn't a coordinator position in 2010, as the coordinator wishes to focus more on her farming practices. The tasks, which were completed by the coordinator, were divided up by the entire group.

The farmers in the other group shared equally the responsibility, planning and workload. They each have different strengths. Only one has an agriculture background. All wish to farm on their own in the future. They farmed four gardens collectively. One farmer believed that each person must commit an average of five hours per week, but this was disputed among the group because they do not keep track of their hours. All farmers have full-time "off-farm" employment. All farmers in the group have jobs which are flexible. They do not always work from 9am to 5pm, Monday to Friday at their full-time jobs. This allowed them to meet every Thursday and Friday to harvest. They usually met a few times during the season to discuss tasks and to plan ahead. At these meetings, they discussed their values and future plans for the business to ensure that they were all in the same mindset.

8.2 Farmer – Community Interactions

All of the farmers have excellent people interaction skills. They openly talk about their products and information about their business. Based on my observations when interacting with the farmers at farmers markets and in the

public, farmers were almost always willing to talk to me, and to their customers, the landowners, and the media.

I observed a variety of farmer – customer and farmer – community interactions during the study. Frieda relied on volunteers to help sell produce at market while she was busy prepping the produce. While at market, she made an effort to interact personally with each potential customer, ie) offering samples, making positive comments about their shoes, asking if they were having a good day, etc. From my observations, more produce was sold when Frieda was present and interacting with the customers than when the volunteers (who were not as interactive) were selling. Frieda regularly received donated materials for her farm from neighbours. These donations reduced material cost significantly. Frieda built a shed entirely from donated materials and labour from volunteers. Nazanin seemed to have a great relationship with customers, landowners and neighbours. When working with Nazanin in the gardens, the neighbours and landowners usually stopped what they were doing to talk to her. It was always a pleasant conversation, even if they were discussing business related issues. Within the farm groups, there were a variety of personalities. At farmers markets, it was obvious that the extroverted individuals, who actively engaged in conversation with potential customers, sold more produce than the non-engaging farmers in the group. One farmer is very well known in the food community in Metro Vancouver. I often heard others speak about her as very knowledgeable and connected with a number of food-related projects in the region. Most of her

customers and landowners were solicited through agriculture related organizations in which she is involved.

8.3 Volunteers

Four of the six farmers used volunteers. Volunteer tasks include transplanting, picking weeds, harvesting, land clearing, and bed preparation. On a few occasions, I saw volunteers assist in selling produce, but this was not common. Most farmers only had one volunteer at a time assisting them. Frieda had the most volunteers. Each time I observed Frieda, there were at least two to three volunteers helping with the farming operations. One work party included more than 12 volunteers. I observed Frieda to have an outgoing personality and be very easy to get along with.

When asked why individuals volunteer for them, urban farmers agree that most volunteers are seeking to gain experience in urban farming practices. Some urban farmers had themselves been volunteers with veteran farmers. Frieda thinks that some individuals volunteer to “be closer to the earth.” Eva’s farm group had volunteers, who have no urban farming experience or aspirations; they just “like to volunteer.”

Farmers rarely have to solicit volunteers. Most volunteers find the urban farmer and offer to help. For instance, volunteers can be harvest share subscribers, newspaper reporters, students working on a project, or “want-to-be” urban farmers. Volunteers often contact the urban farmers through their websites or blog, or by stopping to talk to urban farmers when they are working in

the gardens or when the urban farmers are at farmers markets and community events.

Of the farmers who utilize volunteers, most say that it requires an investment of time, but can be valuable help. The most common reason for declining volunteer help is time management. One farmer believes she is too disorganized to accept volunteers. Some farmers are not interested in accepting volunteers because volunteers require too much additional work to train and supervise. One farmer in Eva's farm group said that they would rather receive financial donations and guaranteed customers (markets), rather than volunteer support.

Four of the six farmers/farm groups commented on the desirability of having additional labour support, but not having the time to train the support to be efficient. Although most of the farmers have or have had volunteers, only Frieda relied heavily on volunteers. She successfully uses volunteers because she has a steady group which helps on a regular basis. Frieda noted that this core group is ideal, because they know what needs to be done and are reliable about showing up when labour is needed. When big projects needed to be completed, such as land removal or building infrastructure, Frieda organized work parties, which drew up to 20 or more volunteers.

8.4 Community Perceptions

There is a mixture of perceptions from the community and among urban farmers regarding urban farming practices. There is also a mixture of financial and political support for the urban farming businesses.

All the urban farmers indicated that they have received mostly positive reactions from neighbours about their businesses and business operations. Neighbours are customers. Neighbours donate items such as soil, or building materials. Neighbours have offered land to farmers.

Two of six farmers said they had negative reactions regarding their business operations. For example, there were two complaints to the city about Kim's business operations. One complaint was at the beginning of the season, when a load of soil was placed on the garden. Apparently, the load of soil was unsightly. The soil was eventually incorporated into the plots. The second complaint resulted in city staff investigating the garden in person. Kim showed the garden to the city staff and explained the different varieties of food plants. As a result, the city did not fine her. One neighbour complained directly to Kim about the "messiness" of the garden. Kim has food plants growing in the front and back yard. The surrounding properties in the neighbourhood are covered in lawn. In a block radius from Kim, I only observed one property with a garden. The garden was only in the backyard; there was no front yard garden. Despite these concerns, Kim did have positive interactions, especially from neighbours, who are interested in gardening, and engaged in conversation with her about her urban farm.

Among urban farmers, there is a mixture of perceptions of farming. Some urban farmers believe that farming is increasing in popularity and status. Frieda thinks that farming is perceived as a more “sexy” profession than it used to be. Yet, Kim believes that neighbours are opposed to urban farming practices because they link farming and gardening to poverty. Kim thinks the neighbours believe that farming in their neighbourhood lowers the value of their property. Some urban farmers think that non-farmers underestimate how much work farming is. One farmer thinks that non-farmers believe farming is too much work, and that is why more individuals do not farm.

A few farmers mentioned that the price of their produce was a concern for some customers. In my observations at farmers markets, I did not hear any customers comment on the price of the produce. I did not observe any bartering from the customers for lower prices. Frieda said she received comments that some prices for the produce were too high. For instance, one customer commented that one dollar per 100 grams is too high for onions. Frieda’s prices were similar to those of other market farmers. Frieda was surprised at how few neighbours were interested in purchasing a harvest share. Most of the shares were sold to residents in neighbourhoods across town, none from her immediate neighbourhood.

Some of the restaurants and cafes in association with urban farmers, but not all, advertise the relationships they have with urban farmers. For instance Bishops restaurant has a harvest share with one urban farmer. They openly market this relationship and promote the relationship positively. However, a local

café, which donates compost to an urban farmer, does not advertise their relationship with the farmer. It is unknown why the local café does not advertise the relationship.

Governments (local and provincial) do not seem to be involved (both politically and economically) in the urban farming operations in Vancouver and Richmond. One of the top challenges for Eva's farm group was the absence of financial support from the government organization operating in the community, especially for the community related aspects of this farming business¹³, such as constructing community plots. There was also a lack of official support and recognition from government organizations operating in the neighbourhood. One farmer wants to gather the support of local government to preserve small plots for commercial urban farming enterprises in Richmond. The farmer has been hesitant to approach Richmond city council, as she is unsure if there will be support for the farmers since urban farming is still a new concept and has not yet proven to be economically viable. One farmer said that she gave a tour to a Vancouver city councillor. She said that the councillor showed interest in the operations of the business. From what I was able to observe, this was the only example of active interest by government in the urban farmers' operations.

8.5 Vandalism

Only two of the six farmers experienced vandalism. Vandalism included destruction of property, stolen tools and litter in the garden. There was only one

¹³ Constructing community plots are a side project for this farming group. The farming group's main business was growing food for market.

incident of stolen produce at one garden plot in the 2009 season. The properties that experienced vandalism do not have fences around them. One property is on a high trafficked path between a high school and the closest bus stop. One farmer from this group believes that vandalism would decrease if the community were invited to be involved in the urban farms. She intends to write an article about the urban farming operation for a community newspaper as a strategy to reduce the vandalism to the property.

8.6 Analysis

In the urban farming businesses studied, networking was essential to starting and maintaining farming operations. Without the advice offered from other urban farmers, the new urban farmer would make a lot of mistakes—which could be costly. With access to networking avenues to ask questions and seek advice, those pitfalls can be avoided. There is no sense of competition (for land or customers) between the urban farmers. They seem willing to share advice about their planting operations and marketing strategies with each other.

Urban farming is a social activity. It is difficult to determine if an increased social interaction between the farmers and customers or neighbours resulted in greater profits; however, it was obvious that farmers with a greater social presence in the community were better known and received more volunteer help and free materials. There is a general perception that farming is hard work, which may or may not increase the amount of respect shown to urban farmer by their neighbours and customers.

Volunteer interest is higher than urban farmers' willingness to accept them. Volunteers can be useful, but require an investment of time. Work parties can offer a good return on time invested, by organizing a large group of volunteers to help with special projects, which require a lot of repetitive tasks. Such projects include bed preparation, land clearing and mass harvesting.

There is a mixture of perceptions from community and among urban farmers regarding urban farming practices. Overall urban farmers and farm groups reported positive support from the community, neighbours and customers. There was only a handful of negative experiences from the community. Political support for urban farming is absent in Vancouver.

9: MARKETING STRATEGIES

Urban farmers and farm groups used two primary markets to sell their produce: harvest shares and farmers markets. Most farmers also sold produce at alternative markets, such as restaurants and pocket markets. Urban farmers were able to increase the desirability of their products with value added attributes, services and products. All farmers used informal advertising methods to promote their products.

The urban farmers frequently commented on weighing the investment of time and money to revenues when considering new markets. One of the top three challenges to urban farming in this study is finding the right markets – the markets which have the greatest return on investment of time and money. It is challenging to know which crops will be most profitable in the upcoming season.

9.1 Harvest Shares (CSAs)

Five of the six urban farmers conducted a weekly harvest share program, similar to a CSA (see glossary). The logistics and commitment of the harvest share varied among all farmers. The customers are referred to as clients, members, share holders, subscribers and customers. The harvest share model varied among the urban farmer and farm groups.

