

The
**Urban
Farming
Guidebook**

Planning for the Business of Growing
Food in BC's Towns & Cities

Foreword

About three years ago, working as Land Use Manager in the City of Campbell River, I responded to a resident who was wanting to know if she would be able to legally grow vegetables on her acre lot and sell them. After consulting with the Zoning Bylaw, I was embarrassed to advise her that this was not a legal use under current zoning. Seeing the folly of that bylaw provision, we quickly set out to change the bylaw to enable this sensible and sustainable use of that and other similar residential properties. However, the question has to be asked: how did we find ourselves in that position to begin with?

Consider the role of agriculture in human settlement history. The domestication of plants and animals enabled humans to transition from being nomadic hunter gatherers to developing urban civilizations some 10,000 years ago during the Neolithic era. Growing food was the key foundational system for permanent settlements and remained that way for ten millennia. Then we took an unfortunate turn during our flight from the industrialized city. Ironically, this occurred around the time Ebenezer Howard presented the Garden City movement to the western world. The Garden City model embraced food production and its systems as key elements of community design. However, the race to the single use zoned suburbs did not include food production as part of the design of suburbs and in many cases, including the City of Campbell River, urban farming was excluded from our lists of permitted uses and such farming became non-conforming or simply illegal uses which, if they were lucky, avoided bylaw attention. Peri-urban areas became urban reserves with uses, including farming, that were deemed temporary awaiting some higher calling.

So what has changed? Several converging, relatively contemporaneous events and movements have brought us back to recognize and re-embrace food production as an integral and vital part of the urban complex. These include the Bruntland Commission, Local Agenda 21, energy shortages and pricing increases, social movements which demand healthier local and organic foods and associated social justice concerns around food security, climate change and initiatives to mitigate its projected impacts, and evidence of the significance of recent food supply shocks. In addition, there is considerable concern about the environmental, social and economic impacts resulting from our industrialized, global food production system and this has driven many alternative food production initiatives which are characteristically local.

The Urban Farming Guidebook, like *Agricultural Urbanism* (de la Salle, Holland 2010) is a timely and important resource for local government staff to move this critical element of sustainable urban design and living forward. We have a lot of ground to (re)cover. Having a resource like this Guidebook to assist our efforts is a welcome and important step in this journey.

- Rob Buchan CAO, District of North Saanich

EcoDesign Resource Society

EcoDesign Resource Society (EDRS) has published the Urban Farming Guidebook to support local governments and communities in finding innovative and creative strategies for sustainability and resiliency. EDRS has a long history of supporting areas of planning and design that are at the pioneering edge of sustainability. We provide leadership and resources to special projects that fit within our mandate noted above. Specifically, for this project EDRS has established a working relationship with HB Lanarc - Golder who has an award-winning food and agriculture planning practice and brings unique expertise in the field of food system planning. To find out more about EDRS please visit: <http://www.vcn.bc.ca/edrs>

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We also wish to thank our municipal and academic project partners which all contributed cash and in-kind resources to the Guidebook. The City of North Vancouver, City of Vancouver, City of Campbell River and City of Kelowna helped to make the Guidebook possible through their curiosity and willingness to explore and provide insight in the area of growing food as a business within town boundaries. Kwantlen Polytechnic University, Institute for Sustainable Horticulture, contributed research findings around the economics of urban farming.

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SOCIETY



Workshop participants generously volunteered their time to bring the concepts behind urban farming to life by sharing their experiences and aspirations for urban farming. Specifically, urban farmers and related businesses provided key insights to the successes and limitations of urban farming in BC. As community leaders, urban farmers are increasingly becoming a key community asset and are pushing the boundaries of what is possible for local food and farming.

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1. GROWTH OF A MOVEMENT

The Urban Farming Guidebook is written to help planners, engineers, and administrators from small and large communities to gain a better understanding of the potential, pitfalls, and best practices for growing, potentially raising, and selling food within town boundaries. Strategies and approaches outlined in this Guidebook provide local governments with tools to proactively plan for urban farming. This resource has been developed in collaboration and consultation with urban farmers, municipal staff, academics, and advocates.

Urban agriculture is becoming a household word for many municipalities and most often brings to mind community gardens or edible landscapes. **Urban farming**, however, refers to growing food in the city to generate revenue. This involves farmers finding space in the city - backyards, vacant lots, parking lots, rooftops, parks, private or public spaces to grow food for wholesale and retail sales to urban consumers. This revenue-generating aspect of urban farming creates a whole new set of challenges and opportunities for the farmers themselves and for local governments. It is these unique challenges and opportunities of urban farming that this Guidebook addresses.

Throughout the Guidebook, examples and best practices are drawn from a range of communities, as urban farming looks very different in larger metropolitan areas, such as Vancouver, than it does in smaller more resource focused communities such as Campbell River. Despite the major differences between communities, there are overall principles and approaches that are relevant for any community. These are presented in terms of policies, incentives, and examples for towns and cities to proactively plan for small-scale commercial agricultural activities.

Urban Farming: *The growing, cultivating and distributing of food within a city or town boundary to generate revenue.*



The term **“urban”** is used here to define the regulatory boundaries of a municipality and is not intended to imply a particular degree of building density. It is likely that some farmers who are currently producing food within town boundaries may not self-identify as “urban farmers”. However, for simplicity’s sake they are included in the Guidebook’s definition. The term urban farmers and other language in the Guidebook are working definitions and will continue to evolve as the practice of urban farming expands.

The term **“food system”** includes food production, processing, distribution, marketing, consumption, and food waste. Like water, energy and waste, the food system plays a fundamental role in urban systems and many North American cities and towns are beginning to find ways to make their current food systems (where their food comes from, how it is grown and distributed, how its consumed, and how food waste is recovered) more sustainable. This includes decreasing the distance that food travels, preserving local farmland, increasing food security and awareness about healthy food, and providing facilities for organic waste recovery.



Figure 1: The dimensions of the food system from land to waste.





2. CHARACTERISTICS OF URBAN FARMING

In North America, farming in cities has always existed. In fact, many cities have evolved from agrarian roots, settling on the agricultural lands that are most productive. However, urban farming has dramatically diminished in scale and legal status during the past 100 years, with the exception of the important role victory gardens played during WW II, when a significant quantity of food was grown by citizens for the war effort. With increasing urbanization, the decline of the urban and near-urban farm has become a familiar story. Industrialization of the food system coupled with efficient long distance transportation has allowed cities to import most of their food and decreased their reliance on local farms. As a result, remaining farms often disappear due to development pressure or municipal regulations that restrict farming activities. As rural farms face a similar decline due to urbanization and industrialization, communities are faced with losing their local food sources.

Recently there has been an emergence of a new type of farm found within the city limits. These farms and farmers come with a unique set of characteristics as outlined below.

The nouveau farmer: Over the past 10-15 years, the nouveau farmer has emerged, willing to revive remnant urban farms or find space within the confines of the built environment, to produce and sell food. Some of these farmers are choosing this route simply because they can't access rural farms due to high land prices or lack of available land. Many are entrepreneurs, sometimes part of collectives, who are utilizing innovative growing methods to produce high yields in the small spaces they can find in the city. Unlike farmers of the past, these new farmers do not necessarily come from agricultural backgrounds. A study of Vancouver farmers found that only 35% of operators had experience growing up on a farm or more than five years farming experience (Schutzbank, 2011). In BC, there appears to be two new farming cohorts: i) early retirees with start-up capital who are moving out of large cities into more rural communities, and ii) university educated young people often with very little start-up capital.

Diverse urban farming business models: Urban farmers and their businesses can vary greatly in both experience and approach. Urban farming businesses tend to be either a social enterprise or a for profit business model. Social enterprises often have mandates that address food security, local food and community development, and the revenue from these farms goes back into the operation. For profit farms are often started by entrepreneurs with similar mandates to social enterprises, but work under a conventional for profit model, where revenues go back to the farmer and operation.

Alignment with other organizations and businesses: Being in the city, urban farms are often high profile and can have great potential for collaboration within the community by building partnerships with developers, the food service industry, schools, community organizations, and local governments. Some are also becoming educational hubs for growing and eating healthy food. As a new practice, standards, techniques, and business operations are still being fine-tuned; however, they are proving to be successful enough to attract a market in local food retail and foodies alike. They can also align with many of the food system, green economy, and community development strategies being adopted by local governments.

Green City Acres is a for profit urban farm business in Kelowna BC, that uses intensive production methods on residential yards. Produce is distributed by bike to local restaurants, grocers, farmer's markets and through a CSA program. This farm has reported sales of \$40 - \$50,000/year.

*- Curtis Stone, 2012
greencityacres.com*

Fresh Roots Urban Farm is a non-profit society with a number of urban farm sites in Metro Vancouver. They sell through CSA programs, to farmer's markets, restaurants and school cafeterias. They have also partnered with community organizations and schools to use their gardens for workshops, classes, farmer training programs and for community celebrations.

*- Fresh Roots Urban Farm, 2012
freshrootsurbancsa.wordpress.com*



Nature of urban farm practices: Urban farming can be considered part of the spectrum of agricultural geography. Urban sites are micro-scaled with growing space that is typically less than one acre and within close proximity to urban activity. Commercial and residential neighbours are closer to urban farms and farming operations can be impeded by concern for public health, safety, and aesthetics, among others. Equipment tends to be limited to hand tools with the rare exception of a rototiller or tractor. Facilities are usually limited to small greenhouses and tool sheds, rarely large barns. Mixed produce is a typical crop while chickens or bees can be included only if bylaws permit. Food is distributed straight to the source whether it is at a farmer's market, through food deliveries, or directly to grocers and restaurants. Overall yields are smaller but yields per unit area can be higher than traditional rural farming.



Your Local Food Pedalers is located on an industrial site in Vancouver, BC, grows micro greens in flats on raised benches. The operation is highly productive, takes up a small portion of land, and can be transported to another site if needed. Local Food Pedalers, 2012 - myurbanfarm.com

Centralized market and resources in an urban environment: In a city, urban farmers are closer to their market, to other farmers, and to supportive organizations which allows them to share training and resources, and to collaborate with others to reach wider audiences. There also tends to be a larger population of foodies, supportive restaurants, and grocers that create a demand for urban farming products.

Currently, and for the foreseeable future, urban farming is and will continue to be a small but potent dimension of local food systems. Small due to the size of the emerging industry, but potent due to the many other opportunities urban farming can help develop. One of the most direct benefits of growing food in or near towns and cities is the new source of products and people that adds value to local communities.



Creative Commons

Verticrop (left) is a technology that utilizes suspended hydroponic tray systems on a conveyer system to grow leafy greens. This system is being built on the top of a parking garage roof in downtown Vancouver under the name of Local Garden. (www.localgarden.com)



3. WHY URBAN FARMING MATTERS

Urban farming has emerged at the frontier of a burgeoning trend in local food and community resiliency. Local food retailers, restaurants, and consumers are responding as partnerships with chefs and even mainstream grocers are being established. Vegetables farmed in the city are finding their way onto menus, food carts, and produce stands. As a result, linkages in the local food chain are becoming stronger in concert with a growing consumer demand for local and sustainably grown food. Although it is not expected that these farms will ever feed a whole city, they have great potential for increasing community health through providing secure access to fresh food in the face of rising food prices, as well as stimulating community wealth with new sources of jobs and entrepreneurial opportunities .

The urban farming trend is not being ignored by local governments as many municipalities are starting to incorporate policy for more local food systems into their planning processes. Support for initiatives associated with food systems is showing up in Official Community Plans, Agriculture Plans, park and neighbourhood designs, and food strategies.

At the same time, with this rapidly growing interest, many local governments are struggling with how this fits into their land use polices, regulatory systems, and scope of operations, especially in the context of land being re purposed for growing food. Urban farmers are also looking for ways to eliminate barriers to the practice of farming in the city. The emerging need and opportunity around urban farming is to integrate these activities in a safe and beneficial way.



The Benefits of Urban Farming

The businesses that comprise the emerging urban farming sector provide a number of benefits to the community. Food is often grown using low chemical inputs; fresh food products are distributed and directly marketed to food retailers, farmer's markets, restaurants, and others often using alternative or low carbon delivery methods. Farms can be a conduit for waste recovery, providing supply for the demand for organic composted soil. Also, the presence of the farm is often highly visible to the public, raising awareness about food and farming, and often providing opportunities for education about growing and eating fresh produce. Finally, urban farms provide a training ground for young farmers who are interested in the farming process. These new farmers are a much needed resource to replace retiring farmers. Specific areas of local government interest and linkages to urban farming are discussed below.