Three of the five farmers sold shares at the beginning of the season. The other two farmers sold harvest shares on a weekly basis. One share is

equivalent to about 20 weeks' worth of produce. The number of weeks varies depending on the farmer and the weather. In 2009, one of the farmers started their weekly subscription as early as April. One farmer provided weekly shares until the last week of October. The typical season ranges from May to Thanksgiving (mid October).

In general, customers pay either for an entire season, or a portion of the season, of produce at the beginning of the season. The customers of Kim paid a deposit of \$100 at the beginning of the season, and paid the remaining amount in \$30 instalments weekly as the produce was delivered. The growing expenses are highest at the beginning of the season so a full or partial harvest share, which is paid at the beginning of the season, provides timely financial support to the farmers. In theory, the harvest share customers and farmer share the risk of farming, either by reaping the benefits of more produce in a bountiful year or sharing in the loss during a sub-optimal season. All urban farmers in this study say they plant extra produce as a "buffer" in case of minor crop failures, to prevent their customers from being shorted. A share ranged in price from \$400 to \$625 for 20 weeks. Two farmers have an application form, which advises customers of the risks and benefits of the harvest share model. Other farmers use a less formal sign up process.

Two farmers sold shares on a weekly basis to a consistent group of customers. They each charged \$20 and \$30 per share. One sells a double share for \$50. One farmer says it is easier to sell the produce at retail prices in a harvest share than at market. The farmer said, "It's hard to sell a three dollar

head of lettuce to some customers at the market.” In the harvest share box, it is “disguised.”

The customers pick up their produce weekly (or bi-weekly) from the farmer, or the harvest share is delivered to them each week. Three of the farmers delivered the produce to the customers. One farmer used a bicycle to deliver the produce. The products were delivered in cardboard boxes. Wine boxes were used by two of the farmers. This seemed to be the average size for a harvest share subscription. For two farmers, the customers picked up their own produce on scheduled days. Customers brought their own bags to carry away the weekly produce.

Frieda grows primarily for farmers market and uses the leftovers from the market to supply the harvest shares. Nazanin, Sabine and Marivec’s farm group grow primarily for a harvest share program and sell the surplus at farmers market. Kim only grew for harvest shares.

The number of harvest share subscriptions varied between farmers. One farmer had enough customers to do two sets of weekly subscriptions; therefore the farmer harvested twice per week – once for each subscription set. Each set was 15 subscriptions. Sabine had six shares, but feels that she could have supported up to 20 shares. She will increase the number of shares next season. The remaining farmers had one to five shares per week.

All farmers try to ensure the freshest quality of the produce by harvesting as close to harvest share pickup/delivery as possible. Usually harvests take place between the day before and the hour before pick up/delivery. Nazanin

picks most of the products for the harvest share within hours or minutes before pick-up. The products for Sabine are picked within the last few hours to 2-3 days at the most. One farmer has a fridge to cool produce between harvest and pick up. With the use of the fridge she can start harvesting two days before pick-up/delivery.

Nazanin, Sabine and Marivec's farm group engaged in both harvest shares and farmers markets from the beginning of the season. Frieda initially started selling solely through farmers markets. Mid-season Frieda decided to offer harvest shares in addition to the farmers market. Frieda stated that she only needed six shares per week to generate the same revenue as one market day. She believes there is less work in preparing for six harvest shares than one market. Eva's farm group only sold at farmers markets in 2009, but considered a harvest share for the 2010 season.

Most of the farmers agree that when produce is destined for farmers markets and requires cleaning, refrigeration and packaging, their return on investment is decreased. Presentation is more important at farmers markets than with harvest shares, so the preparation time is greater for produce sold at markets than in harvest shares, yet the farmers charge the same price for produce at these two markets. All six farmers agree that harvest shares yield greater return on investment of time than farmers markets.

9.2 Farmers Markets

All farmers agree that farmers markets are time consuming, with large overhead costs and no guaranteed sales. Nazanin and Marivec's farm group quoted market fees as one of the top three operating expenses. There is, however, value to advertising their business at farmers markets. Nazanin, Sabine and Marivec's farm group solicited sales of harvest shares subscriptions at farmers markets. All farmers who sell at Vancouver markets feel that the Vancouver Farmers Markets are well run and advertised.

Three of the farmers selling at Vancouver Farmers Markets noted that the farmers markets provided great publicity to their business. The farmers markets provided them an opportunity to advertise and sell harvest shares. One farmer also promotes other aspects of her business as a means to increase income generation (see 10.4: Related Income Generators).

These three farmers also claimed that the farmers markets were a large investment of time and money. Sabine said that the time spent at market was six hours per day. The produce preparation for market was more than for a harvest share, because the presentation of the product is more important at a farmers market. For instance, greens need to be bundled and standardized. Price lists need to be constructed and posted in an engaging manner. Marivec's farm group commented on the financial investment needed for banners, tables and tents, which can be expensive. One farmer bought a used tent on Craigslist for \$350. The market fees for the season were between \$800 and \$1000 per farmer. A commitment of time and money in advance is required. Farmers are required by

the farmers markets to select which days they will be at which market before the start of the season – even though the farmers are not able to guarantee when they will have the most abundant produce. The market fees are to be paid in advance. Each monetary transaction is very small (only a few dollars per transaction) compared to the large expenses, and there is no guarantee of profit at a farmers market. Kim is not interested in selling at farmers markets because it is too regulated.

Eva's farm group sold most of their produce weekly at Vancouver Farmers Markets. The farmers with harvest shares sold occasionally at the Vancouver Farmers Markets. One farmer sold occasionally at Granville Island Public Market. Only Marivec's farm group planned to expand the number of farmers market venues in 2010.

The income generated at the markets varied depending on the time of season, and the farmers. One farmer averaged between \$250 and \$300 per market; another averaged \$180 to \$200. A third farmer averaged between \$300 and \$400 per market. The difference in revenue between farmers depended on the varieties of produce available and the volume of produce sold. The time spent preparing for market, transportation time and time spent selling at the market was similar for all farmers.

9.3 Alternative Markets

Pocket markets (see glossary), restaurants, grocery stores, and private events are alternative, and supplemental, markets to the two primary markets (harvest shares and farmers markets).

Produce sold to restaurants varied. In the past, Kim sold edible flowers to a restaurant on Commercial Drive. She said it was a lot of work, so she is not doing it now. Sabine is considering selling directly to restaurants but is unsure whether the restaurants would pay retail prices for the produce. Bishops Restaurant in Vancouver currently purchases a harvest share from one of the urban farmers, but does not buy in bulk from the farmer. One farmer sold chickweed to Radha Restaurant. The produce was sold in 10 pound bags every week for a month. The farmer earned a few hundred dollars, but didn't feel it was a good return on time invested. She said that there was a lot of time and cost involved in transporting the produce to the restaurant from the gardens.

One farmer in Eva's farm group, Frieda and Kim sold produce directly from their garden sites. Two farmers used a farm stand (see glossary) on their garden site, and reported mild success for profit versus time invested. One of these farmers used an honesty box system. In this system, the produce were placed outside unsupervised, a suggested price was displayed, customers paid for the produce on an honour system. The farmer said there was no theft from the honesty box. She believed this was a good system to sell extra produce without an extra time commitment.

One urban farmer sells excess produce to a local Richmond farmer. The Richmond farmer sells produce at his farm gate, which is on a high traffic commuting route, with lots of public exposure. The urban farmer sets the price and the Richmond farmer sells on her behalf. The Richmond farmer keeps a small percentage (about 10%) of the sales of the urban farmer, as managing fees. This marketing venue operates as a quasi-co-op system. The urban farmer mentioned that this system works well when she needs to sell lots of the same produce during a short time frame. For instance, soft berries have a short window of marketability because they become ripe at the same time.

One farmer successfully sold excess garlic on Craigslist. One farmer sold flowers to a private company as centre pieces for a party. One farmer sold to a Vancouver grocer, Home Grow-in, which specializes in local organic foods. The same farmer sold directly to Grocer Gunst, a local grocery delivery service, which sources exclusively from local farmers and delivers products to customers by bicycle.

Two farmers sold to pocket markets in the 2009 season. The farmers sold their produce to a non-profit organization and received a set price. The price was slightly lower than what they would sell their produce for at a farmers market. The non-profit organization then sells the produce to the public at a pocket market. This system involves less time commitment from the farmer, since they do not have to spend time at the market, yet they must transport the produce to the venue. One farmer said that pocket markets are not profitable if she has to deliver the produce because it takes time and transportation expenses.

Eva's farm group had an arrangement for the 2010 season to provide a harvest share to a Home Economics class in a local school. The school is interested in incorporating food into their curriculum. Eva's farm group will also supply a harvest share to a local church. The church intends to use the produce in their food bank program.

9.3.1 Analysis

Harvest share programs are a better return on investment of time than farmers markets. Nazanin estimates that it is possible to earn \$100- \$200 per hour for harvesting vegetables. But the actual income per hour is lower when preparation time, transportation time and marketing time are considered. Since prep work and marketing time are less with harvest shares than farmers markets there is higher return on investment in a harvest share program than farmers markets. For instance, a harvest share pick-up timeslot is usually about one and a half hours, compared to the six hours commitment at a farmers market.

Participating in farmers markets can be risky because they involve a high investment of fees and infrastructure, but no guarantee of sales. Risk can be reduced by teaming up with another urban farmer to split market fees and infrastructure costs. Farmers markets are competitive environments for farmers. Urban farmers compete with small-scale rural organic farmers, who have higher volumes of produce. Urban farmers need to find unique ways to sell produce, such as through offering samples, tasting notes, and recipes for the produce that is being sold. As the urban farmers rely on farmers markets for exposure to other aspects of their business in addition to selling produce they may choose

not to participate if the markets are not as well established or organized as the Vancouver Farmers Markets. Selling at farmers markets can be more profitable with large volumes of produce than with smaller volumes. This suggests that the harvest share model is likely the best return on investment up to a certain operation size. With a small land basis and one full-time worker, which best describes the urban farmers in my study, a harvest share system is more profitable for the time investment. As urban farming operations increase in size, other models may be more lucrative.

A two-market system (minimum) is needed to ensure all produce is sold. Harvest shares and farmers markets complement each other because excess produce from one market can be sold/distributed at the other. Alternative marketing venues are also needed for urban farmers, because it can be hard for a small farmer to set up at a farmers market.

9.4 Value Added Products

In addition to the food products, some urban farmers grew and sold flowers, and starter plants as value-added products. These products were a small portion of the total sales.

Three of the six farmers grew flowers for market. Marivec's farm group said that flowers attracted customers to their stall at farmers markets, which helped to sell other produce. Of the three that did not sell flowers, one farmer occasionally puts flowers, which grow perennially in the yard, in the harvest share, but is not considering growing flowers intentionally for market. The other

two farmers are considering growing flowers for market in the future. They do not currently grow flowers because they think that flowers are a lot of effort to grow well. One of these farmers said that flowers need to be protected from the weather, because rainy days before market can easily ruin an entire flower crop.

One farmer is considering growing seed garlic. Currently garlic is a high profit crop – about two to three dollars per bulb. For this reason, the number of farmers growing garlic has increased. This farmer is worried that garlic will not be profitable in the future since so many farmers are growing and selling it. As a result, she is considering growing garlic for seed (to sell to other farmers) instead of for consumption, which could earn potentially more money per bulb – about \$3.50 per bulb.

At least three of the farmers sold starter plants at the markets. One farmer was surprised that customers wanted to buy lettuce starters because they are so easy to grow. The farmer admitted that although it seems illogical, they would sell starters at the next market because that is what the customers are interested in. In the early season, farmers also sold starter plants in addition to the limited produce available at this time.

One farmer sold mixed greens as salad bouquets – a mixture of leafy greens arranged to look like a flower bouquet.

Kim includes a kombucha mixture (see glossary) in the harvest share each week. The farmer makes the live culture fermented drink at home and includes it weekly as a value added product for the customers.

9.5 Value Added Attributes and Services

There were three value added attribute, which all farmers promote: firstly, the localness of their produce because everything was grown in Metro Vancouver; secondly, the freshness of the produce, since it was harvested within the last few days to few hours; thirdly, the low carbon footprint of their operations. These attributes add value to the produce because customers seem to desire them (see Chapter 4: Local Food Economy). Some farmers offered value added services.

Nazanin promotes the “localness” and freshness of the produce whenever the farmer talks about her business – to media, academics, harvest share subscribers and customers at farmers markets. Eva’s farm group, Frieda, and Sabine also promoted these aspects of their products, but were not as vocal about it to customers or on their website.

All six farmers expressed the low carbon footprint of their business. A few of the farmers are outward in advertising this attribute of their business – on their website, to potential and current customers at farmers markets and harvest share pick ups. Low carbon practices include biking to gardens and to markets, composting, not using refrigeration for harvested products, organic growing, rainwater conservation, re-using or using re-cycling materials for infrastructure.

Eva’s farm group delivered the produce to market by bicycle. The farm group worked with a non-profit cycling organization. The delivery services were free for Eva’s farm group, the non-profit organization was paid by a grant for its services. Sabine commutes by bicycle between all her land plots. Both farmers

advertised their environmentally friendly practices as a value added attribute of their produce on their website. Eva's farm group advertised at the farmers market on the market boards at the stall. Nazanin is considering investing in an electric bike for transporting food, and commuting between gardens. This farmer is considering ideas to make the business carbon neutral. She believes that being carbon neutral would add value to the produce, and she markets this aspect of the business.

One of the farm groups is directly associated with a non-profit health care organization. The produce grown for market is only one aspect of the bigger project. The bigger project is comprised of many smaller projects, including constructing and maintaining therapeutic gardens for the residents, providing food for the kitchen, and conducting education programs for staff, residents and the local community. One of the farmers in the group believes that their produce has an "edge" over other farmers because of the additional social projects associated with the farmer group. This group was considering how they can better brand their unique attributes in the future.

One farmer sold flowers to a local company which was hosting a party. The farmer was paid a premium for the value added services she offered in addition to supplying the flowers. The farmer arranged, delivered and set up the bouquet arrangements, in addition to supplying the flowers for the arrangements.

9.5.1 Analysis

Value added products, attributes and services gave an “edge” to some of the urban farmers over their competitors, such as other urban farmers or small-scale, rural organic farmers. All farmers promoted their added value products. It was surprising that only one farmer is considering raising livestock, such as chickens or goats, since it seems there is a demand from consumers for these items at farmers markets. This may be due to the limitations of city by-laws, which prohibit the growing of livestock for commercial sale. Since only one urban farmer is interested in this, it seems that there is a potentially un-tapped market to grow and sell these products.

9.6 Advertising

All farmers advertise their business. The majority of the advertising is informal and not paid for. As Marivec’s farm group explains, paid advertising is not used, because “word of mouth” is relied on to promote their business. Each farmer has a website or blog. Websites and blogs are used mostly to communicate to customers and potential customers details about their harvest share programs, the date of farmers markets they will be attending, and news about what is growing in the gardens. All six urban farmers have been asked to speak at events. Events include local festivals, Bike the Blossoms, EPIC fair, the Pacific National Exhibition (PNE) and education panel discussions. The farmers view these events as opportunities to advertise their business, in addition to informing audiences about urban farming practices. Sometimes these events

allowed the urban farmers to promote harvest shares and to generate revenue by selling products directly to event-goers.

Farmers who attend farmers markets all agree that farmers markets are a good venue to advertise other aspects of their business. They promote their harvest share program and related income generators when talking to customers. Farmers markets are a good venue to advertise at because of the high volume of potential customers. As Sabine states, one of the benefits of the farmers markets is that the farmers market organizers “take care of the advertising” so the farmers do not have to incur this expense.

Many of the urban farmers have been asked by local media to do interviews. Rarely do the urban farmers have to solicit interviews. The media usually finds them. Interviews have resulted in greater exposure for the farmers who participate. One farmer received many offers of potential land to farm from landowners after the media interviews she conducted.

Social media marketing (see glossary) is only used by two of the urban farmers. Marivec uses Twitter to update her customers about the operations of the business, and to educate her customers about the positive social and environmental implications of urban farming. Kim uses a web blog as a forum for discussion about urban farming. According to Marivec, urban farmers and SPIN farmers (see glossary) in the Lower Mainland do not use social media marketing tools as much as SPIN farmers in the United States.

None of the urban farmers use interpretive signage to advertise their products or unique businesses. This potential to advertise with signs and

plaques in their gardens has not been utilized. It is unknown whether the farmers chose not to make educational and interpretative signage, did not see the benefit or were unable to put signage on the land they farm.

One farmer sells produce at a farm stand located at her garden. The farmer constructed signs to hang in front of the yard, advertising the day and time of the farm stand sale. This farmer advertised the farm stand on the day of the sale by putting up signs at a busy intersection near the farm stand. The farmer also advertised pony rides to draw customers to the farm stand.

Only one farmer paid for advertising. The advertising was in local media, such as the Georgia Strait and the Translink Buzzer.

9.6.1 Analysis

The dominance of community orientated marketing, such as word of mouth advertising and speaking at community events, over conventional advertising may suggest that the farmers are not interested in reaching a wider audience. Another possibility is that the farmers are mostly interested in building community relationships through their businesses. Community orientated marketing most likely reflects a limitation in funding sources.

Many urban farmers need to rely on informal advertising venues because they do not have sufficient revenue to pay for advertising. However, the community interactions are not “free”, because liaising takes time. It is only worth it for farmers to take time for community events and media, if they generate revenue from the event. Once their business is well known in the community and

a reliable customer base is built, it is not worth the time to do media interviews and speak at local events. These events take time away from planting and selling, and will not generate any additional revenue if the farmer has already reached the maximum capacity of harvest shares. Most farmers noted that they had more interest than available shares. This suggests that established farmers may not have to advertise in the future even if they expand their business.

Farm stands require high levels of advertising. This is one benefit of farmers markets and pocket markets over farm stands.

10: BUSINESS OPERATIONS

Each farmer and farm group differed in how they operated their businesses, how much land they farmed, and the income they generated. Yet, there were similarities in their motivation for farming, expenses and time constraints.

10.1 Income

The gross profits from the farming activities varied between farmers. One farmer estimated revenue of at least \$25,000 on 8000ft². Another farmer, who is less experienced, estimated revenue of \$60,000 on one acre (43,560ft²).

Gross revenue per average garden plot¹⁴ was similar for Nazanin and Kim. Nazanin estimates earning an average of \$3000 per garden plot. Kim earned about \$3500 per yard (farming both front and back yard). The growing season was roughly 20 weeks for each farmer. Both farmers sold the majority of their produce as harvest shares.

Most of the farmers claimed that one of the greatest challenges to urban farming is generating enough profit to pay herself a decent wage after all the expenses were paid. One farmer worked out her average wage throughout the season to be \$1.60 per hour. Regardless of the challenges to pay a wage, all of the six urban farmers and farm groups farmed again in 2010.

¹⁴ A garden plot is considered to be a backyard or front yard.

Of the six farmers, three farmers make a living solely from their urban farming business. They do not have jobs “off the farm”. One farmer lives on her own. The farming business, which includes a harvest share program and workshops, is her only source of household income for the entire year. The other two farmers lived with family where at least one other family member was earning a living “off the farm,” which helped with household expenses. One of these farmers pays herself a regular salary of \$1000 per month from her farming business. Her farming business includes a harvest share program, farmers markets, workshops, tours, and daycamps. The other farmer earns a living from the farming business, which includes harvest shares, markets, consultations, and workshops.