Green Jobs and Innovation

Urban farms foster entrepreneurs and provide a conduit for innovation. Urban farmers with small growing spaces are coming up with innovative ideas for how to produce high yields and a reasonable return. Models such as aquaponics, vertical farming, micro-green operations and greenhouses on rooftops are all innovations that are emerging in North American urban farms. Although they are just starting out, many of these innovations are getting media coverage and buy-in from local businesses and consumers, helping to put urban farming on the map. Jobs in urban farming are being created and job training in urban contexts is preparing would-be farmers to scale up and move onto larger farms.

Urban farms can be set up as a social enterprise to generate revenue and create jobs for local low income communities. For example, SOLEfood, a Vancouver urban farm, was started as an initiative to provide employment and training opportunities for Vancouver's inner-city residents. In 2012, they employed 25 staff from their sales revenues (Dory, 2012).

Waste Reduction

In BC, food waste makes up 40% of residential waste and organics, and made up a quarter of the overall waste stream in 2006 (Ministry of Environment, 2010). This category is comprised primarily of compostable items such as food and yard waste. Urban farms have the potential to redirect food waste into compost for food production. Reusing organics for farming is a form of energy recovery and given that more hydrocarbon energy is used to produce food energy, this is an important part of making agriculture more sustainable. Urban farms can also provide composting education to the public to encourage food waste reduction. With heavy foods, such as water-rich produce, reducing the travel distance to the point of purchase reduces greenhouse gas emissions and allows for more transportation alternatives such as cycling. In 2011, Loutet Farm diverted waste from City of North Vancouver parks (16

truck loads) into on site compost (City of North Vancouver Parks and Environment Advisory Committee, 2012).

Urban Revitalization

Many urban farms are located in under-utilized urban spaces such as vacant lots or under-used parks. What was once a derelict space can become a lush green space and hub of activity for the community and urban farmers. Green City Acres, an urban farm in downtown Kelowna, has one site located on what was once a derelict vacant lot overlooked by surrounding condominiums. Since the farm was established, the farmer has been receiving accolades from many of the condominium owners for beautifying and activating the space (Stone, 2012).

Community education and development

A 2007 study of producers showed that urban agriculture groups tend to play a role in social cohesion, education, and advocacy for specific causes or policy changes (Santanderau & Castro, 2007). Farms in the city can become urban features that inspire awareness and conversations about food, whether supportive or controversial. Many farmers will attest to the streams of local and out of town visitors who come to see their farms in action.

Urban farms can also become community hubs that celebrate and raise awareness about local food. Events such as festivals, harvest dinners, cooking, or growing demonstrations, and educational programs can inspire DIY activities involving growing your own food, making cheese, beekeeping, cooking and preparing food. Some programs cater to certain groups such as ethnic groups, low income families, seniors, and children. Urban farmers often host public events that involve other organizations or industry sectors including local chefs and food and farm organizations. Many farmers are also asked to speak about local farming or teach growing techniques. Some urban farmers are also technically savvy with websites, blogs, Twitter and Facebook accounts dedicated to promoting their farm and educating the virtual world about local food

The associated benefits of urban farms extend to many facets of the health and wealth of a city. These can include education and training about eating and growing local food, increased awareness about where food comes from, and training for farmers, all of which are in great need as older generations of farmers continue to retire and urbanization continues to rise.

The Urban Digs Farm site on ALR land in South Burnaby was once overgrown and inhabited by squatters. This farm now contributes to 3 acres of farmland located throughout metro Vancouver where they raise pigs, chickens and a range of fresh produce sold locally.

- Urban Digs urbandigsfarm.com



Event poster by Mason Street City Farm, located in Victoria, BC. A farm that focuses on educating people about growing food and increasing food security on Vancouver Island. masonstreetfarm.com



4. UNLEASHING THE POTENTIAL OF URBAN FARMING

Farming in urban spaces can pose a number of unique challenges for both regulators and farmers. For example, in many towns and cities, agriculture is not a permitted use outside of the Agricultural Land Reserve or on agriculturally zoned lands. To an extent this makes sense as agricultural and urban land uses have historically been separated to avoid conflicts between differing land uses. However, modern urban farms tend to be smaller scale and focused on higher value crops and low-impact growing techniques, thereby avoiding some of the historical problems of integrating agriculture where people live, work, learn, and play.

This section will describe and discuss these challenges based on the key dimensions or processes of the urban farming practice from both regulatory and urban farming standpoints, as well as provide examples of local government responses to these challenges.

Dimensions of urban farming include:

Land and Land Access

Production

Processing and Distribution

Celebration and Education

Waste Recovery

Key policy, land use, and administrative barriers for urban farmers:

- A lack of policy and regulations addressing urban farming in statutory plans (such as OCPs) and zoning bylaws
- Possible noise, dust, traffic, pesticide use, and odour associated with farming activities
- An increase in real or perceived risks to health and safety
- A lack of appreciation of the regulatory and farming realities
- A lack of licensing specific to the nature and operations of farming businesses
- Restrictions on the selling of produce from farm sites
- Restrictions on keeping small livestock and farm animals (e.g., chickens and bees)
- Restrictions on farm structures such as greenhouses and storage sheds

Land & Land Access

Urban farming can happen almost anywhere a farmer can find and secure land. In BC, urban farms are found in residential yards, brownfields, industrial zones, parking lots, vacant lots, boulevards, city parks, rooftops, as well as on lands formally designated or zoned for agriculture. Urban farming can occur in three distinct land use categories, each with its own set of challenges:

1. **Agricultural land reserve (ALR)** - Land in the ALR is designated and regulated under Provincial legislation as well as local bylaws (Government of BC, 2011). Farming activities that occur in the ALR are also protected by other legislation such as the Right to Farm Act (Ministry of Agriculture, 2012). This protects farms from nuisance complaints and local government bylaws that may impede farming practices.
2. **Agriculturally zoned land** - This is land that is deemed as potential agricultural land but is not included in the ALR. Many municipalities in BC have both ALR and non-ALR agriculturally-zoned land within or adjacent to their city boundaries. Farming outside of the ALR is less protected by the legislation noted above and is determined by local governments. This makes urban farmers who are operating on non-ALR lands more vulnerable to complaints and municipal restrictions. However, due to the intensive and multi-functional nature of many urban farms, not being in the ALR can be a positive due to reduced restrictions on permitted uses. As a result, urban farmers may be able to include a wider range of uses (e.g., small restaurants) on their farms that are not permitted on ALR lands.
3. **Non-agricultural land** - Farms on land that is not formally designated for agriculture as a primary use (e.g., lands zoned residential, park, commercial, industrial, and institutional) are regulated primarily by local governments. These farms, often integrated with or adjacent to other uses, can be found almost anywhere in a community - vacant lots, residential yards, rural residential lots, parking lots, rooftops, boulevards, and institutional open space. The zoning of these lands may or may not permit urban agriculture as an allowed activity.

Farmland at the urban edge



Urban farms on ALR land deserve careful attention and support; however, urban farming tends to occur on agriculturally-zoned land within town boundaries, or on non-agricultural land where tools are not necessarily in place to support farming as a business.

Land Access

Land for urban farms can be secured either through a formal purchase or lease agreement, or informally, through a verbal agreement, perhaps in exchange for a portion of the harvest or a percentage of sales. Urban farmers may farm their own yards and/or establish agreements to utilize lands owned by other people.

Securing private commercial land may also occur under a contract agreement or lease with the land owner (often a developer or land manager). City Farm Boy, an urban farming business in Vancouver, has an agreement with a residential apartment building to grow food for sale on their rooftop (Carrot City, 2012). A vacant site may or may not require a temporary contract with a developer who is not ready to build on the land.

Public land, depending on the type and applicable regulations, generally requires some sort of agreement with the local government and the process may need to engage the community. Under-utilized municipally-owned land like vacant spaces or boulevards may simply require a lease agreement or contract. Public parks may require a more rigorous process including public engagement to determine if there is community support for the concept.



Lufa Farms, commercial greenhouse on industrial warehouse, Montreal, QC.

City Farm Boy, rooftop farm, Vancouver BC



Challenges & Considerations for Land Access

There are two key challenges for securing land for urban farms: 1) access to land, and 2) policy and regulatory barriers preventing farm uses in non-agricultural zones.

Access: Land access can be one of the biggest challenges for urban farmers due to high land prices for purchase or lease, lack of suitable space for farming, and potential prohibition of farming activities may in some zones. Also, there may be no formal leasing structure for available land. With farmers investing in soil inputs and production, long-term stability of a site is essential for ongoing success.

Policy, Regulation & Political Support: Urban farming activities on non-agricultural lands are often limited by lack of support for urban farming or policy and regulation that may or may not apply to urban farmers.

Local Government Responses

Access to land:

Lease agreements for public land: In the case of public land, municipalities may have an agreement with an urban farmer for park use or farming on publicly owned vacant land.

- The City of North Vancouver allows The North Shore Neighbourhood House Edible Garden Project, a local non-profit organization, to operate the Loutet Farm in Loutet Park. The Loutet Park Farm license is for five years with an offer to renew for two additional consecutive five year terms. The license includes terms and conditions addressing maintenance, farm buildings, contaminants, and other issues related to farm operations (City of North Vancouver, 2012).
- The City of Baltimore issued a Request for Qualifications to farm city-owned vacant land. Those applicants deemed qualified will be able to lease city property for up to five years with an option to renew. The city expects to lease 35 acres of land in parcels one acre and larger (Baltimore Office of Sustainability, 2011).
- Incubator farms are partnerships between municipalities, non-profit organizations, communities, and educational institutions. This collaboration supports new farm businesses by providing land, education, technical support, and funding. For example, in Richmond, an incubator farm has been established through a partnership between the municipality, Richmond Food Security Society, and Kwantlen Polytechnic University's Richmond Farm School (Dorward, Schutzbank, & Mullinix, 2012).

Incentives for private land owners: In BC, a developer can receive a lower tax designation if they allow a temporary use in the form of park space, or food production. This can be controversial because private landowners receive economic incentives from taxpayers for keeping their land undeveloped. However, it can encourage developers to consider allowing urban farms and community gardens to operate, even temporarily, on their land.

- In Vancouver, some developers have received property tax breaks by allowing community gardens or urban farms on their vacant land. This allows them to temporarily change their land designation from business or commercial to recreational or non-profit which lowers the tax rate significantly. Concord Pacific in Vancouver is currently leasing a two acre site to SOLEfood Farm and is transferring their tax savings to a foundation that supports projects like urban farms (Globe and Mail, 2012).

Policy and Regulations:

Official Community Plans (OCPs) are plans developed by municipalities, which include public policy around key issues such as land use, transportation, housing and utilities. Communities with policy supporting local food systems, local food and/or local agriculture, are likely to also have an interest in urban farming. Stating support for this type of activity in an Official Community Plan provides a policy basis to ensure that municipal actions for urban farming are supported and encouraged within the organization.

- The City of Victoria officially recognized Food Systems in Chapter 17 of its 2012 Official Community Plan. Of specific interest to this Guidebook are the directions and policies for food production on private land (City of Victoria, 2012):
 - » 17.14 Explore expanded small-scale commercial urban agriculture through a review of policy and regulations to consider the opportunities for, and implications of:
 - » 17.14.1 Enabling infrastructure and human resources needed to support small-scale commercial urban agriculture as a home occupation;
 - » 17.14.2 Using residential accessory buildings for commercial agricultural purposes; and,
 - » 17.14.3 Allowing commercial urban agriculture uses, including greenhouses, in commercial and industrial zones.

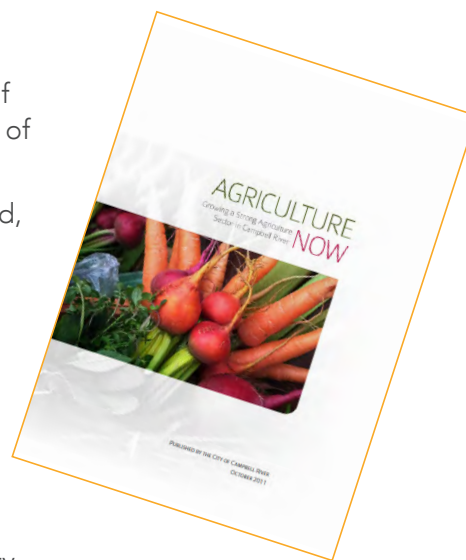
Zoning: Zoning is a planning tool that permits and restricts certain land uses and activities for a parcel or area of land within the municipality. Zoning also regulates the characteristics of buildings within those areas (e.g., building height, lot coverage, setbacks, etc.). Zoning designations include uses such as residential, commercial, industrial, institutional, and agricultural. Uses can be primary or principal (the main use) or accessory (secondary use). In most urban zones, agriculture is not a permitted use even as a secondary use. This means urban farmers are not legitimately allowed to operate in these zones and, if neighbours complain, the municipality may enforce the zoning bylaw. To support more people growing food in the city, some municipalities have started to allow agriculture within some or all zones. Examples include:

- The City of Kelowna allows urban agriculture as a “Principal Use” in all of the single and two family dwelling zones, public, and institutional zones, and a “Secondary Use” in the multi-family, commercial, and industrial zones (City of Kelowna, 2009).
- The City of Seattle, WA Ordinance 123378 allows urban agriculture in all residential zones (City of Seattle, 2010).
- The City of San Francisco, CA Ordinance 66-11 allows urban agriculture (including sales) in residential districts, neighbourhood commercial districts, and other districts, with limitations but not complete prohibitions on, compost area placement, fencing, mechanized equipment use, site upkeep, sales, drop-offs, and pick-ups (City of San Francisco, 2011).