The other three farmers had part-time or full-time jobs, held either in the off-season or during the entire year to supplement their income from the farming business. The part-time jobs were characteristically flexible. All members of each farm group had “off-farm” jobs. All farmers in Marivec’s farm group have part-time jobs during the entire year, which contribute to the majority of their living. Marivec’s farm group said their farm group could only work because each member had a flexible job. The job flexibility allowed the group to work together during the day when they needed to plant and harvest. None of the farmers/farm groups had a regular, full-time job (Monday to Friday, 9am to 5pm). Sabine does contract work in the off-season to supplement her income. One farmer of a farm group was paid a salary, equivalent of \$22,000 per season, for coordinating the farm group. The salary is paid for by grants. The salary only contributes to 50%

of the farmer's total earnings. The farmer works part-time two days per week off farm to supplement the remaining 50% of the income.

The farming businesses of Sabine and Marivec's farm group consist only of growing and selling produce. These farmers were not engaged in other revenue generating projects (see 10.4: Related Income Generators). Marivec's farm group claims that generating enough income to make a living is one of the top three challenges to urban farming. Marivec's farm group says that it is especially hard if farming part-time, rather than full-time.

10.2 Expenses

Expenses include land, inputs, wages, transportation and marketing. Sabine states that there were more expenses than she originally thought there would be.

Land is the greatest expense an urban farmer could incur, if they buy or lease land. Only one farmer purchased land for her urban farming enterprise. Five of the six farmers did not have land costs. These farmers do not pay for water; this expense is incurred by the landowner. In Vancouver water is not metered, so this expense is minimal for the landowners. In Richmond, water is metered. The Richmond landowners currently absorb the cost of the watering.

There are a few common expenses among the farmers. Growing inputs, such as fertilizers and seeds, were greatest expenses for three of the six urban farmers. At least four urban farmers/farm groups intend to start saving seeds in the future. Marivec's farm group buys seeds in bulk and saves them in the

freezer. Irrigation infrastructure was one of the main expense for two of the six urban farmer/farm groups (see 6.3: Irrigation). The two farmers who were paid salaries noted wages as the top expense for their annual operations. Marketing expenses were a top expense for two of the six farmers (see 9.6: Advertising and 9.2: Farmers Markets).

To cover the start up expenses, the farmers needed to invest personal money in their operations. Within a farm group, the amount of personal funds invested ranged between \$100 and \$1000. Most solo urban farmer invested thousands of dollars to start their operation. By the second year of production, most of this money was paid back to the urban farmers through profits generated from the urban farm. Kim charged a deposit to her harvest share subscribers. This money was invested into the business to buy inputs for the season. The deposits significantly reduced the amount of personal money she needed to invest.

10.3 Job Satisfaction

All urban farmers are concerned with generating profit, but it is not the only driving factor for operating the business. The lifestyle offered by this type of business is very important for all six farmers. Nazanin claims that the primary reason for choosing urban farming is the lifestyle. The farmer stated that, “I want to be home for supper. I do not want to travel for business.” Urban farmers can work outside, work close to home, have flexible hours and autonomy over their work schedule, and increase their physical activity level. Some urban farmers get satisfaction from working with their hands and being outside during the summer

months. Nazanin claims that picking weeds is therapeutic. A number of the farmers in Eva's farm group wanted to work outside in the summer. One farmer in this group noted that an additional benefit of the work was an increased fitness level, "buff arms, without having to go to the gym." Sabine, Marivec's farm group, and Kim bike regularly for tasks associated to their farming business. Farmers enjoy the self-reliance of growing their own food and the autonomy of being self employed. Kim explained to me that by farming, "I don't have work and life. Just life."

Three of the urban farmers had young children. All the urban farmers with children allow their children to join them in the gardens. Based on my observations, the children enjoyed being with their parents in gardens. According to one farmer, by having the child with them, they do not need to pay for child care and the parent gets to spend more time with their children. The children seemed very excited to join their parents in the gardens. The children were also very social with me, the neighbours, landowners and customers.

Social interaction is a benefit of urban farming for a few of the farmers. One farmer in Eva's farm group gets great satisfaction from customers commending them on "the great work they are doing." This recognition is more important than money for her. The same farmer held community involvement and education as higher priorities than profit in measuring a successful business. She believes they are doing a public service, "contributing to a better community", by converting unproductive lawns to food producing plots. Frieda also enjoys the community interactions. This farmer says that "hanging out with

people and meeting new people” is one of best aspects of the job. This farmer chose the urban farming profession because it was unique. Most of the farmer’s high school colleagues are in traditional professions such as medicine or law. Nazanin says that one of the benefits of urban farming over rural farming is the ability to meet and interact directly with the customers.

All the farmers showed concern for the future health of the environment and believe that they are reducing their environmental impact by urban farming. Both Frieda and Kim began urban farming as a positive demonstration to others. They wish to show others that it is possible to preserve agricultural land, grow their own food and lower their environmental impact. Marivec strives to eat a local diet as often as possible. Urban farming allows her to periodically eat a 10-mile diet during the growing season. Sabine commutes and transports produce to market by bike or car share. She does not own a car.

Only one farmer hesitated when I asked if they would recommend this profession to others. The farmer had mixed feelings because although she believes it is a good lifestyle, she thinks urban farming is hard work and does not pay as well as other professions. This farmer feels that “there is not a lot of money in urban farming right now.”

10.4 Related Income Generators

Four of the six farmers are currently involved in income generating projects related to their urban farming business. These projects include workshops, consulting businesses, daycamps and farm tours. Both Nazanin and

Sabine said that they believe urban farming is not financially viable on its own. It can only be successful when done in conjunction with another related business, such as consultations or workshops.

Four of the six farmers are currently conducting urban farming workshops to supplement their income. Workshops are aimed at recreational gardeners, interested urban farmers-to-be, even tourists. They often include a farm tour within the educational component of the workshop. Topics include permaculture, raising chickens in the city, growing food for personal consumption, and growing food for market. The workshops range from one day to week-end, to weekly for six weeks. The prices range from about \$50 for a few hour workshop to \$900 for a season long workshop. Farmers promoted their workshops at farmers markets, on websites and through word of mouth. One farmer promoted the workshops by putting up paper ads throughout the city.

Farm tours for school groups are a type of workshop. One farmer planned a workshop and farm tour for an ESL group from Korea in spring 2010. One farmer conducted farm tours in the fall to school groups. The price per child was five dollars for a one-hour tour and a pumpkin. The farmer used pumpkins grown on the farm, and bought local pumpkins to fulfil the demand, when the farmer ran out of pumpkins. The farmer felt that there was a good return on investment for the money invested into growing/buying the pumpkins, and organizing and touring the school children. This was also a good way to earn income at a less busy time of year. The farmer planned more fall tours in 2010.

One farmer, who is not currently doing workshops, is considering conducting lectures on how to operate a small farm to earn additional income. The lectures would target individuals interested in urban farming and small-scale (about one to five acres) peri-urban farming.

One farmer is considering conducting a bee course in the future. There would be potential income generation from honey and delivering bee workshops as the farmer becomes more experienced.

One farmer has a consulting business. This farmer conducts consultations for urbanites interested in converting yards into food producing spaces. The services include advice, planning and construction of raised beds (using high end construction materials).

One farmer constructed community garden plots onsite and charged \$60 per plot. This project did not generate any revenue, but did break even for the costs of materials (wood box, soil). There was more demand than garden plots available. The project was primarily intended to connect the community to the site, not as a money generating venture.

10.5 Time Constraints

The farmers involved in this study are incredibly hard working. When I met them they were always multi-tasking. Sometimes, it was hard to arrange a meeting with the farmers because their schedules were so packed. Each interview and participatory observation session was conducted while the farmers were working. They were usually managing a few projects simultaneously while I

was there. Some of these tasks included child care, directing volunteer work parties, harvesting, planting, selling and taking phone calls. The farmers worked long hours. For instance, when I left a farmer after a four hour interview/participatory session at 2:30 in the afternoon, the farmer still intended to construct a moveable greenhouse that day.

Four of the six farmers admitted that urban farming is harder than they thought it would be before they started to farm. Time management is a struggle for urban farmers. Time constraints were one of the top three challenges for three of six urban farmers. The urban farmers try to maximize the profit return on time invested by reducing labourious tasks. Nazanin tried to minimize handling and preparing produce. She avoids washing and refrigerating produce by harvesting only on the day it is sold. Some of the farmers considered employing additional labour, but they are not sure the paid labour will be a high enough return on time invested, given the time needed for training a new hire. Only two of the six farmers have paid employees. None of the farmers have full-time employees. Nazanin believes a full-time paid employee would add expenses, such as increased insurance costs for vehicles that the employee would operate. Employees are paid a constant wage regardless of the level of sales generated. In a good year, it could be economically feasible, but in a poor year, a paid employee could be a financial liability.

With a larger space, and greater production, some urban farmers believe it would be feasible to hire a full-time or part-time employee. For instance, the farmers involved in the five acres project in 2010 were considering hiring an

employee. Due to the expansion of her farm, Frieda can offer more farm tours, workshops and daycamps. As a result she hired a group of employees to conduct daycamps on the farm in the 2010 season.

10.6 Business Development

I asked each farmer if they had a business model upon which they operate their business. None of them claimed to use a specific model. Marivec's farm group said that they were still learning how to operate so they were still working on a business model. One farmer in Eva's farm group does not describe the operation as a business, but rather considers it "a commitment to food security and education." Only one farmer created a business plan. The farmer admits that the plan changed a lot from the beginning of the 2009 season to the beginning of the 2010 season.

Each of the farmers/farm groups displayed initiative to find ways to develop their business further in the next season and beyond. Nazanin says that it is necessary to "stay ahead of the curve" to be successful in this business, but admits that it is challenging to always be predicting the next trend and income generating opportunity.

By "staying ahead of the curve" with crop varieties, a farmer can earn premium prices. Sabine believes that selling while the products are a novelty item (before other farmers start growing the same products) means that prices are higher. She believes that selling early varieties (ie, spinach, greens, tomatoes) is more profitable than selling products during their traditional season

because customers are willing to pay more for varieties at the beginning of the season, when they are scarcer. This farmer intended to grow more starter plants indoors earlier in the season to get a “head start” on the growing season in 2010. One farmer is planning to plant beets in the fall to overwinter and harvest in spring to sell as an early variety.