Agricultural Plans: Agricultural Plans help municipalities identify agricultural assets and strategies to protect, enhance, and/or improve their existing agricultural land and economy. Municipalities that adopt agricultural plans often include support for urban agriculture and urban farming initiatives within city boundaries.

- In 2011, The District of North Saanich developed a Whole Community Agriculture Strategy with the view that local communities are part of a foodshed supported by an integrated and diverse local food system. This strategy states that a complete community is a place to live, work, play, and grow food. The top five priority actions for the strategy include the following (District of North Saanich, 2011):
 1. Ensure municipal bylaws support agriculture
 2. Create an agricultural webpage (on the municipal website)
 3. Represent local and regional interests in food/agriculture
 4. Undertake an agricultural economic development plan
 5. Support independent local agricultural organizations.

- In 2011, the City of Campbell River created an Agriculture Plan to help implement their goal to produce 10% of their own food by 2031. Some of the primary objectives of the plan included (City of Campbell River, 2012) :
 - » Developing resource capacity including land, labour, and infrastructure
 - » Increasing the economies of scale of agriculture
 - » Improving access to markets
 - » Encouraging young farmers and attracting new farmers
 - » Integrating agriculture within the community
 - » Reinforcing relationships with regional agriculture in the Comox Valley



Campbell River Agriculture Plan, sustainablecampbellriver.ca, 2011

Food Strategies and Policy Councils: Toronto, Edmonton, New York City, Seattle (and soon Vancouver), have all adopted city-wide food strategies to support actions toward implementing more sustainable food systems. A common theme involves strengthening the local food economy by supporting local food businesses and urban agriculture. Many cities have formed food policy councils to represent various groups involved in the food system. Rural and urban farmers often sit on these councils.



Urban Farming Land Types

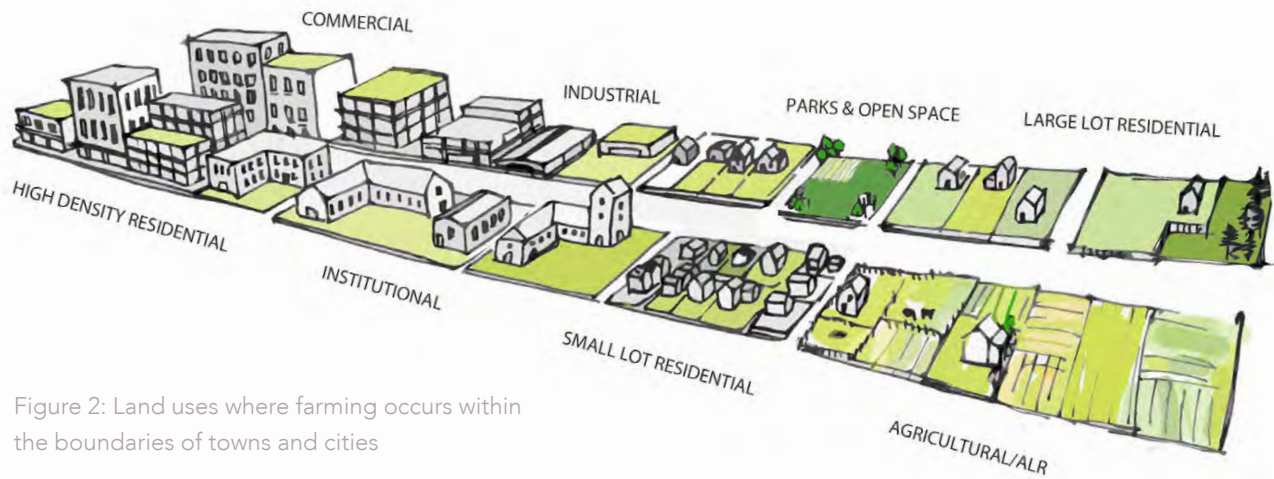


Figure 2: Land uses where farming occurs within the boundaries of towns and cities

The following are examples of urban farming land typologies:



Urban Acres, Nelson BC

Residential Yard

Description: One or more residential lots are used. Tenure can depend on ownership commitment, house sales, and community buy-in. The space is often leased in exchange for produce or a percent of the food sales.

Owner: Homeowner/renter



SOLEfood Farms, Vancouver BC

Urban Spaces (parking lots and rooftops)

Description: Lots owned by a private owner that are vacant due to land holding or soil remediation. These farms are often temporary and raised beds are typical for production.

Owner: Developer, local business



Loutet Farm, North Vancouver, BC

Parks and Public Greenspaces

Description: A portion of a public park is transformed into an urban farm.

Owner: Local government. The farm may be run by a local organization that is overseeing the management and operations of the farm to ensure they meet the requirements of the City.



UBC Farm, University of British Columbia, Vancouver, BC

Institutional Land

Description of Farm: Spaces on hospital grounds, universities, or other institutions.

Owner: Institution



Local Food Pedalers, Vancouver, BC (Located on a vacant lot in an industrial area)

Vacant Lot/Under-Utilized Site

Description: Lots that are vacant due to land holding, under-utilization or soil remediation. Could be found in commercial or industrial zones. These farms are often temporary and raised beds are typical for production.

Owner: Developer, local business or municipality



Richmond Sharing Farm, Richmond, BC.

Agriculturally Zoned/ALR Land

Description: Farm on Agricultural Land Reserve or land zoned for agriculture within the city limits.

Owner: Varies

Urban Farming Practices

The core characteristics of urban farm practices are summarized below. While there is great diversity of techniques and approaches within urban farming, this description is intended to orient the reader to some of the most common characteristics of urban farming.

Farm practices: Urban farming practices tend to be more intensive involving techniques such as SPIN farming and permaculture to allow for high yields in small spaces. Other innovative urban farming techniques are also emerging such as aquaponics, a system that combines aquaculture (raising aquatic animals in tanks) with hydroponics (cultivating plants in water), and vertical farming operations (for definitions see glossary). While not all urban farms will necessarily be organic, it is desirable to limit or prohibit the use of agricultural chemicals in urban areas, as many municipalities have done already with cosmetic pesticide bans.

Crops: The most common type of crops for an urban farmer are fresh produce (salad greens, vegetables, berries, and fruit). Fresh produce is less regulated and easier to package and transport than other food products such as meat and eggs. Livestock is less common due to regulations, space, care, and nuisance complaints.

Soils and growing mediums: As most urban farmers use organic (i.e., natural) methods of production (i.e., no chemical fertilizers), healthy soil is vital for healthy crops. Compost is one of the main ingredients for growing, and a key feature of any farm. However, due to space restrictions or regulations that prohibit them from composting, many farmers cannot produce enough compost, relying on imported soil instead. Urban farms have the potential to become centers for organic waste recycling, where neighbourhood food waste could be composted and put back into food production. Soil contamination in urban areas is a common concern for farmers and measures are often used to mitigate this, such as soil testing, soil remediation and utilizing raised planter boxes for production.

Water: Like any farm, a reliable water source is required for irrigating crops, washing harvest and equipment, and general farm hygiene. Water in a city can come from many sources including piped water, well water, and treated stormwater.

Structures: Structures required for urban farms can include storage sheds for tools and equipment, potting sheds, greenhouses, cold or dry storage structures such as root cellars, and kitchen facilities for food handling and processing. Some urban farms may also require facilities for teaching, which could include kitchens and classrooms.



Raised planter boxes on an industrial site in Vancouver, BC. These planters have been designed to be moved by a forklift.



Greenhouse on a residential farm, Green City Acres, Kelowna BC

Value-added processing: The sale of value-added products such as canned fruit, pickled vegetables, and jams/jellies, are considered medium to high risk according to provincial health regulations. This means that there are many restrictions on small scale processing and regulations are often very challenging for small producers to adhere to. Links between certified commercial and/or community kitchens provide an opportunity for urban farmers and local food processors. Selling value added products can provide a key source of revenue and help decrease food waste. Future urban farms could also have on-site food processing facilities for larger scale food processing. This would help decrease food waste before it is consumed (e.g., over-ripe fruit and bruised vegetables that can't be sold from local grocers) and provide a diversity of local food products.



Home made jelly, Urban Digs Farm, Burnaby, BC

Challenges & Considerations for Farming Practices

Urban farmers can face certain challenges that are not necessarily experienced by rural farmers. These include:

Small livestock: The raising and selling of most livestock (and related products such as honey, milk, eggs), if permitted at all, is usually limited to bees and chickens. The sale of both eggs and chickens are regulated by Provincial health regulations. However, small livestock is often considered an essential part of the farm system and is an important component of nutrient cycling or pollination. Bees and chickens in urban areas can also be problematic due to real or perceived risks associated with health and safety; how to deal with them is often a divisive public policy issue. However, there are ample resources and examples of how to manage and plan for bees, hens, and other fowl including examples of how to keep them safely, ethically, and with no negative impact on neighbours.

Access to water: Irrigation can be a challenge if infrastructure is not in place, if the water source is limited (e.g., well water), or if the water is metered, which adds an extra cost. There also may be concerns around the use of potable water for irrigation in terms of straining local drinking water resources and adding costs for the general tax base. Accessing water for gardening or small-scale farming can be a more serious concern in places with water restrictions or a lack of ground or surface water access. Municipal water hook ups may be expensive or simply not available.

Soil: Often soil in urban areas is contaminated or too compacted to use, which may limit in-ground growing potential. Soil testing may be required for food production, which can be expensive. With limited space for compost production, urban farmers often have to bring in soil, which can be cost prohibitive and in some cases may require a soil deposition permit. In terms of composting, some municipalities prohibit composting outright limiting soil healthy production.

Farm structures: Structures such as greenhouses and storage facilities and fencing may require building permits, or may be prohibited altogether by zoning bylaws. Greenhouses are also associated with light and noise pollution and require careful regulation in residential areas (e.g., maximum size, light pollution mitigation strategies, etc.).

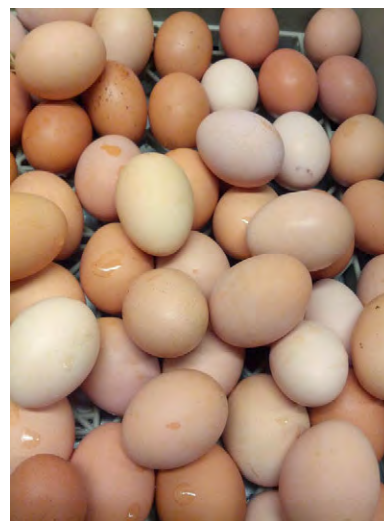
Nuisances: Nuisances from farm activities that may cause concern include aesthetics, dust, unpleasant odours, disruptive noises, visual impact of farm buildings and unkempt gardens, and contamination of surface or ground water sources. Due to the fact that the Right to Farm Legislation may or may not apply fully or in part to urban farming activities, municipalities may find that they need to more heavily regulate farm practices and/or and mediate conflicting stakeholder interests through consultation and facilitation, especially in geographic areas with facing challenges.

Local Government Responses

When it comes to farming practices, local governments are often charged with creative approaches to addressing the various issues that could compete with other urban activities. The following responses are some of those approaches.

Livestock: Some municipalities allow for a limited number of chickens, primarily for egg production for personal use only. Bees, goats, and pigs have also been allowed for production in some municipalities but are highly regulated (Just Food, 2012). The following examples of BC cities that allow the keeping of chickens and other farm animals with specific regulations:

- Hens and bees are permitted within city limits in the City of Victoria provided they are properly cared for and maintained. Secure outdoor shelter must be provided to contain hens or other outdoor domesticated animals and protect them from predators. Bee hives must be maintained to prevent swarming and placed far enough away from property lines to prevent them from impacting neighbouring properties (City of Victoria, 2011).
- In 2010, the City of Vancouver amended their animal control bylaw to allow domesticated hens (at least four months old) to be kept in urban areas subject to conditions for care and maintenance as well as enclosure siting and size. Up to four hens can be kept per property and must be registered with the city. Meat, eggs, and manure must not be sold and backyard slaughtering is not permitted (City of Vancouver, 2010).
- The City of Surrey also allows livestock and chickens on larger residential properties (One acre minimum) subject to limitations on the number and type of animals. A maximum of twelve hens, six sheep or goats, two livestock, and rabbits/chinchillas (unrestricted) are permitted per acre of property (City of Surrey, 1993).
- The City of Seattle allows the keeping of small animals, farm animals, domestic fowl and bees in all zones. This includes potbelly pigs and goats, with some restrictions. Farm animals such as cows, horses, sheep, and other similar farm animals (with the exception of swine), are permitted on lots with a minimum size of 20,000 square feet (City of Seattle, 2010).



Eggs from Urban Digs Farm, Burnaby, BC www.urbandigsfarm.com

Water: Some municipalities are addressing water conservation through outreach and education programs which can also apply to urban farmers. Rainwater capture is often promoted as a way to address the issue of using potable water for irrigation; municipalities across BC offer rain barrels at a subsidized price to residents to encourage conservation. Urban farmers can also provide education on responsible water use, irrigation system design and use of timers, watering schedules, plant water needs, soil water holding capacity, among others.

- In 2012, the Regional District of Nanaimo offered rebates of up to \$450 for cisterns purchased by residents in certain districts. These cisterns had to be suitable for potable water and hold a minimum of 4,546 litres of water to be eligible for the rebate (Regional District of Nanaimo, 2012). Some municipalities have adjusted their bylaws to accommodate rainwater capture techniques. Dockside Green in Victoria, for example, collects rainwater and uses it for irrigation (BuildingGreen.com, 2009).

Soil: Often, the onus is on the farmer to determine the safety of the soils. With the appropriate permits (e.g., business license) in place, local governments would be able to require proof of soil testing and contaminated site mitigation. Also, local governments may share data and information with farmers on where contaminated sites are located. Where composting is prohibited, municipalities could adopt appropriate guidelines for urban farmers. In some cases local governments may require only a detailed site history to demonstrate low probability of contamination.

- The Toronto Site Assessment is a tool developed by Toronto Public Health for city staff to assess potential sites for community and allotment gardens, and to identify and mitigate areas that are contaminated but could be suitable for food production (Toronto Public Health, 2011).

Building/Facilities: Farm structures, such as greenhouses and sheds, often require building permits. Rooftop structures can also be considered in height restrictions for zoning bylaws, which can limit their viability. Municipalities have made some efforts to accommodate farm structures to support farming. Examples include:

- The District of North Saanich has exempted greenhouses from lot coverage calculations in all zones (District of North Saanich, 2012).
- The City of New York has removed greenhouses from height restrictions on buildings (New York City Department of City Planning, 2012).
- The City of Seattle allows dedicated food production on rooftop greenhouses with a 15 foot exemption to height limits in a variety of higher density zones (City of Seattle, 2010).



Greenhouse on Environmental Youth Alliance (EYA) rooftop garden Vancouver, BC. www.eya.ca

Nuisances: Given that most nuisances from urban farming will be identified through complaints, education about the role and value of urban farms and growing spaces is essential. Also, developing good neighbour policies and guidelines that lay out the behaviours and practices both farmers and their neighbours need to adopt will help to mitigate problems and build overall awareness.

Table 1: Typical urban farming practices

Characteristic	Urban Realities
Crops: Vegetables Micro greens Fruit Berries Chickens (can you sell eggs?) Bees	» Limited space for viable production » Chicken bylaws » Regulations against sale of processed foods (honey, jam, etc) » Community complaints about farm aesthetics
Growing medium: Compost Imported soil Raised planter boxes	» Soil contamination » Limited space for compost production » Community complaints about manure or compost smells
Water City water	» Irrigating with potable water » Water costs (if metered)
Equipment Rototiller Hand tools Bike and cart	» Noise complaints » Sp
Facilities Storage sheds Greenhouse	» Building permits » Limited space



Common Grind Farm truck, Penticton BC

SALES AND DISTRIBUTION

Food produced and/or raised on an urban farm is sold and distributed through four main channels: Community Supported Agriculture (CSA), farmer's markets, food retailers (i.e., grocers and restaurants) and farmgate sales.

Community Supported Agriculture: Community Supported Agriculture (CSA) involves up-front investments from clients in exchange for weekly produce deliveries from the farm. CSA boxes are often picked up from a pre-determined location (café, or community centre for example) or delivered right to the consumer.

In some cases, CSA boxes are picked up directly from the farm; however, depending on the location, this may not be permitted if municipal bylaws prohibit farmgate sales. Municipalities have also expressed concern around potential traffic impacts resulting from CSA pick-ups.

Farmer's Markets: In BC, farmer's markets are on the rise with over 130 markets across the province (BCAFM, 2012). These markets provide an ideal venue for product sales as they require little up-front investment and give farmers access to a willing customer base (i.e., consumers who visit farmer's markets tend to be supportive of local food). Farmer's markets are also important for promoting urban farming products, such as CSA memberships, and can help raise awareness about local farms. 2012 was SOLEfood Farm's first year of harvesting after expanding to four acres, and much of their success was attributed to sales from Vancouver's six farmer's markets (Dory, 2012). One drawback of the farmer's market is that farmers will either have to take time from the farm, or pay staff to tend to a table. Markets also require harvesting and packaging of produce the day before or the morning of the market.

Grocery Stores: Some boutique grocery stores such as food co-ops, organic health food stores, or stores specializing in local foods will sell produce from urban farmers. More recently, some mainstream grocery stores have started to feature certain products from urban farms. In Richmond, BC, one Save-On Foods store is selling herbs and garlic scapes from the Sharing Farm, a Richmond based urban farm (The Sharing Farm Society, 2012).

"Our produce is picked early, dropped off only blocks away at our walk-in cooler in Fairview, then travels no more than 2 miles to arrive downtown"
- From website of Nelson Urban Acres, Nelson BC
nelsonurbanacres.ca



Earth Apple Urban Farm of Burnaby, BC selling their produce at a local farmer's market. Courtesy of Julia Smith. <http://earthapplefarm.com/>

Restaurants: There is a rising interest in selling local food in the restaurant industry. For three years in a row, locally produced food and sustainability were identified as the top two menu trends in a national survey of Canadian chefs (CRFSA, 2012). Produce from urban farms is becoming more frequent on menus as more restaurants continue to join the local food movement.

Farmgate sales: As with many small rural farms, farmgate sales can serve as another distribution stream for the urban farm. Farmgate sales are those sales that occur at the farm itself. In some cases, this might be a farmstand (where produce is sold through an honour system), a staffed table or building, or consumer purchases directly from the farmer. This allows the farmer to keep working while generating revenue. It also brings people to the farm to see where and how food is grown.

Challenges and Considerations

Although many urban farmers are selling and distributing their products successfully, there are still barriers that restrict them from legitimizing their operations.

Business licensing: Like any business, urban farmers are required to obtain a business license in order to operate. However, licenses may not be available because urban farm businesses are unique and may require special licenses. Applying for licensing and permitting may also be rigorous and costly.

Health and safety regulations: Food products that are sold by urban farmers must adhere to health and safety regulations. These regulations are set by both federal and provincial levels of government and apply differently to low and high risk foods. Most uncut produce is considered a low risk food and requires little to no certification from health inspectors. High risk foods include meat and dairy products, eggs, and many value-added products such as canned goods. These must be produced, stored, and packaged using strict guidelines involving certified commercial kitchens, food safe certification, and labelling laws, which is an expensive undertaking that most urban farmers do not pursue. However, as urban farming becomes more established, urban farmers may want to consider diversifying their products to increase revenue. Value-added products would bring additional revenue through the winter season, add to the local food market, and recover food waste before it enters the waste stream.

Farmgate sales: Most municipalities prohibit farmgate sales on non-agricultural lands, and take particular issue with farms in residential areas due to the perceived traffic impacts from customers sales.

Local Government Responses

The following are some local government approaches to addressing the sales and distribution of local food:

Business licensing: Perhaps because urban farming is still being developed as a practice, few BC municipalities have addressed the issue of business licensing. Chicago, however, has found a way to license urban farms under their Limited Business License category.

- The City of Chicago requires urban farms to have a business license as determined by the Department of Business Affairs and Consumer Protection and offers a Limited Business License (LBL) for urban farms and other businesses that do not fall under a designated category (City of Chicago, 2012).

Health and safety: If urban farmers largely keep to growing and selling fresh produce (i.e., low risk and ease of compliance with health and safety regulations), many of the regulations concerned with medium and high-risk foods will be eliminated. If further processing is identified as a business opportunity, certified kitchens in community centres and private buildings would be a very efficient way to support the potential for processing and adding value to urban farm products. Also, engaging local Health Authorities in policy development can help to ensure policy and regulatory alignment between municipalities, regional districts and the Province.

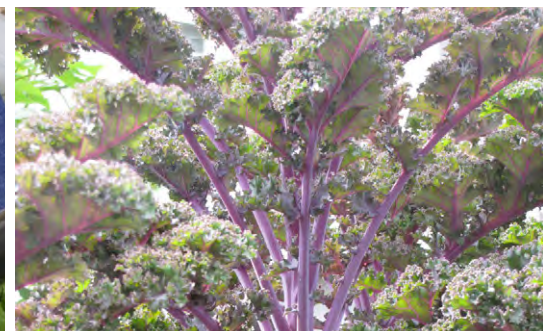


Farmgate sales: A range of municipalities have allowed for farmgate sales to some degree within their towns and cities. These include:

- In Cowichan Valley Regional District, farmgate sales are permitted outright in agricultural resource zones, small lot agricultural zones, and agricultural/golf course zones. They are also permitted in agricultural market and agricultural institution zones, although this may require approval by the Agricultural Land Commission. Bylaws limit the retail sales area (300 m²) and require at least half of the sales area to be reserved for foods produced on site (Cowichan Valley Regional District, 2012).
- City of Parksville, allows produce sales from any agriculture zone with no limitations on lot size or sales (City of Parksville, 1994).
- The Sunshine Coast Regional District zoning bylaw (which includes Halfmoon Bay, Roberts Creek, Elphinstone, and West Howe Sound) allows the sale of horticultural products including farm produce in R1 residential zones (parcel size exceeding 2000 square metres) and all rural zones (with the exception of rural forest and watershed protection zones) (Sunshine Coast Regional District, 1987). Horticultural means:
 - » “[...] the use of not more than one auxiliary structure or building permitted by this bylaw, not covering more than 10 square meters of a parcel, and the use of not more than one portable open air stand, not covering more than 3 square meters of a parcel, for the seasonal sale of fruits, vegetables, flowers.
- The Seattle Urban Agriculture Ordinance allows food to be sold from farms on residential sites (City of Seattle, 2010):
 - » Sales: retail sales and all other public use of the farm shall begin no earlier than 7:00 a.m. and end by 7:00 p.m. every day of the week.
 - » Deliveries: commercial deliveries and pickups are limited to one per day. On-site sales are not considered commercial pickups.
- The City of San Francisco allows the limited sale and donation of food grown on site to occur, except from within a dwelling unit (City of San Francisco, 2011).



Farmgate Sales, Loutet Farm, City of North Vancouver, BC



"That's the trailer fully loaded... as you can see I've managed to jimmy-rig 15 on there, and might have been able to do one more layer for 20, but it was a struggle as it was getting up hills! "

- Emi Do, Yummy Yards, Burnaby & Vancouver, BC



Local Food Pedalers, Vancouver BC



Fresh Roots Farm delivery, Metro Vancouver



Green City Acres, Kelowna BC

Yummy Yards , Burnaby & Vancouver BC

A note about the "farm bike"

One emerging phenomenon with urban farmers is the use of bicycles and trailers as their farm vehicle to distribute their goods. Trailers have been fitted to accommodate up to 20 CSA boxes for delivery. This is possible because many urban farmers are within cycling distance of their customers.