One farmer is considering selling some produce all year round when available. Since the produce volume is not guaranteed, farmers markets and harvest shares would not be an appropriate market to sell at. One option is to sell with other farmers, such as farm gate sales with larger farmers in Richmond. Sabine experiments with growing microgreens in the winters – currently not for harvest, simply as a trial. If they do well, she will consider selling at winter markets in the future.

Five of the six farmers are actively investigating ways to increase their production volume. One farmer is hesitant to increase her business because she believes that historically as rural farmers have increased their businesses, they have done more work, but have not netted more income. Nonetheless, four of the farmers/farm groups have found a way to significantly expand their business in 2010. In 2010 season, two farmers and one farm group planned to farm five acres in Metro Vancouver. The intended market for the produce is farmers markets. Frieda acquired an additional parcel of land, which has an orchard. The land will be used to grow apples, pears and soft fruits, such as berries. It will provide space for related income, such as tours, daycamps and workshops.

Frieda, Nazanin, Sabine and Kim are experimenters. One farmer experiments with growing conditions. For instance, the farmer was experimenting with radishes to shorten their growing season. She covered a small plot of radishes with a white cloth (which in theory would trap in heat and help the radishes mature earlier in the spring), while leaving the majority uncovered. By mid May the covered ones were obviously ahead in growth compared to the uncovered crops. This farmer is also experimenting with permaculture, using an intensive rotation system for chickens. Another farmer has tried grafting tomatoes (she does not know of anyone else who grafts tomatoes). Two farmers are trying to grow mushrooms and a range of unique crop varieties, including edamame and radish pods. One farmer is experimenting by growing pea shoots and wheatgrass indoors.

One farmer is considering ways to earn additional income from the rising interest in urban farming. This farmer believes that new urban farmers lack marketing expertise. She thinks that she could offer expertise, tools, a recognized business name and connections. For instance, a new farmer would pay a monthly fee for access to a website, market tent, banners, business name (like a franchise), advertising, and marketing advice. The experienced farmer would generate income while helping new farmers establish their own business and learn with guidance from the more experienced farmer.

10.7 Analysis

Wages and income varied between farmers. All farmers had to rely on either “off-farm” jobs or revenue generating projects to make a living in addition

to urban farming. Farmers in farm groups were more likely to have a combination of income sources, because they were farming smaller amounts of land per person than solo farmers. However, a combination of jobs divides the farmer's focus and commitment, which leads to challenges in time management. Having a flexible "off-farm" job was key to being able to farm part-time. Only farmers with revenue generating projects did not have "off-farm" jobs.

Even though wages were relatively low for these enterprises, the urban farmers had high job satisfaction. This is supported by the fact that all urban farmers would recommend this profession to other individuals. There are many non-monetary benefits to urban farming which enhance their quality of life. Some of these benefits, such as child care and groceries of fresh produce, reduce household expenses.

Most farmers were able to pay back their personal financial investments within two years – although they may not have been paid a sufficient wage. Wages, when paid, are the greatest expense of the urban farming operations. These two factors indicate that the overall operating and capital costs (excluding wages) are low in this industry.

All farmers admitted that urban farming is hard work. It involves long hours, physical labour and managing many demanding tasks under critical time constraints. Yet labour support from full-time paid employees is not economically feasible for such small-scales of production as the urban farming enterprises in this study. The investment in training new staff is high and the revenues from the

small-scale production are limited. As the urban farming enterprises increase in size and production volume, hired labour support may be feasible.

Most farmers are planning for future business growth, and looking for ways to earn more revenue. While operating in a niche market, it is important to stay at the forefront of the market to earn the greatest returns. The farmers at the forefront will likely be able to earn more profit because they can sell their produce for a higher price if their products are the first at market. New products or novel products give farmers an edge over their competitors. Nazanin and Sabine believe this, which is why they invest time and money in experimenting. Some urban farmers are experimenting with products such as microgreens or wheat grass, which can be grown indoors. Growing products indoors adds to profit without compromising limited growing space in the plots. Experimenting is not without cost. It can draw away from the time needed for daily operations and be an additional expense to the operational budget. One of the benefits of experimenting in this industry is that the farmers can eat what does not make it to market, so it is not a total loss.

11: THEORIES AND CONCLUSIONS

The results section portrayed the stories of the six urban farmers/farm groups and general conclusions about each aspect of the urban farming enterprise. This section discusses three major conclusions and theories which emerged from the data. The three theories expand on the economic success and viability of these specific urban farming enterprises. Economic viability and successful business practices are discussed at length in the first section. The second section theorizes the motivation for urban farming, and the third section predicts the future of urban farming in Metro Vancouver.

It is important to point out a few specific characteristics about the study group. Four of the six urban farmers/farm groups were involved in related income generating projects in addition to urban farming. (See 10.4: Related Income Generators). It is important to separate these two aspects of the business, so I will discuss the viability of urban farming separately from the other business ventures. Urban farming is strictly the act of growing and selling the produce. Related income generating projects can include workshops, consulting, tours, etc. For five of the six urban farmers/farm groups, 2009 was the first full season of production. Based on this limited timeframe of production, it is difficult to make general conclusions about urban farming in Vancouver. The three major theories which emerged from the data are specific to this group of urban farmers at this specific point in their business path.

Urban farming is an expanding business in the Vancouver area. As urban farming practices increase in popularity, policy makers will either willingly, or be forced to, acknowledge the impact of this local industry on the region. Urban farming has many social, environmental and economic benefits to Vancouverites. Embedded in the discussion are appropriate recommendations to local, regional and provincial governments to facilitate this expanding business in a way which can mutually benefit private entrepreneurs, social enterprises, community and the City of Vancouver.

11.1 Theory: Urban Farming is Profitable

The data indicate that urban farming is a profitable industry. All farmers were able to generate more revenue than expenses – yet the profits were low. Half of the farmers made a living from their urban farming business, although the wages varied, and were supplemented by revenue generating projects. The other three farmers required part-time or full-time “off-farm” income in order to support themselves.

The economic success of each urban farming operation varied. By analysing the successes of each business and changes that each business made over the course of the season, I isolated the factors which contribute to a successful urban farming enterprise for these farmers. Five key business characteristics proved necessary for the economic success of these farmers/farm groups in Vancouver: highly intensive growing practices, marketing strategies which highlight the unique attributes of the product, related income generators,

minimal input expenses and effective time management strategies. These business characteristics are discussed below in more detail.

All the urban farmers and farm groups under study farmed again in 2010, even though profits were not high. All farmers are making changes to their business operations; changes that will help their businesses be more profitable in the future. This evidence suggests that the farmers believe urban farming enterprises can be economically viable if they get the business model correct. Since this type of farming is a relatively new industry in North America, and completely new in Vancouver, there are not any tried and tested best practices for the urban farmers to follow to achieve economic success. The information gathered in this study is valuable in aiding the farmers to improve their businesses.

11.1.1 Highly Intensive Farming Practices

Growing methods, which increase production on the same amount of space, are key to generating revenues. Intensive growth can produce a higher volume of products. Currently, five of the six urban farmers/farm group practice intensive growing techniques by rotating two or more crops in the same plot per season. However there are other techniques and factors, which increase production. Increased production is limited by soil quality, growing technique and length of season.

The quality of soil determines the quality and volume of food production at a plot. In general urban soils are low quality, especially soils which have been

recently converted from lawn. All farmers needed to amend their soil to improve its quality. Creating quality soil from most urban gardens takes three to five years according to Nazanin. By finding quality soil earlier in the business, urban farmers can grow more intensively earlier in their business operations. Similarly, securing longer tenure of plots with quality soil is important. Retaining plots for longer durations, greater than five years, allows farmers to maximize their efforts to amend the soil. Higher production generates more revenue. Furthermore, higher quality products generate more revenue and repeat business.

There is a consensus among the urban farmers that knowledge of growing techniques is one of the most important skills of urban farming. When asked if her agriculture degree was useful to her urban farming business, Frieda said, “Yes, although it didn’t teach me how to grow efficiently and intensively for market. Ideally, I would have learned through an internship or working on another farm, before I started the business.” Sabine, Marivec’s farm group and Kim also stressed the importance of hands-on learning from other urban or small-scale farmers. This prior knowledge decreased the learning curve, allowing the farmer to earn more profit earlier in the business operations, than farmers with no prior experience.

Growing techniques, which extend the growing season, increase the months of revenue generation. Greenhouse or growing rooms provide a space to grow starters plants in the early season. Cold frames extended the growing season during cooler months in spring and fall. These techniques allow urban farmers to have multiple crop rotations within one season.

During the study, I noted additional opportunities for these urban farmers to further increase their growing intensity. Currently, the average season for selling produce is from May to late October. Around 40% of the year is currently not generating income through food production. Four of six farmers grow some food in the “off-season” but only for personal consumption. “Off-season” markets, such as winter farmers markets, would provide a market venue for winter produce. Summer harvest shares are a popular market. Currently, there are no winter harvest share programs among urban farmers in Vancouver; however it is possible that there would be interest, considering the growing number of clientele for summer harvest shares for each urban farmer/farm group. These opportunities, if explored, could further increase revenues.

11.1.1.1 Recommendation #1: Incentives for longer land tenure

The greatest challenge to farmers is the expense of securing long-term quality land tenure. If they can access land without paying for it, there is rarely longevity of land tenure. This is problematic for three specific reasons. Firstly, short-term tenures limit the type of crops that the farmer can grow. Fruit trees, berries, asparagus, or mushrooms, are not options since they take from two to five years to establish. Secondly, it takes years to build up quality soil. It is estimated to take about three years of amending the soil to make it as productive as possible. Urban farmers could lose their land before they reap the benefits of their labour, money and time investment. A minimum of five years of secure land tenure would be ideal. This would allow enough time to produce some fruit products, such as soft berries. Fruit trees, such as cherries, apples, pears, and

peaches would require a longer time commitment, since they can produce for about 30 years. Thirdly, urban farmers are not able to invest in permanent infrastructure when they have short-term agreements. Certain infrastructure, such as trellises and greenhouses, would add to the intensity with which the crops are grown as more products could be produced on the same amount of land space with the investment in suitable infrastructure. If temporary structures are erected, they are usually made from cheap, flimsy material, lacking in aesthetics and ability. Temporary structures need to be taken down every season, increasing labour time for the urban farmer.