5. STORIES FROM THE FIELD

In order to learn more about current urban farming activities, future opportunities for urban farming, and current local government initiatives that may help facilitate urban agriculture and urban farming, the Guidebook authors consulted urban farmers and municipal staff in the communities of Campbell River, Kelowna, North Vancouver, and Vancouver. These communities were selected because they all have some level of urban farming activity within their city boundaries. The results revealed how different each of their experiences are, and that although urban farming as a practice is relatively similar in each city, the approach that municipalities take can depend on a number of parameters. For example:

- The City of Campbell River has already identified food and agriculture as a key issue in their planning process, despite not having agriculture as a major resource in the region. This municipal support has provided staff with the capacity to collaborate with the community to explore urban farming and other local food initiatives that may contribute to the revitalization of the town.
- The City of Kelowna has a significant amount of agricultural land within the city boundary. They also have a successful urban farmer operating within the city; he has become well known across North America for his farm and work advocating for the practice. The City also has a local food and agriculture person on staff who is willing to explore policies and regulations addressing urban farming.
- The City of North Vancouver is one of the first cities in BC to establish an urban farm on a public park. This was initiated by a number of key players including the mayor and park staff, the University of British Columbia, and the North Shore Neighbourhood House Edible Garden Project, a non-profit food organization.
- The City of Vancouver currently has eighteen urban farms (and counting) within its city limits. The City has been working collaboratively with the Vancouver Urban Farming Society to address policy, regulation, and best practices for urban farming.

This section provides a description of the approach to urban farming in each of these communities and how they have responded to the challenges and opportunities of growing food in their municipalities.

The City of Campbell River

Although farming is not a primary industry in the City of Campbell River, agriculture plays an important role both socially and economically. In fact, the City has a vision to produce 10% of its own food by 2031, and has developed strategies to move in that direction. In 2011, the City adopted its Agricultural Plan, which outlined a number of strategies to support agriculture and urban farming, and in 2012, the City's Sustainable Official Community Plan outlined agriculture as a key driver of social and economic vitality.

With a significant amount of viable farm land within City boundaries (both ALR and non-ALR land), and a foundation of agricultural knowledge and local food interest, the groundwork is being laid toward realizing the City's vision.

Ross Mountain Blueberry Farm is a one acre urban farm operating on a residential acreage in the City of Campbell River. This farm is possible because nursery and large crops are allowed in specific residential areas (Ostler, 2011).

Urban farming in Campbell River:

- Approximately 5,000 hectares of viable Agricultural Land Reserve (ALR) within City boundaries.
- Growing conditions both inside and outside of the ALR to support a wide range of crops including blueberries, grapes, and mushrooms.
- Existing farmers with the skills and desire to teach others about growing food, especially youth.
- Interest exploring new ways to farm including agriculture trusts, co-ops, and direct farm marketing.
- Greenhouse production and alternative crops.
- The Farmer's Market has been identified as playing a key role in distributing local food and becoming a community gathering space.
- Extension services and education offered by North Island College are already in place including local food workshops and video series.
- Opportunities for linkages with the existing agricultural industry in nearby Comox Valley.
- Coastal Roots Vegetables is a local farm that produces over 20 crops on an acre of land. Produce is sold to the residents through a seasonal veggie box program (Coastal Roots Vegetables, 2010).

Moving urban farming forward – local government initiatives:

The City of Campbell River is already beginning to implement the freshly adopted OCP and Agriculture Plan with planning staff committed to collaborating with other partners and potential farmers. Specifically, some of the activities include:

- Supporting the North Island College’s Lettuce Grow Series (a film and education awareness series on food security, urban farming, small scale food production) and most recently helping advertise/promote their Lettuce Grow courses on local food (e.g., hydroponics, winter gardening, soils, permaculture, etc.).
- Developing an initiative to create a Local Food Registry for farmgate sales, restaurants, and retailers to identify locally made products on an online map.

Conclusion:

Although Campbell River is just beginning their local food and agriculture movement, the groundwork and community interest exists to realize movement in this area. This example is of particular interest for those who are looking to food and agriculture to contribute to community revitalization and local economic development.

Resources:

Campbell River Sustainable Official Community Plan:
<http://sustainablecampbellriver.ca>

Campbell River Agriculture Plan: http://sustainablecampbellriver.ca/?page_id=655

Comox Valley Growers Guide: <http://www.investcomoxvalley.com/keySectors/agrifood.htm>

Coastal Roots Vegetables <http://www.coastalroots.ca/about/>

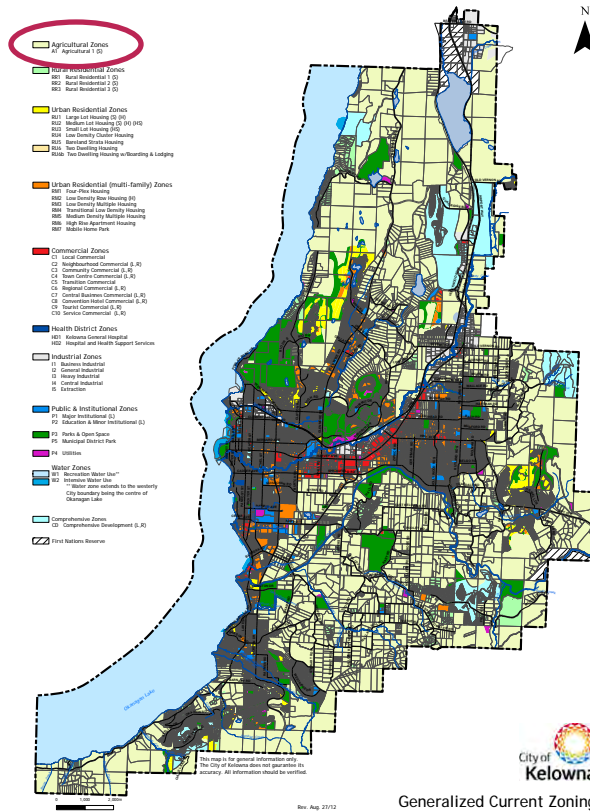
North Island College “Lettuce Grow” workshops
<http://www.nic.bc.ca/continuingeducation/>



The City of Kelowna

The City of Kelowna is located in one of BC's most productive agricultural regions, as well as one of the largest major growth regions in Western Canada. Agriculture is a prominent land use within the city boundary and many farmers still operate and farm these lands. Along with farm activity both within and outside of the ALR. There is also a growing local food economy with locally produced food being sold directly to chefs, food retailers, and the public through fresh box programs, CSA's, and a very popular farmer's market. Despite population growth and development pressure, the City has taken significant measures to protect urban farmland.

A focus group consisting of rural and urban farmers, organic food delivery staff, local food restaurants, and City staff provided insight into the growing urban farming and local food economy, and the City's efforts to protect and support its agriculture.



General zoning map of Kelowna. The light yellow represents Agriculturally zoned land (City of Kelowna, 2009).

Urban farming in Kelowna:

- Farms are operating on ALR and agriculturally zoned land and have been for generations. Some include farmgate sales and food processing.
- There are at least three urban farms in Kelowna, all active in the local food movement.
- Restaurants promoting local food are providing a viable market. There are already a number of partnerships in place between farmer's markets and local chefs.
- Urban Harvest Home Delivery is a successful local organic delivery program.
- Kelowna Farmer's Market provides a market for local urban food and is slated to move to a more permanent location.
- Urban farms are diverting organic waste from the landfill and using it for compost (Green City Acres diverts 1000 lbs. per week)



Green City Acres Farm, is an urban farm compiled from a series of residential yards within a 5km radius. Using SPIN (Small Plot Intensive Farming) methods, the owner, Curtis Stone, has been able to create a viable business from this model. Curtis has made a number of partnerships with local restaurants to sell his goods, he also sells to the local farmer's market and through a CSA program. Curtis reports that most of the neighbours support the farm (Stone, 2012).

Moving urban farming forward – local government initiatives:

Below are the various initiatives taken by the City of Kelowna to both protect and support agriculture within urban boundaries:

- The City of Kelowna's Official Community Plan recognizes agriculture as a vital component of the local economy.
- Urban Agriculture is a "Principal Use" in all of the single and two family dwelling zones, public, and institutional zones and a "Secondary Use" in the multi-family, commercial, and industrial zones.
- Agricultural areas (ALR and non-ALR) are designated "protected" under the Resource Protection Area designation.
- Home-based business bylaws allow for the sale of goods produced on site.
- Agricultural land and lands associated with agriculture, agri-tourism, greenhouse and plant nurseries, and garden stands require a development permit before subdivision or alteration.

Conclusion:

Kelowna has significant opportunities for urban farming within city limits that could complement the surrounding agricultural region. There is a high proportion of protected farmland within city boundaries, an urban farmer that is active in the community, a food sector that is supportive of local food, and some key policies in place that help remove some of the standard barriers to urban farming, such as zoning.

Resources:

City of Kelowna: www.kelowna.ca

Green City Acres Farm: www.greencityacres.com

Urban Harvest Home Delivery: urbanharvest.ca

The City of Vancouver

The City of Vancouver has eighteen urban farms and counting within its city limits with enough impact to be counted as operating farms by the recent census (Schutzbank, 2011). As urban farming helps meet many of the City of Vancouver's food policy goals, especially the goal of local food in the City's Greenest City 2020 initiative, the City has had special interest in working with urban farmers to find policy and regulation that fosters urban farming while mitigating risk. In 2012, the City formed an urban farming technical team that works closely with the Vancouver Urban Farming Society to address zoning, business licenses, and regulations that work for both parties. Although this profile focusses on the City of Vancouver, it is important to note that there are a number of urban farms and supportive organizations within the wider Metro Vancouver region that have been very involved in this process.

Since 2006, Urban Farmers in Vancouver have grown from 2 - 3 known farm business to 18 in 2012 (VUFS, 2012). The land area of urban farms has increased from 2.3 acres to 8.28 acres since 2010 (City of Vancouver, 2012).

Urban farming in Vancouver:

- In 2010, there were approximately 24 urban farms operating in Metro Vancouver; by 2012, those numbers grew to approximately 28 farms - 18 of which are located within the City of Vancouver's boundaries.
- In 2010, 50 urban farmers and supporters held their first gathering to address how urban farms could be more successful. Regulative barriers including zoning and business licenses were identified as major issues.
- In 2011, the City of Vancouver partnered with the Hastings Crossing Business Improvement Association to host the Vancouver Urban Farming Forum, a platform to bring the city and urban farmers together to discuss and address the issues and opportunities surrounding farming in the City of Vancouver. Over 100 participants attended, representing urban farmers, academics, municipalities, and food advocates. The results of the forum were compiled into recommendations (which included policy review for supportive zoning and business licensing) and were integrated into the City's Food Strategy.
- In 2012, the Vancouver Urban Farming Society (VUFS) was officially formed and immediately began to research best practice standards for Vancouver urban farmers. The City of Vancouver also formed an urban farming technical team of City staff to explore zoning, licensing, and regulations. VUFS met with this group and hosted an urban farming tour to help inform City staff of current issues and opportunities.



Vancouver Urban Farming Forum, Nov, 2011

Moving urban farming forward - local government initiatives:

- **Vancouver food charter:** Adopted in 2007, This charter sets out a vision for a sustainable food system. It outlines five key principles that show the City's commitment to municipal food policy and support for activity related to food security.
- **Vancouver Food Policy Council:** The Vancouver Food Policy Council (VFPC) is comprised of individuals from a range of sectors that collaboratively examine the operation of the local food system and provide ideas and policy recommendations for how it can be improved. The Food Policy Council has recognized urban farming as an important contributor to the local food system and has been supportive of urban farming initiatives in an official capacity since November 2010 (City of Vancouver, 2012b).
- **Greenest City 2020:** Vancouver has the goal of being the Greenest City in the World by 2020. 'Local food' and 'green economy' are two of ten areas of focus in this plan. The local food goal aims to increase city and neighbourhood food assets by a minimum of 50% (over 2010 levels) while the green economy goal aims to double the number of green jobs in the city by 2020 (over 2010 levels). In the draft action plan, urban farming is recognized as a neighbourhood food asset (City of Vancouver, 2012b).
- **Vancouver Food Strategy:** The City of Vancouver is currently developing a food strategy. The strategy is designed to help the City focus on specific goals and actions to improve the local food system. It will look at policies that affect how food is produced, processed, distributed, accessed, consumed, and recycled. The Vancouver Food Strategy, slated for adoption in January 2013, will identify strategies to support urban farming through land use, zoning, and supportive regulations (City of Vancouver, 2012).
- **City of Vancouver Beekeeping Guidelines:** In 2005, The City of Vancouver amended the health and safety bylaw to allow hobby beekeeping (City of Vancouver, 2010).
- **City of Vancouver Backyard Hens Bylaw:** In March 2010, policy guidelines were developed for the keeping of backyard chickens (City of Vancouver, 2010).

Conclusion:

There has been significant momentum in Vancouver toward establishing urban farming as an official business practice. Support has come from a cohesive, active urban farming community as well as a local government with a foundation of food system policy and staff that are dedicated to the food portfolio and committed to collaborating with the community.

Resources:

Vancouver Food Charter: <http://vancouver.ca/people-programs/vancouver-food-charter.aspx>

Greenest City Initiative: <http://vancouver.ca/green-vancouver/a-bright-green-future>.

Vancouver Food Policy Council: <http://vancouver.ca/your-government/vancouver-food-policy-council.aspx>

Vancouver Urban Farming Society: <http://urbanfarmers.ca/>

The City of North Vancouver

The City of North Vancouver has positioned local food production as a priority on their planning agenda. In 2009, the City of North Vancouver's 100 Year Sustainability Vision was adopted as a guiding document for the future of the city. One of the key goals is to increase green infrastructure, with local food production as one of the top five strategies. This profile highlights Loutet Farm, one of the City's most significant moves toward local food production. It is also one of the few examples of urban farms operating in a public park.

"Future resiliency necessitates the development of local, renewable energy and food systems" – (City of North Vancouver 100 Year Sustainability Vision, pg. 39.)

Background - Loutet Farm:

In 2011, the Loutet Park Urban Agricultural Project or "Loutet Farm," was established. This pilot project represents a partnership between the North Shore Neighbourhood House Edible Garden Project, the City of North Vancouver, and the University of British Columbia. It was designed to promote local food awareness and increase access to local, commercially grown produce within a not for profit organizational structure (City of North Vancouver, 2012).



Loutet Farm site in highlighted in green

Loutet Farm is a half acre farm located on a portion of public parkland which was previously under-utilized. It is administered and maintained by the North Shore Neighbourhood House Edible Garden Project through a five year lease agreement with the City. To allow for this type of use, the City of North Vancouver and the Neighbourhood House worked closely to identify potential risks and designated the farm as a pilot project in order to monitor on an ongoing basis. To date, minimal complaints have been received from the community (Hunter, 2012).

This park operates as a social enterprise with funds generated through the sale of produce being directed back into the operations of the farm. The farm is maintained by a paid farm manager and by volunteers. Throughout the season, courses and events centered on growing food are offered to the community and regular programming is offered for children attending a neighbouring elementary school.



The Loutet Farm Mandate is to provide a year-round harvest of locally grown produce with a commitment to:

- Creating social spaces for people to work and gather
- Integrating professional organic farming with innovative and sustainable practices including alternative energy
- Providing school aged children living in urban environments a hands-on farm experience
- Providing educational opportunities for up to 5,000 learners of all ages, cultures and sectors
- Encouraging physical activity and the role of food in a healthy lifestyle
- Becoming financially sustainable within five years

Loutet Farm - What's Working:

Since its opening, Loutet Farm has experienced a number of successes, including:

- Continued collaboration with the City of North Vancouver.
- Farmgate sales: Operating a farmer's market on site is identified as one of the approved uses in the revised land use agreement.
- The hiring of a farm manager.
- The 2012 Sustainable City Award from the City of North Vancouver.
- Received minimal complaints from the community.
- Established a volunteer program with 276 volunteers logging a total of 1300 hours in 2012.
- Engaged the community through education, events, and work parties.
- Loutet farm increased revenue by 450% in year two. They are on track to achieving financial viability within five years.



Loutet Farmers Market

Considerations for Municipalities:

Supporting urban farms on public lands is often a point of contention for municipalities and communities. However, it has been argued that urban farms can have numerous additional benefits as a community amenity including job creation, economic generation, animation of public space, and provision of local food.

Resources:

City of North Vancouver: www.cnv.ca

North Shore Neighbourhood House Edible Garden Project: www.ediblegardenproject.com



6. THE ECONOMICS OF URBAN FARMING

This chapter has been authored by Caitlin Dorward, Marc Schutzbank, MSc, and Kent Mullinix, PhD, PAg from the Institute for Sustainable Horticulture at Kwantlen Polytechnic University.

Urban farms do not just produce food. They also function as outdoor classrooms, conversation starters, and ecosystem service providers. As such, urban farm operators are not only farmers; they are also educators and spokespeople for the food movement. They train future farmers, provide jobs for inner-city youth and those with barriers to employment, and increase urban consumers' awareness and understanding of agriculture and food system issues. This section will explore the revenues and expenses of urban and near-urban farms (both considered as urban farms).

Urban and Near-Urban Farm Revenue

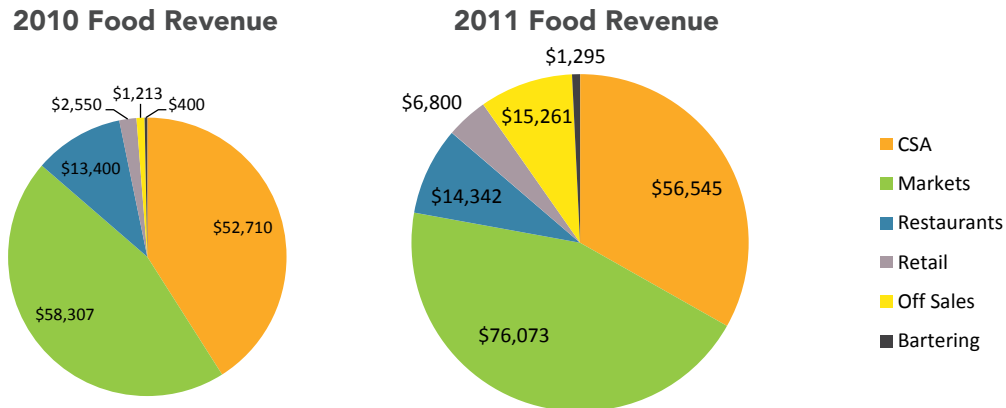
Just as urban and near-urban farm business models are diverse, so too are their revenue streams, which can be categorized as crop revenue, grants and donations, and other revenue such as consulting fees and teaching fees.

The majority of urban farm crop sales are made through various direct marketing channels. Under a Community Supported Agriculture (CSA) program, consumers pre-purchase a weekly "share" of the farmer's harvest. This sales model enables farmers to receive payment at the beginning of the season, a time when cash flow is challenging, and offers consumers the opportunity to develop a relationship with their food providers. Farmer's markets provide a venue where urban farmers can receive premium prices for their produce. Preparing for and attending the market day, however, takes farmers away from tending their crops. To mitigate this challenge, some urban farmers have begun working together to sell their products cooperatively. "Metro Vancouver City Farms" is one example of such a consortium of farmers. Farmgate sales are another venue that allow for direct consumer interaction and premium pricing, but without the farmer investing time and expense to travel to another point-of-sale site such as a farmers market. Direct sales are also made to restaurants, many of which are now seeking to capitalize on the local food movement by incorporating seasonal local produce in their menus.

While urban farmers have seen success with direct marketing channels, they still face significant barriers to accessing the retail grocery market. Retailers demand low prices, maintain prohibitive purchasing policies (such as requiring organic certification or Hazard Analysis Critical Control Point verification), and demand large quantities of produce that urban farmers typically cannot supply. Working with smaller, independent retailers is currently the most viable option, but other opportunities for retail grocery sales may arise as the capacity of urban farms increases.

Figure 3 summarizes the results from a census of urban farms in Vancouver. As the data demonstrates, over the course of one year, Vancouver’s urban farmers saw a small increase in revenue and farmer’s markets continue to be a key point of sales (Schutzbank, 2012).

Figure 3: Vancouver Urban Farms’ Food Revenue



In addition to revenue from crop sales, many for profit urban farmers derive revenue by providing other unique services to their communities. Many urban farmers offer workshops on topics such as garden planning, soil management, and seed saving. Some host summer camps that teach agriculture to children and connect them to the food system through the urban farm and a host of farm-related activities. Urban farmers also act as “edible landscaping” consultants, working with homeowners to design and build backyard “foodscapes”. The success of urban farm workshops, community programs, and consulting is directly linked to urbanites’ increasing concern about food security and interest in local foods. Many citizens want to gain tangible skills to address these issues, and are willing to pay urban farmers to share their expertise.

Recognizing that urban farms contribute more to communities than just food, many local governments, foundations, and businesses have also made grant funding available to support organizations dedicated to sustainable local food production. Grants and donations therefore comprise a valuable revenue stream, utilized primarily by urban farming organizations with charitable or non profit status. Vancouver's Sole Food Street Farm, for example, is a highly successful urban farming social enterprise whose mission is to "empower individuals with limited resources by providing jobs, agricultural training, and inclusion in a supportive community of farmers and food lovers" (Sole Food Street Farms, 2012). Their recent expansion into a two-acre farm site in downtown Vancouver was supported through in-kind and financial donations from a variety of organizations including Vancity Credit Union, the Radcliffe Foundation, and Concord Pacific (Vancity, 2012).

Urban and Near-Urban Farm Expenses

Like all businesses, urban farming expenses are either fixed (constant regardless of volume of production) or variable (fluctuating with volume of production). Urban farming cost categories include labour; production inputs; and sales, marketing, and administration. Data reporting on these costs is not widely available, but included below are some findings from research conducted in Vancouver using an emergent "Urban Farming Census" methodology (Schutzbank, 2012). The figures reported here may not be accurate representations of individual farms or representative of urban farms in other municipalities, but provide some context for the discussion of urban farming expenses. For the complete methodology and findings of the Urban Farming Census, see Schutzbank, 2011, and Schutzbank, 2012.

Labour costs are generally the largest cost category for urban farms, as this type of farming is largely non-mechanized and therefore highly dependent on manual labour. Schutzbank's Census of Urban Farming indicates that Vancouver's urban farm workers receive wages ranging from \$10 - \$20/hour, commensurate with experience (Schutzbank 2012). Furthermore, Schutzbank found that some of Vancouver's urban farmers work as many as 80 hours/week during the height of the growing season (2012). Faced with small margins and high workloads, some urban farms reduce labour costs by soliciting volunteers or interns who work in exchange for agricultural training and farm produce. Although current interest in urban farming sees many applicants for these unpaid positions, developing more sustainable models of urban farm employment is critical for the future growth of the sector.

The Urban Farming Census also found that most of the owners of Vancouver's urban farms do not pay themselves an hourly rate or account for their own labour and management costs in their business expenses. Rather, they pay themselves from revenues after all other business expenses have been paid (Schutzbank, 2012). Best practice is to include "return to management" in planning budgets so that the urban farmer can anticipate a reasonable income from the farming business.

Production inputs include land, soil amendments, seeds, irrigation infrastructure, fertilizers, tools, and other items. Cash-flow is a perennial problem in agriculture that urban farms are not immune to, and as a result many urban farmers limit cash transactions to pay for these inputs, favouring barter or other methods of payment. Leases for urban farmland, for example, are often secured in exchange for landscaping services or farm produce rather than cash rent.

Schutzbank (2011) reports that Vancouver's urban farms' production supplies expenses reported in averaged \$0.67/square foot in food production. There was wide variability in these costs, however, from a minimum of \$0.11/sq foot to a maximum of \$1.71/sq foot (Schutzbank, 2011). This range is reflective of the potential for urban farms to keep cash costs low by investing time into creative sourcing of supplies and capitalizing, as described above, on volunteer labour. As one farmer described, "we didn't have any big costs in 2010. This entire fence, all the logs, the uprights, that whole shed there, I built from 100% recycled materials and a lot of volunteer help" (Schutzbank, 2012).

Sales, marketing, and administrative expenses are not directly related to growing, but are critical to business operations. They include such things as insurance, phone and communication expenses, postage, and office supplies. Typically, these expenses are low for new urban farms, although as businesses grow, so too will this cost category. In some urban farming businesses these expenses are subsidized entirely by the proprietor(s), and not accounted for in business financial statements. For example, an urban farmer may use their personal vehicle for business purposes but never reimburse themselves from the farming operation. Although this is common in small businesses across many sectors, best practice is to track and account for all personal costs incurred because of business activity. This should be the standard that urban farmers strive to achieve as their revenues increase.



Profitability Potential of Urban and Near-Urban Farms

If anything can be said definitively about the profitability of urban and near-urban farming, it is that it varies widely due to differences in the farmer's skill level, customer relationships and marketing strategy, land tenure agreements, and farm goals.

A recent study conducted by the Institute for Sustainable Horticulture at Kwantlen Polytechnic University examined the profitability potential of small-scale, near-urban farms selling through direct markets in Surrey. Data used in the analysis was sourced from BC Ministry of Agriculture's "Planning for Profit" enterprise budgets, which estimate expected yields and fixed and variable costs of various crops. To increase confidence in the analysis and account for the inherent uncertainty of farming, costs were increased by 15% and yields decreased by 10% from those reported in the Planning for Profit budgets. Market price data was collected by the researchers from various retail and direct market sources in the Lower Mainland (Mullinix et al. 2012).