Local and provincial governments play a role in providing incentives for longer land tenure. Municipal government could offer support by reducing the property tax of city landowners who offer their land to urban farmers. This will offer a financial incentive to landowners for longer tenure. The province and city already has this system in place, to a limited extent, which rewards individuals who engage in farming activities on their land. For instance, a landowner can receive major tax deductions for leasing their land to be farmed, if the land is designated as farm status.¹⁵ For example, a house worth two million dollars in Vancouver's Agriculture Land Reserve, Southlands, could have land taxes reduced from \$12,000 to \$500 or less if the landowners allow their land to be farmed¹⁶ (BC Assessment, 2010). In the ALR there are landowners who pay large land taxes and do not currently farm the land. By advertising to these

¹⁵ Farm status is designated to lots under 2 acres when they generate \$10,000 in farm gate sales.

¹⁶ Assuming the farmland value was only \$5000 and the mil rate was \$6 on the house and \$20 on the farmland.

landowners about the benefits of working with prospective urban farmers the provincial government could support urban farmers in securing such high quality agriculture land.

11.1.2 Strategies to Maximize Profits

Urban farmers sell a unique product. They maximize the profit from each product using three strategies. First, urban farmers sell directly to the consumer, claiming all profits generated by the food products. Second, urban farmers charge premium retail prices for their products. Third, they sell more product and solicit slightly higher prices with value added attributes, services and products.

Farmers markets and harvest shares, where the farmers sell directly to the consumer, earn retail prices for the farmers. Pocket markets, restaurants and grocers do not usually offer retail prices, which is why farmers do not regularly sell to these market venues. These alternative venues may still be worthwhile, as they offer more money for the product than a farmer would get by selling to a traditional retailer. It may be a better tradeoff to sell their products to a pocket market or restaurant for a lower price than to operate a farm stand or stall at a farmers market for six hours.

All farmers currently earn premium prices because they market their products as organic and local. To increase sales, urban farmers need to out-compete local small-scale rural and peri-urban (see glossary) organic farming operations. There are two notable factors that add value to urban farmers' products over small-scale rural organic farmers – freshness and the “extreme”

localness of urban grown products. Whereas rural farmers can promote their products as local according to the parameters of kilometres and miles, urban farming can promote their products as “extreme” local, measured as distance in metres or feet from site of production to consumption. Since urban farmers travel such a short distance to market, their products are extremely fresh. These attributes of freshness and localness add value (and desirability) to their products over their competitors. Most farmers actively promoted the freshness of their products at markets and on their website. One farm group actively promoted the “extreme” localness of the product. This farm group advertised the distance their food had travelled to market in metres at the market stall.

Some urban farmers increased the value of their harvest share by increasing variety. Four urban farmers/farm groups offer non-vegetables/fruit products, such as flowers or kombucha in the harvest share. Flowers and starter plants also sold well at farmers markets, and drew customers to their market stalls. None of the farmers currently sell seeds, but one farmer is considering selling garlic seeds for future markets.

Urban farmers need to be market savvy and “stay ahead of the curve”, as Nazanin says. Since the markets are often changing, urban farmers need to be constantly adapting. They need to have a pro-active approach to understanding the market conditions and needs of the consumers. Experimenting with different products may pay off financially. It seems that the farmers who are willing to risk and experiment are in a better position to support themselves by new urban

farming ventures, instead of “off-farm” jobs. One of these farmers has even overcome the greatest obstacle to farming by purchasing land.

11.1.3 Related Income Generators

Urban farming, strictly growing and selling produce, has a low return on investment of time and money. The data indicate that urban farming alone is not an economically viable for these six urban farmers at this point in their business – the first one to three years of production – to generate a living wage. Additional sources of income are necessary to generate a living wage. Spin-off industries, or related income generators, allow farmers to earn additional income by “piggy-backing” on their urban farming expertise. When income from these related income generates is considered, urban farming becomes a profitable business, with a living wage.

Half of the urban farmers/farm groups required additional financial support from family (a spouse or family member earning a stable income), or a part-time or full-time “off farm” job. This picture is reflective of the rural agriculture model in British Columbia. Additional financial support from “off-farm” jobs is necessary to make a living for rural farmers. In British Columbia, the average net operating income, which is the income available to reinvest into the business, pay land payments and for annual family living expenses once farm expenses are paid, for a family farm was a mere \$35,875 in 2009 (Agriculture and Agri-Food Canada, 2009b). Once adjusted for land payments and other business expenses, the real net income is likely closer to zero or a deficit. The financial support from “off the farm” income for the average British Columbia farm family was \$77,022 in

2009 (Agriculture and Agri-Food Canada, 2009b) – more than double the net income from the farm.

Only urban farmers with related income generation projects were able to pay themselves a consistent wage or salary. The wages varied, but were consistently low. One farmer calculated her hourly wage for the season to be \$1.60. One farmer was paid a \$1000 salary per month. The highest salary, which was funded entirely by grants, not income from urban farming, was \$22,000 for the entire year,

A related income generating project is likely key to a profitable urban farming enterprise. Only farmers and farm groups who engaged in related income generating projects were able to pay themselves a salary. Sabine thinks that “just selling produce” does not work to make money. Frieda stated that it is only because of the related income generating project that she is able to pay herself a monthly salary. All six urban farmers stated that a spinoff income generating project would increase the profitability of their urban farming enterprise.

It is likely that the spinoff industries are more successful when directly linked to an urban farmer. The urban farming component is integral to a successful spin-off industry. Growing and marketing activities provide experience and exposure for the urban farmers. For instance, Kim stated that although the workshops are more profitable than growing and selling food, the practice of growing and selling gives her credibility for the workshop participants. The types of income generating projects which the urban farmers/farm groups

are engaged in include: urban farming and urban gardening workshops, farm tours, school programs, daycamps, consulting expertise, planning and constructing food boxes, community garden construction and instruction.

The necessity to develop a spin-off industry and value added attributes, services and products raises questions regarding the sustainable number of economically viable urban farming operations in Metro Vancouver. The spin-off markets could become saturated before the supply fulfills the demand for locally produced organic, urban food. For instance, it is foreseeable that as the number of urban farmers increases and there are more qualified individuals delivering workshops, which is a common related income source, the ratio between urban farmers delivering workshops and persons interested in taking the workshops would increase. The limits of successful urban farming enterprises may not be in land availability or markets for produce, but rather the spinoff industries necessary to keep the urban farming operations profitable.

11.1.3.1 Recommendation #2: Leverage urban farmers' unique skills

There is a foreseeable role for the municipal and regional governments of Metro Vancouver in facilitating spin-off industries and value added services and products. Potential areas where urban farmers' unique skills, experience and knowledge could be leveraged by local and regional governments are education, outreach, land use planning and design, consulting and land management, and food processing. For example, the New City Market, a food hub proposed for Vancouver, will offer infrastructure and market space for producing and selling value added food products and services (New City Market, 2010). This space is

potentially ideal for urban farmers to market their products and launch their spin off industries. Furthermore, urban farmers could be employed to design education programs and their skills in navigating urban markets could be utilized in designing the market space. The rising popularity of urban gardening has prompted some new developments in Vancouver to include garden plots in their designs. Urban farmers could offer expertise to developers and city planners, to appropriately design these spaces.

11.1.4 Strategies to Reduce Expenses

Estimated gross revenues are about \$3000 per garden plot. One farmer has about 20 plots, grossing about \$60,000 strictly from urban farming. By reducing operating and capital expenses, urban farmers can retain more of this income.

Operating expenses can be reduced in a number of ways. Growing inputs, such as seeds and fertilizers, are a major expense for urban farmers. By buying bulk with other urban farmers, expenses are reduced. Some farmers solicit materials, such as building materials and planting supplies, for free from local companies and neighbours. Websites, word of mouth and community liaising eliminates advertising costs. By pairing with other urban farmers at farmers markets, market fees are reduced. The investment in market infrastructure, such as tents, banners and tables, is reduced when these items are shared. One farm group eliminated transportation costs by teaming with a non-profit organization, which then solicited grant funding to pay for the transportation service.

Most urban farmers do not have land expenses. Five of the six farmers/farm groups do not currently pay any land expenses, such as land payments, rent or water expenses. These farmers have established mutually beneficial relationships with landowners to use their land to grow the produce. The obvious benefit to the urban farmer is reduced (or negligible) land costs; however, the downside is the vulnerability to eviction. Urban farmers are limited to the products they can grow because of the lack of long-term security. They are unable to grow high value crops such as soft berries or asparagus, because they take years to establish. In this sense, purchasing land could allow farmers to grow higher profit crops, but they would incur large capital expenses.

The high intensity and small-scale production of urban farming reduces the need for capital purchases. The close proximity to markets and garden plots reduces the need for a business vehicle. Only one urban farmer had a company vehicle. Three urban farmers/farm groups used a bicycle as their primary means of transportation for their business. All the urban farmers use non-mechanized practices, and do not require an investment in expensive large, farm equipment.

11.1.5 Strategies to Reduce Labour

Time management was one of the three greatest challenges for three of six urban farmers. Nazanin estimates that it is possible to gross \$100- \$200 per hour from picking vegetables. However, when the additional tasks such as washing, packaging, transporting and marketing the products are considered, the revenue per hour significantly drops. If farmers can find strategies to earn a

higher return on their investment of time, their urban farming operations would be more profitable.

Transportation to and from garden sites and markets requires time and money. Farmers, who were selective in accepting garden plots, reduced transportation time. In addition, farmers are selective about which farmers markets they attend. Well established markets with high attendance, such as Vancouver Farmers Market, located close to garden plots are ideal.

A loyal customer base eliminates the need to advertise. Inexpensive forms of advertising, such as media interviews and speaking at events take time, allotting less time to invest in growing and selling their products. Formal advertising is expensive. By developing a loyal customer base, urban farmers need to spend less time networking and engaging with new individuals and can focus on increasing production. Furthermore, a loyal customer base is already educated to the benefits of local food production, and talking with friends and family spreads that education. This in turn reduces the amount of time urban farmers need to invest in educating their potential customers.