Using these methods (described in full in Mullinix et al., 2012), it was estimated that a one acre farm growing 29 fruit and vegetable crops and three animal products could generate approximately \$24,000 in annual profit for the farm operator. Under a production scenario that prioritized only ten highly profitable crops, it was estimated that same acre could generate \$46,000 in annual profit for the farm operator. These estimations are summarized in Tables 2 and 3 below.



Table 2: Potential Net-Profit of a 1 Acre Urban or Near-Urban Farm Growing 32 Crops and Animal Products (1)

Crop	Yield (2)	Net Profit (3)
Spinach	351 lbs	\$2,555
Tomatoes	4,208 lbs	\$2,139
Pak Choy	490 lbs	\$1,754
Snow Peas	279 lbs	\$1,692
Chinese Cabbage	1,020 lbs	\$1,385
Beets	539 lbs	\$1,097
Pumpkins	819 lbs	\$1,088
Cabbage	868 lbs	\$1,055
Radishes	539 lbs	\$1,021
Turnips	1,030 lbs	\$846
Carrots	645 lbs	\$816
Hazelnuts	68 lbs	\$797
Kale	204 lbs	\$649
Potatoes	534 lbs	\$642
Pears	387 lbs	\$642
Cucumbers	398 lbs	\$639
Bell Peppers	253 lbs	\$631
Yellow Onions	892 lbs	\$627
Pole Beans	183 lbs	\$556
Cauliflower	219 lbs	\$485
Lettuce	611 lbs	\$452
Honey (One Hive)	85 lbs	\$433
Asparagus	122 lbs	\$408
Table Grapes	163 lbs	\$319
Garlic	93 lbs	\$305
Eggs	124 doz	\$257
Apple (Jonagold)	319 lbs	\$255
Brussels Sprouts	287 lbs	\$248
Sweet Corn	551 lbs	\$213
Zucchini	270 lbs	\$183
Broccoli	212 lbs	\$177
Lamb	15 lbs	\$40
TOTALS	16,248 lbs (food) 124 doz (eggs) 85 lbs (honey)	\$24,405

(1) For complete data sources, and methodology (including crop price, fixed and variable costs) see Mullinix et al. 2012.

(2) Yield calculated based on each crop growing on 0.03 acre.

(3) Net Profit = Sales Revenue - (Variable Costs + Fixed Costs).

Table 3: Potential Net Profit \of a 1 Acre Urban or Near-Urban Farm Growing 10 Highly Profitable Crops (1)

Crop	Yield (2)	Net Revenue (3)
Spinach	1,097 lbs	\$7,976
Tomatoes	13,148 lbs	\$6,676
Pak Choy	1,530 lbs	\$5,474
Snow Peas	871 lbs	\$5,279
Chinese Cabbage	3,188 lbs	\$4,320
Beets	1,683 lbs	\$3,420
Pumpkins	2,559 lbs	\$3,393
Cabbage	2,712 lbs	\$3,290
Radishes	1,683 lbs	\$3,184
Turnips	3,219 lbs	\$2,635
TOTALS	31,689 lbs (food)	\$45,647

(1) For complete data sources, and methodology (including crop price, fixed and variable costs) see Mullinix et al. 2012.

(2) Yield calculated based on each crop growing on 0.03 acre.

(3) Net Profit = Sales Revenue - (Variable Costs + Fixed Costs).

Although it is unlikely that a farmer would choose the exact crop production schemes outlined above, they are illustrative of the reality that urban and near urban farmers will benefit from careful analysis of their farm finances to determine how they can maximize profitability when land is the limiting factor. By prioritizing production of high value crops, urban and near-urban farmers can greatly increase the profitability of their businesses. SPIN (Small Plot Intensive) Farming is one type of vegetable farming system being promoted for near-urban and urban farmers that relies heavily on profit-potential based crop planning. SPIN Farming’s developers purport that by using “precise, revenue-targeting formulas,” SPIN farmers are able to gross over \$50,000 from a half acre of land (SPIN Farming LLC 2012).

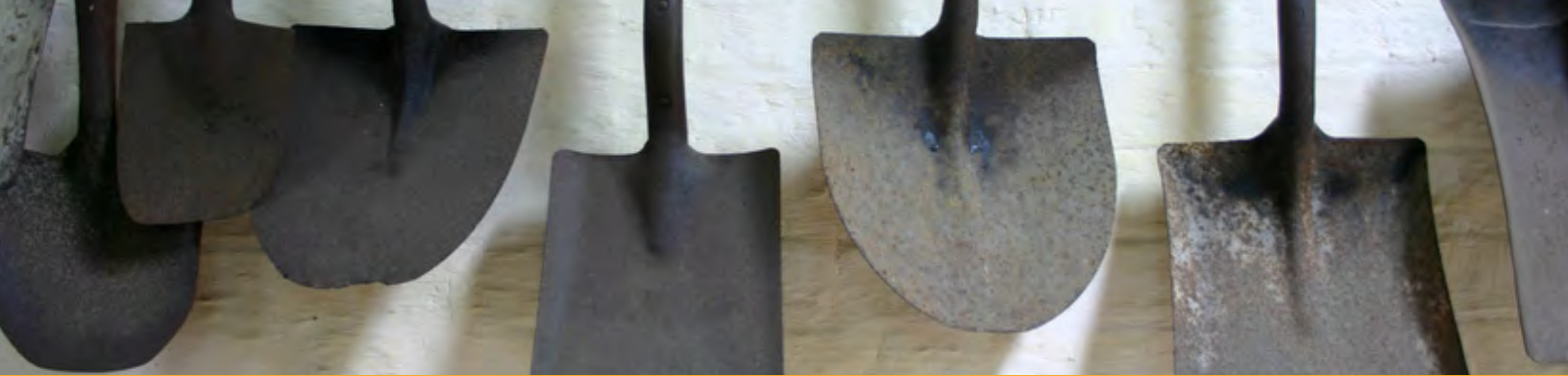
Assuming net receipts are approximately 50% of gross receipts, the profit potential from this kind of farming enterprise far exceeds most conventional farm types, and SPIN farmers across BC and North America are making it happen on the ground. Curtis Stone of Green City Acres uses SPIN Farming techniques on his urban farm in Kelowna. He sells his urban produce at farmer’s markets and through a CSA program, and reports that he meets or exceeds SPIN’s revenue targets after only two years of farming (personal communication, 2012).

The Vancouver Urban Farming Census suggests that urban farmers make returns comparable with rural vegetable farms, but that their salaries are not yet on-par with those of other urban jobs (Schutzbank, 2011). The profitability potential is there, but some urban farms have not yet achieved it, and this struggle will persist as long as a number of current barriers to urban farming do too. Of particular concern from a financial perspective is the limited access to urban and near-urban agricultural land, the scarcity of financing for start-up urban farm businesses, and the presence of prohibitive bylaws.

Vancouver's Urban Farms are in the first three years of operation and still understanding their market. That being said, Vancouver's for profit urban farms are doing quite successfully. The 2010 average return for farm owner/operator was \$13,745, though that ranges widely due to variation in land size and level of business development. Three of the eight urban farms surveyed took home less than \$6,000 to pay the owner/operators (Schutzbank, 2011).

While some of these barriers can be overcome by urban farmers themselves, municipalities also have a critical role to play. In Surrey interest in under utilized urban agricultural land as an untapped resource for job and wealth creation prompted the City to commission the study, referenced above, to investigate the issue further. This study revealed the extent to which this small scale agriculture sector could contribute to Surrey's local economy, and outlined a number of strategies which Surrey could pursue in order to facilitate it (Mullinix et al., 2012). To this end, however, Surrey is not unique. Local governments across the board have a role to play in eliminating urban farming barriers by developing supportive policy and programming and in doing so stand to see real local economic benefit.

The demand for local produce is significant and growing, presenting entrepreneurially inclined urban and near-urban farmers with the opportunity to develop economically viable businesses. Key to their success will be the presence of allies in local government, neighbourhood councils, and the business community, who together can lend support the support needed for this sector to achieve its full financial potential.



7. LESSONS LEARNED: APPROACHES FOR BC MUNICIPALITIES

Urban farming is an emerging practice and there is much still to be learned from both farmers and municipalities. Local government responses will, of course, be guided by local context, experience, type, and location, as well as the presence and advocacy of urban farms.

Considerations for BC municipalities

When addressing urban farming there are some key considerations for municipalities.

1. It is worth exploring how urban farming can be fostered in municipalities and how it can align with local food system and sustainability strategies. Potential alignments include:
 - » Providing a local food source for cities (increasing resilience)
 - » Increasing access to fresh, healthy food
 - » Contributing to the vitality of the local economy
 - » Providing green jobs and fostering innovation
 - » Expanding the awareness and understanding of the food system
 - » Decreasing GHG emissions by using alternative distribution methods and decreasing the distance food travels
2. In its modern form, urban farming is a new business with a new market that will likely change over time. Governance will need to be flexible enough to respond to these changes. Key perspectives on effective management of urban farming include:
 - » Urban farming, as a business, does not fit into many current zoning codes and licensing bylaws and may require creative governance.
 - » Issues such as traffic, smell, or aesthetics related to urban farming may be real or perceived; municipalities should explore the realities of urban farming with existing farmers and neighbours before creating regulations. Both the urban farmer and the municipality play a role in the process.
 - » Collaboration, interdepartmental communication and understanding of both urban farming and municipal perspectives are imperative to create successful policies, regulation, and best practices on the part of farming.

Recommendations

The recommendations listed below have been gleaned from consultation with BC municipalities and urban farmers and from best practice research.

1. **Support urban farming through planning processes:**
 - » Support urban farming, and local food activities in Official Community Plans and related community plans.
 - » Review existing policy and regulations to identify barriers and how policy and regulations can be changed and updated to support urban farming.
 - » Identify how urban farming can align with and support other policies or strategies.
 - » Establish a food policy council to support local food initiatives such as urban farming.
2. **Land Access and Restrictions:**
 - » Conduct a land inventory to identify viable land for food production and to identify sites suitable for urban farming.
 - » Consider allowing agriculture in most or all zones, including residential.
 - » Explore the suitability of urban farming in public parks.
 - » Explore temporary or long-term leases for farming on city-owned land (ideally, leases are a minimum of three years).
 - » Consider tax incentives for land holders to lease land for urban agriculture projects, including community gardens and urban farms.
3. **Licensing and permitting :**
 - » Develop a business license suitable for urban farming businesses.
 - » Explore ways to support farmgate sales from urban farms.
 - » Allow for small urban farm buildings such as greenhouses and storage sheds in zoning bylaws.
 - » Work with urban farmers to collaboratively develop a code of best practices and regulations/guidelines that establish a standard of good farming without stifling operations.
 - » Consider implementing short-term policy amendments in order to measure risk, challenges, and opportunities before implementing long-term regulations.
 - » Consider adopting bylaws that allow for chickens and beekeeping.
 - » Avoid reactive regulations by separating real versus perceived risks associated with urban farming.

4. Collaboration and Support

- » Work with urban farmers to develop a mutual understanding of urban farming and the planning practice, and identify common challenges and opportunities.
- » Bring together and facilitate discussions between different partners to support the practice of urban farming, especially where it meets broader municipal objectives.
- » Support education and training programs through grants or in-kind support for farmer training and public education workshops for growing local food and healthy eating.
- » Subsidize soil testing for nutrients and contamination.
- » Subsidize and support urban farming efforts and innovations for diverting food waste into compost for urban farming.
- » Collaborate with local chefs, food retailers, farmer's markets, and urban and near-urban farmers to assess the local food supply chain and identify the gaps and opportunities for business improvement, job creation, and supportive services.
- » Support farmer's markets and food hubs as key conduits for local food distribution.

At this early stage of the practice, these are only some considerations and recommendations for local governments when addressing urban farming. As the practice develops the policy responses will no doubt be as diverse as the practice itself.





8. CHARTING A PATH

As towns and cities chart a path for the next generation, re-linking the food system to local energy, investment, and resources will propel communities towards greater growth, prosperity, and health. Urban farming is one strategy for developing strong local and regional food systems. The technical innovations, jobs, entrepreneurial opportunities, educational programs, and urban greenspaces that are created by urban farming help to stimulate community health and wealth. The partnerships that are developed through the planning for and coordinating of urban farming create new avenues for resource sharing and increase the potential for a broader range of local businesses, projects and initiatives.

Urban farming is complex. Growing food as a business outside of the areas that have been historically used for farming presents a new set of opportunities and challenges for local governments, in large and small communities. This Guidebook provides starting points and strategies for understanding both the potential and limitations of urban farming as well as examples from the growing number of BC, Canadian, and US cities who are implementing urban food programs.