Harvest share programs are a better return on investment of time than farmers markets, since preparation work and marketing time is less with harvest shares than farmers markets. For instance, a harvest share pick-up is usually about one and a half hours, compared to six hours at a farmers market. Selling at farmers markets is more profitable with large volumes than smaller volumes. This suggests that the harvest share model is likely the best return on investment up to a certain operation size. With a small land basis and one full-time worker, a

harvest share program is more profitable for the time investment. As urban farming operations increase in size, other models may be more lucrative.

11.1.5.1 Volunteers vs Paid Employees

Four of the six farmers studied work alone. By working alone, the farmers reap 100% of the revenue generated. Since the greatest expense for farmers was wages, when they were paid, it seems unfeasible to hire additional paid staff without significantly increasing the production of the operation.

It seems that under the right circumstances either volunteers or paid staff could be beneficial. Paid staff would be useful if there was enough production volume for more than one person, since the urban farmer would only have to invest in training one person per task. Volunteers could be beneficial if they were reliable, and returned repeatedly, to reduce the amount of time invested in training. Another option for volunteers would be special projects, such as land clearing or mass harvesting.

11.1.5.2 Cooperative Marketing Model

Cooperative marketing could be a viable marketing strategy for urban farmers in Vancouver. By pooling buying power for inputs, knowledge and products for markets, urban farmers will have cheaper inputs, faster learning curve, and more time. And they can take advantage of more markets. Proximity to markets is one of the three greatest challenges for two of the six farmers. Currently only one farmer is selling successfully to restaurant markets. Restaurants and grocers are not desirable markets for urban farmers for a

number of reasons: the farmer can not supply enough product for a long enough duration, they can not get the retail price they want, and the transportation expenses are high. By pooling product, resources and time, urban farmers may be able to exploit these alternative markets.

According to the Emilian Model (Brucso, 1982) small firms are able to overcome economies of scale by establishing cooperatives, with the proper social infrastructure and local government support. A cooperative model would work in Vancouver's urban farming sector because there is a very low degree of vertical integration in the some aspects of the local food economy, which Brusco (1982) states is key in a successful coop model. For instance, many local farms rely on farmers markets for the advertising and marketing of their products, instead of on-site private farm stand sales. Brusco concludes that small firms (less than 10 employees) operating in a small zone often act collectively for certain aspects of production. Currently, a number of small-scale organic peri-urban farmers in the Lower Mainland are operating in this fashion. For example, five local rural farms collectively market their food products as Langley Organic Growers marketing co-op. The five farms involved in this marketing coop pool their food products and employees time to sell at various farmers markets throughout the Lower Mainland. The marketing co-op could act as a comparative model for urban farmers in Vancouver, since urban farmers sell at the same market venues and grow in similar climates. Further studies would be necessary to determine the viability of this model with a group of urban farmers.

11.2 Theory: Urban Farming is a Lifestyle Choice

Even though the economic return of urban farming was low for each of the businesses in 2009, every farmer/farm group farmed in 2010. Urban farmers and farming groups are motivated by factors of the urban farming business other than income. The urban farmers/farm groups admittedly are engaged in urban farming because of the lifestyle.

All farmers and farm groups claim that urban farming offers a higher quality lifestyle than other professions. They are able to work close to home, which reduces (or eliminates) commuting time, and allows more time with family and friends. They are able to work outside, which is especially desirable during the summer months. Physical activity is included in the work, which ensures greater physical fitness, without having to dedicate time to this aspect of their health. All urban farmers/farm groups feel that they are positively contributing to the future environmental health of the planet by their urban farming practices.

Urban farming practices can reduce household expenses. Commuting expenses (car payments, insurance, gas) are reduced or eliminated for the urban farmer. Child care expenses are reduced or eliminated, as the children are able to be with the parent while the parent is working in the garden plots or selling their products. The surplus produce supplies nutritious fruits and vegetables for the urban farmer and their household, reducing groceries expenses.

Some farmers note that autonomy is an added benefit of the urban farming business. The farmers are self employed, having complete decision-making authority over their business operations. This autonomy allows some

flexibility in their work schedule and future business plans. Within the farm groups, the amount of autonomy varies.

Some farmers/farm group noted that they enjoy the high level of social interaction that urban farming requires. One farmer noted that she was concerned farming would be an isolating activity, with limited social contact compared to other occupations. In actuality, urban farming is a highly social activity. Farmers are frequently interacting with landowners, other urban farmers, media and customers.

The social, health and ecological aspects of urban farming offer a unique lifestyle for farmers. These lifestyle factors play an important role in the choice to commence and continue urban farming.

11.3 Theory: Urban Farming in Metro Vancouver is Increasing

Urban farming is an expanding industry in Vancouver. All farmers/farm groups from my study in 2009 farmed again in 2010. All of them are expanding their businesses. Some are increasing the number of plots. Some are continuing with the same number, and increasing intensity. Some are doing both. One urban farmer has doubled the size of her land base, but is mostly expanding the related income generating projects, rather than an increase in food production.

The number of individuals employed by urban farming is increasing in Metro Vancouver. Since completing my fieldwork, I have found five more urban farming enterprises, which started in 2009. For example, SOLEfood Farm, a

social enterprise (see glossary), started its first year of production in 2010, selling food products to local customers from its urban garden on a brownfield site in the Downtown Eastside of Vancouver (Tang, 2010).

Three pieces of evidence from my research support the theory that urban farming enterprises will increase in number and/or expand in size to employ more individuals in the future.

1. There is more land available than urban farmers to work it, since four of the six urban farmers were offered more land than they could take on.
2. There are more people interested in purchasing harvest shares than shares available.
3. The workshops offered by the urban farmers in this study, which are directed at newbie urban farmers, were full in 2009.

There are other indirect sources of evidence that point to a rise in urban farming operations. The LFE, which farmers market in, is increasing in size and demand (see Chapter 4). External economy firms, such as urban farming enterprises, withstand recessions better than other models because they have low capital investment and can more quickly adjust to changes in markets (Brusco, 1982; Vernon, 1985). As the demand for food products in the LFE increase, the output per worker is unlikely to increase by the same proportion since the farmers are already working at high productivity rates. Instead there will be an increase in the number of urban farmers as the demand for local, organic food increases (Vernon, 1985).

11.3.1 Recommendation #3: Recognize urban farming as a legitimate business

The municipal government and health authority can support urban farming by modifying by-laws and policy, which hinder urban farming from operating lawfully. The city could generate revenue from taxes if urban farming is a legitimate business. Legitimizing urban farming would include extending to urban farmers appropriate agriculture services and financing opportunities, which are currently inaccessible to this group.

It is imperative not to limit the economic opportunities for urban farmers. The beekeeping and chicken by-law must be revisited. Currently, the by-law in Vancouver allowing egg laying hens in the city does not allow people to sell the eggs (City of Vancouver, 2010c). This policy unnecessarily hinders entrepreneurial opportunities for urban farmers, by making it illegal to make a living from locally raised food. The policy should limit the number of hens and conditions, rather than economic opportunities.

Presently, there are health regulations that limit marketing of food products from residential properties. Neither harvest shares programs nor farm stands are directly addressed by Vancouver Coastal Health regulations. According to the Food Premise regulations in the BC Health Act, sites selling only whole vegetables are exempt from requiring a food premise application; however, selling eggs or any other value added product, which is not a whole raw fruit or vegetable would require a food premise permit ("Public Health Act", 1999; Vancouver Coastal Health Authority, 2009). Based on this interpretation of the Act, urban farmers can only operate a harvest share or farm stand without

permits, if they are selling raw vegetables and fruits. Because of ambiguity in existing regulations and procedures, as well as the time and expense needed to obtain permits for small operations, such as urban farming businesses, it can be difficult to comply with them.

Currently only RA-1 zoning designation allows for field crop production and associated agriculture use in Vancouver (City of Vancouver, 2010b). Most of the urban farmers in this study do not operate on RA-1 zoned land. This may cause problems in the future as urban agriculture increases or could dissuade landowners from lending their land. Since the current small-scale urban production does not use mechanical tools, or chemical pesticides, the concern of impact on residents is unwarranted - as this is the original justification for limited agriculture practices in the city limits. Defining the regulations around the agriculture activities to ensure the quality of living of the neighbours would be important. The existing practices of urban farmer in Vancouver could set new standards – notably non-mechanic and organic practices. The city needs to be proactive in amending the zoning bylaws to support small-scale food production and marketing in all zones. Furthermore, changing the law would avoid future complications, as urban farming becomes a more popular economic activity among Vancouver residents.

I recommend for City of Vancouver to follow City of Victoria's lead to legitimize urban farming as a business. In 2008, the City of Victoria took initiative to lift the commercial ban on urban agriculture and declare urban farming a legitimate home-based business (City of Victoria, 2008). Initial concerns over

taxation and neighbourhood impacts were addressed to ensure that the city would positively benefit from this decision. By adjusting the farm tax rate on residential properties, the city can collect taxes from these businesses (City of Victoria, 2008). Since Vancouver does not recognize urban farming as a legitimate business, the potential economic contributions from existing urban farmers are currently lost from city treasuries. Agriculture practices, in general, have the potential to produce negative externalities, with loud noise and chemical inputs; however modern urban farming practices tend to be organic without chemical use and rely on hand powered equipment mostly rather than large machinery. The City of Victoria intends to closely monitor the urban farming practices to determine if there are any potential negative impacts for the neighbourhoods (City of Victoria, 2008). Urban farming activities in Vancouver are likely to continue, even increase, whether or not the city decides to take an active role. By recognizing this practice as a legitimate business, the city can play a positive role in guiding the practice of urban agriculture in harmonious direction for farmers and their communities in the future.

11.3.2 Recommendation #4: Incorporate urban farming into the Vancouver Food Policy initiatives

Municipalities may wish to more actively support urban farmers as a food security initiative in anticipation of future economic and environmental fluctuations. Urban farming operations are more likely to withstand drastic economic shocks, like the recession in 2008, because as external economy firms, they can better operate in uncertain times since they are constantly

adapting and changing their processes (Brusco, 1982; Vernon, 1985). Some of the urban farmers are pro-active in anticipating changes in customer demand and market trends. It is foreseeable that changes in land, weather (climate change) and economic security (as experienced recently during the economic downturn) are likely for the future. This raises concerns over future food security. Because of their low capitalization, flexible use of urban land and close market connections to urban consumers, urban farmers may be better equipped to deal with these changes than rural farmers.

Heimlich and Bernard (1993) estimated that through intensive growing practices on small spaces, urban farming can yield 13 times more produce per acre than rural farms (as cited in Brown & Carter, 2003, p. 9). Urban farming alone may not be able to support the food needs of British Columbia, but it certainly has the potential to be a significant force in enhancing economic opportunities in urban centres and addressing food security concerns. An economic feasibility study of urban farming in Philadelphia (Urban Partners, 2007) outlined a number of benefits to the city generated from urban farming. The report concluded that ten farms annually grossing \$120,000 could have an indirect economic impact of \$1.266 million for the city because of economic spin-off and local spending generated from the urban farms. Furthermore, the study found that 16 regional jobs, in addition to the 30 urban farm jobs, would be created due to the economic spin off. The annual tax benefit for the city of these ten urban farms could be as high as \$90,000, when considering the taxes earned

on salaries, business properties and net profits from the farms (Urban Partners, 2007).

City of Vancouver needs to recognize urban farming for its potential contributions to food security and the local economy, and incorporate urban farming practices into the City of Vancouver's food policies.

11.3.3 Recommendation #5: Create market gardens

The City of Vancouver can encourage market gardens, not just community gardens. Community gardens build community. Market gardens build community *and create jobs*.

Operational costs for a market garden in Vancouver would be minimal – between \$350 and \$700 (Burkholder, Ng, Niu, & Solanki, 2007). The start up costs per garden are more, but not exorbitant at between \$7000 and \$10,000 (Burkholder et al, 2007) – the same as a community garden. The city has a history of supporting urban agriculture projects. In 2005, the city approved the allocation of nearly \$23,000 to develop three community gardens (City of Vancouver, 2006). The current operational guidelines for community gardens in Vancouver indicate that the City pays for initial site costs of removing vegetation, adding compost and bringing water to the site – the bulk of the overall costs (City of Vancouver, n.d.). The City should extend this offer to Market Gardens.

The City of Seattle invests in market gardens and community gardens as part of its Department of Neighbourhoods' P-Patch Community Gardening Program. As noted in the 2009 program evaluation, one of the key strengths of

the program is a source of economic security for its participants (City of Seattle, 2009). In addition to the many social and health benefits of community gardening, working in the market gardens provides a source of supplemental income for new immigrants (Seattle Market Gardens, 2009). The demand from community and farmers is increasing, as Seattle has recently developed an additional market garden in the past year (City of Seattle, 2010).

The potential economic gains of the market garden outweigh the initial cost. In addition to the recognized benefits of community gardens, the city could foster job creation and training. The market gardens could act as employment and revenue generating activities for marginalized groups.

11.4 Impacts of the Research

Currently, the local food movement and urban agriculture practices engage individuals with idealistic views – people buying, growing, and harvesting local food because they believe it is the right thing to do. This is an important step towards a sustainable food system, but the local food movement will not gain momentum to have serious impact on long-term sustainability unless individuals can make a living from their ideals. Urban farming offers this credibility to the local food movement in North America in a way no other urban industry does.

This paper presents the first analysis of this unique urban farming movement in Vancouver. The impacts of my research on local food production hit a wide audience, reaching from public policy to private entrepreneurs. The

findings of my research provide insight into real economic opportunities and food security initiatives in the cities of Metro Vancouver. The findings are of interest to various local, provincial and federal organizations and local non-governmental organization associated with urban agriculture and food security. Urban farmers, current and future, in Metro Vancouver can benefit from the extensive description of urban farming operations in this paper. The conclusions offer “food for thought” for farming entrepreneurs intending to increase their profits, and expand their operations. The study paints a clearer picture of the markets available to urban farmers and their opportunities in those markets. Organizations and businesses selling and distributing local produce can benefit from the finding of this research. Awareness of these unique farmers could open new purchasing markets to restaurants, delis, and food processors. Similarly, existing and emerging farmers markets and pocket markets, such as Vancouver Farmers Market, Coquitlam Pocket Market and Richmond Pocket Market, which are interested in increasing their vendor numbers and diversity, could use the results of this research to give insight into the needs and opportunities of a new group of potential vendors.

Most importantly, this research will lay an academic foundation for further research into urban farming in Canada. There is a general lack of information in academia about urban farming as an enterprise. Remarkably, there is a plethora of non-academic information available online in the form of blogs, media clips, you-tube videos and toolkits. This information is intended to help individuals start their own urban farming business. However there are currently no academic

studies into the viability, estimated income, longevity and best practices for these businesses in Canada. Overall, there is a lack of academic literature on the subject of urban farming for private entrepreneurs in North America. This paper intends to draw interest from the academic community as a relevant and imperative future research path.

11.4.1 Areas for future study

There is a lack of studies about urban farming in North America, and specifically Canada. This is the first study addressing the emergence of highly urbanized small-scale urban farming in Metro Vancouver. As a result, there is an inexhaustible list of questions raised from this study, which were outside the scope of research. I have selected five key research questions, whose answers I think most pertinent to legitimizing urban farming as a business.

1. What is the optimal balance of size of production to profits? Operations which are too small do not make enough gross revenue, but one which are too large may require greater capital inputs and hired person wages. The size of the enterprises in this study was between 240ft² to about 20,000ft².¹⁷
2. What are the best practices for soil testing on urban sites? Is it necessary? What are key materials to test for? What are acceptable levels of contaminants? Currently there is no baseline data for urban farming to compare their soil samples to even if the soils are tested.

¹⁷ 20,000ft² is equivalent to about 0.45 acres.

3. What is the long-term feasibility of urban farming in Vancouver? As densification increases, land, the most essential component to farming, may become scarcer; but is this really a threat? Vancouver is one the most densely populated spaces in North America, and still residents increasingly find productive spaces to grow food.
4. Which markets will be the most accessible and offer highest return in the future? As farmers markets become more mainstream, will this be a better or worse market venue for urban farmers? Will urban farmers forage their own AFN to earn an even greater portion of the profits? Will urban farmers collaborate or compete for markets in the future?
5. Do social urban farming enterprises differ in operations, challenges and opportunities from private urban farming enterprises? Could social enterprises prematurely label the urban farming movement as a Community Economic Development project rather than a legitimate business venture?

The economic sustainability of an urban farming enterprise ultimately depends on the farmers' ability to generate enough net income to remain committed to the agriculture practices and the lifestyle associated with it. The research in this study reveals that urban farming is currently an economically sustainable enterprise. With the appropriate government support, urban farming's future in Vancouver is secure to continue to supply real economic value to its community, in addition to the notable social, health and environmental benefits.

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APPENDICES

Appendix: Interview Guideline

Category 1: History and Background

This section aims to understand the motivations, and justifications for starting an urban farming business. This section informs my study about the unique details of the farmers' history. Possible questions include:

- How long have you been an urban farmer for?
- When did you start selling your produce?
- Why did you start selling your produce?
- Economic reason? Social reasons? Environmental Values?
- Are there other intentions of the enterprise besides the production of for market produce? Job creation, education, facilitating community or community building mechanism, health benefits, growing your own food for personal food security, growing organic food?
- Were you aware of any organization or association or network to provide knowledge for starting and operating an urban agriculture enterprise?
- Do you know about SPIN?
- (If they were aware of one) Did they use it? Describe your experience. (Was it helpful or not).
- What is your education level? In what field of study?
- High School, Post-secondary
- Do you have specialized training in urban agriculture? Horticulture? Business planning?

Category 2: Networking/Selling

The aim of this section is to understand the decisions and actions in the marketing and selling aspects of the business.

- Where do you sell your produce?

- Who do you sell?
- Do you advertise? Do you have a website?
- Do you currently participate in any online forums, chat groups or blogs to share your experiences and ideas, or get ideas, of entrepreneurial urban ag with others?
- List any strategies that have helped/restricted you to sell your produce?
- What would you recommend to others just starting in this business?

Category 3: Land Use

The aim of this section is understand the land use of the business. Since land is such a necessary and potentially expensive component in farming, it will be an important topic to cover.

- List the land that you use.
- Describe the sites that you grow food on. (rooftop, raised beds, greenhouse, hydroponics)
- Is the land residential or industrial?
- How much do you own?
- How much do you rent/lease?
- If you rent/lease/borrow from another landowner, describe the relationship? Do you pay the landowner in cash/produce for the use of the land?
- What has helped/restricted you to access land?
- Are you concerned about contamination at your sites? If growing food next to road, or on industrial sites. How have your minimized the risk of contamination?

Category 4: Economic Factors

The aim of this category is to determine if the enterprise is capable of making money, what strategies the farmers have used, and what social/economic programs are available if any.

- Did you receive funding to start your urban farming enterprise?
- Do you receive funding, grants, local government grants or loans, utility discounts, tax concessions to operate your enterprise?
- Do you have another job? Is this supplemental income?
- What is your income range (without including any profit from urban farming enterprise)?
- Do you net profit from the selling of produce?
- Do you have your own business?
- Do you expect to expand your business (or increase the amount that you grow in the future)
- What would restrict an expansion to your business?

Category 5: Planting Regime

The aim of this category is to better understand the growing decisions and techniques. A lot of this information will be gathered from the observations.

- How long is your growing season? Do you winter garden?
- Describe the products you grow?
- Are all products plant-based food? Do you grow flowers or produce honey, eggs?
- Do you specialize in a few items? Why/why not?
- Do you grow products that you don't sell? Why don't you sell them?
- How has your product line changed overtime?
- What grows best in your plots, does it depend on the site?
- Do you roof top garden?
- Do you container garden?

- How do you fertilize?
- How do you control pests?
- How do you irrigate?
- How do you harvest? When do you harvest?
- Are you organic certified?