Just as communities plan for transportation, housing, and infrastructure, elevating food and agriculture systems- including urban farming- to this same level provides key opportunities for prosperity and quality of life. George Orwell notes the need to raise the status of food and farming in society. In the *Road to Wigan Pier* he states,

“I think it could be plausibly argued that changes of diet are more important than changes of dynasty or even of religion...Yet it is curious how seldom the all-importance of food is recognized. You see statues everywhere to politicians, poets, bishops, but none to cooks or bacon-curers or market gardeners”.

Urban farming is an emerging sector with potential to bring many benefits to communities. Local governments are strategically positioned to become key partners in enabling urban farming and building strong local food systems.



9. REFERENCES

American Community Gardening Association. What is a community garden? Retrieved November 27, 2012, from American Community Gardening Association: <http://www.communitygarden.org/learn/>

Bailkey, M. a. (2000). From Brownfields to Greenfields: Producing Food In North American Cities. Community Food Security News Fall 1999/Winter 2000, 6.

Baltimore Office of Sustainability. (May, 2011). Request for Qualifications: Urban Agriculture in the City of Baltimore. Retrieved December 12, 2012, from Baltimore Office of Sustainability: <http://www.baltimoresustainability.org/resources/index.aspx>

BC Association of Farmer's Markets (2012). Planning for Successful Farmer's Markets in BC's Towns and Cities. Vancouver. www.bcfarmersmarket.org

BC Centre for Social Enterprise. (2012). What is Social Enterprise? Retrieved November 27, 2012, from BC Centre for Social Enterprise: <http://www.centreforsocialenterprise.com/what.html>

BMO. (2012, August 2). BMO Financial Group. Retrieved October 30, 2012, from <http://newsroom.bmo.com/press-releases/bmo-survey-canadians-willing-to-pay-a-significant-tsx-bmo-201208020809636001>

British Columbia Ministry of Agriculture and Lands. (2008). Planning for Profit: Five Acre Mixed Vegetable Operation - Full Production. Retrieved from [http://www.agf.gov.bc.ca/busmgmt/budgets/budget_pdf/small_scale/2008mixed veg.pdf](http://www.agf.gov.bc.ca/busmgmt/budgets/budget_pdf/small_scale/2008mixed_veg.pdf)

British Columbia Ministry of Agriculture. (2011). Fast Stats 2010: Agriculture, Aquaculture and Food. Victoria. Retrieved from http://www.agf.gov.bc.ca/publicat/stats/FastStats2010_R2.pdf

BuildingGreen.com. (2009, 4 15). Synergy at Dockside Green. Retrieved November 23, 2011, from Building Green.com: <http://www.buildinggreen.com/hpb/overview.cfm?projectId=1371>

Burmeister, R. (2012, January 8). The Basics of Aquaponics. Retrieved November 27, 2012, from Nourish the Planet: <http://nourishtheplanet.com/2012/01/the-basics-of-aquaponics/>

Carrot City. (2012). The Freesia. Retrieved November 2, 2012, from Carrot City Designing For Urban Agriculture: http://www.ryerson.ca/carrotcity/board_pages/housing/freesia.html

City of Campbell River. (2012, February 21). Sustainable Campbell River. Retrieved October 3, 2012, from City of Campbell River: http://sustainablecampbellriver.ca/?page_id=655

City of Campbell River. (2012, 09 11). Whats New. Retrieved November 7, 2012, from City of Campbell River: <http://www.campbellriver.ca/pages/whatsnew.aspx>

City of Kelowna. (2009). Consolidated Zoning Bylaw No. 8000 . Section 9 - Specific Use Regulations. Kelowna.

City of North Vancouver. (2012). City of North Vancouver. Retrieved October 4, 2012, from Loutet Park Urban Agriculture Project : <http://www.cnv.org/server.aspx?c=3&i=590>

City of North Vancouver Parks and Environment Advisory Committee (2012). North Vancouver: City of North Vancouver.

City of North Vancouver. (2012, 06 06). Loutet Park Urban Farm Licence. City of North Vancouver.

City of San Francisco. (2011, May 20). San Francisco Planning Department. Retrieved October 26, 2012, from City of San Francisco: <http://www.sf-planning.org/Search.aspx?sa.x=9&sa.y=13&sa=Search&cof=FORID%3A11&q=urban%20agriculture%20legislation&cx=018062627758110761831%3Aalpglywsox>

City of Seattle. (2010). Seattle City Council Council News Release. Retrieved October 26, 2012, from Seattle.gov: <http://www.seattle.gov/council/newsdetail.asp?ID=10996&Dept=28>

City of Surrey. (1993, September 13). Surrey Zoning Bylaw 12000. Retrieved November 26, 2012, from City of Surrey: <http://www.surrey.ca/5172.aspx>

City of Vancouver. (2010, June 8). City of Vancouver Bylaw No. 10066: A Bylaw to amend Animal Control Bylaw No. 9150 regarding keeping of hens. Retrieved November 26, 2012, from City of Vancouver: http://app.vancouver.ca/bylaw_net/Default.aspx

City of Vancouver. (2012). City of Vancouver Food Strategy Update to City Council PT & E Committee. Vancouver, BC, Canada.

City of Vancouver (2012b). Food and sustainable food systems. Retrieved December 12, 2012 from City of Vancouver: <http://vancouver.ca/people-programs/food.aspx>

City of Victoria. (2011, July 21). City of Victoria Bylaw No. 11-044 (Animal Control Bylaw). Retrieved November 26, 2012, from City of Victoria: <http://www.victoria.ca/EN/main/city/bylaws.html>

Coastal Roots Vegetables. (2010). Retrieved October 7, 2012, from Coastal Roots Vegetables: <http://www.coastalroots.ca/about/>

Creasy, R. (2009). Edible Landscaping Basics. Retrieved November 27, 2012, from Rosalind Creasy - Edible Landscaping: <http://www.rosalindcreasy.com/edible-landscaping-basics/>

CRFSA. (2012). CRFA News Room. Retrieved October 30, 2012, from Canadian Restaurant and Food Association: http://www.crfca.ca/aboutcrfa/newsroom/2010/new_canadian_chef_survey_highlights_top_menu_trends_for_2010.asp

District of North Saanich. (2011). Growing Towards Food Self Reliance: A Whole Community Agriculture Strategy. Retrieved December 12, 2012, from District of North Saanich: http://www.northsaanich.ca/Municipal_Hall/Departments/Planning_and_Community_Services/Planning/North_Saanich_Agriculture.htm

District of North Saanich (2012). Zoning and Development Bylaw No. 1255 Consolidated July, 2012.

Doward, C., Schutzbank, M., & Mullinix, K. (2012). The Economics of Urban and Near-Urban Farms. Surrey: Kwantlen Polytechnic University.

Dory, S. (2012, 09). Senior Agrarian. (J. Clark, Interviewer).

Doward, C., Schutzbank, M., & Mullinix, K. (2012). The Economics of Urban and Near-Urban Farms. Surrey: Kwantlen Polytechnic University.

Dubbeling, M., & Santandreu, A. (2003). Urban Agriculture: A Tool for Sustainable Municipal Development. Guidelines for Municipal Policymaking on Urban Agriculture. Retrieved May 2, 2012, from <http://web.idrc.ca/uploads/user-S/10530054240E1.pdf>

Fresh Roots Urban Farm. About Us. Retrieved December 12, 2012 from Fresh Roots Urban Farm: <http://www.freshroots.ca/>

Globe and Mail. (2012, July 27). Changing assessments near vancouver viaducts taxing to city, developers and residents. Retrieved October 3, 2012, from Globe and Mail: <http://m.theglobeandmail.com/news/british-columbia/changing-assessments-near-vancouver-viaducts-taxing-to-city-developers-and-residents/article4299852/?service=mobile>

Government of Alberta. (2008, May 1). Fresh Vegetable Market Gardening. Retrieved November 27, 2012, from Alberta Agriculture and Rural Development: [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex1152](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex1152)

Government of BC. (2011). Agricultural Land Reserve. Retrieved November 1, 2012, from Government of British Columbia: <http://www.alc.gov.bc.ca/alr/fppa.htm>

Government of British Columbia. About the Agricultural Land Reserve. Retrieved November 26, 2012, from Provincial Agricultural Land Commission: http://www.alc.gov.bc.ca/alr/alr_main.htm

Government of British Columbia (b). Farm Practices Protection Act. Retrieved November 27, 2012, from Provincial Agricultural Land Commission: <http://www.alc.gov.bc.ca/alr/fppa.htm>

Green City Acres. (2012). The Farm. Retrieved October 29, 2012, from Green City Acres: <http://www.greencityacres.com/about>

Hunter, M. (2012). Manager, Parks. (HBL-Golder, Interviewer).

Inner City Farms. What is Inner City Farms? Retrieved from Inner City Farms: <http://www.innercityfarms.com/>

Intervale Centre. Farms Program. Retrieved from: <http://www.intervale.org/what-we-do/farms-program/>

- Just Food. (2012, March 13). Hens in Urban Areas. Retrieved November 3, 2012, from Food For All: An Ottawa Community Response: <http://www.justfood.ca/foodforall/weblinks/hens-in-urban-areas/>
- Kollin, C. (2010, September 3). Urban Farming its a Growing Business. Retrieved November 8, 2012, from Sustainable Cities Collective: <http://sustainablecitiescollective.com/marcgunther/14853/urban-farming-it%E2%80%99s-growth-business>
- Lufa Farms. (2012). Retrieved November 3, 2012, from Lufa Farms: https://lufa.com/en/how_it_works
- MD Department of Health & Mental Hygiene. (2009). Processing and Selling value Added Food Products in Maryland. MD Department of Health & Mental Hygiene.
- Millstone, E., & Lang, T. (2008). *The Atlas of Food: who eats what, where and why*. Berkely: University of California Press.
- Ministry of Agriculture. (2012). Ministry of Agriculture and Lands Legislative Summaries. Retrieved November 4, 2012, from Ministry of Agriculture: <http://www.agf.gov.bc.ca/ministry/legsum/FPPR.stm>
- Ministry of Environment . (2010). British Columbia's Solid Waste Flow, 2006 Summary Report. BC Stats.
- Mullinix K., Fallick A., and Dorward C. (2012). Understanding the Agricultural Potential in Surrey's Underutilized ALR. Institute for Sustainable Horticulture. Retrieved from: http://www.kwantlen.bc.ca/_shared/assets/Surrey_s_Underutilized_ALR_Lands23391.pdf
- National Center on Nonprofit Enterprise. (n.d.). Enterprise and Sustainability; The Nonprofit Entrepreneur. Retrieved November 27, 2012, from National Center on Nonprofit Enterprise: http://www.nationalcne.org/index.cfm?fuseaction=feature.display&feature_ID=126&CFID=23982331&CFTOKEN=88695801
- Orwell, George. (1937). *The Road to Wigan Pier*. Retrieved December 12, 2012 from The Complete Works of George Orwell: http://www.george-orwell.org/The_Road_to_Wigan_Pier/index.html
- Ostler, M. (2011, April 28). Retrieved November 2, 2012, from The Campbell River Mirror: <http://www.campbellrivermirror.com/lifestyles/120900839.html>
- Portland Craft. (2012). Retrieved November 6, 2012, from Portland Craft: <http://www.portlandcraft.com/>
- Regional District of Nanaimo. (2012, 10 1). Rainwater Harvesting Incentive Program. Retrieved November 23, 2012, from Regional District of Nanaimo: <http://www.rdn.bc.ca/cms.asp?wpID=2500>
- Richmond Farm School. Overview. Retrieved from: <http://www.kwantlen.bc.ca/ish/RFS/Overview.html>
- Santanderau, A., & Castro, C. (2007). Social Organizations of Agricultural Producers in Latin America and Europe: Lessons Learned and Challenges. *Urban Agricultural Magazine* 17, pp. 5-7.
- Schutzbank, M. (2011). Vancouver's Urban Farming Census. November 22, 2011. SFU Woodward's.
- Schutzbank, M. (2012). *Growing Vegetables in MetroVancouver: An Urban Farming Census*. University of British Columbia.

Sharing Farm Society. About Us. Retrieved from: Sharing Farm Society: <http://www.sharingfarm.ca/about/>

Shifting Growth. (2012). Retrieved November 1, 2012, from Shifting Growth: <http://shiftinggrowth.wordpress.com/about-2/>

Solefood. (2012). SOLEfood. Retrieved from Solefood: <http://1sole.wordpress.com/about-solefood/about/>

Sole Food Street Farms. Our Story. Retrieved from Sole Food Street Farms: <http://solefoodfarms.com/>

SPIN Farming LLC. (2012). What's SPIN. Retrieved November 27, 2012, from SPIN Farming: <http://www.spinfarming.com/whatsSpin/>

Stone, C. (2012, 02 22). Kelowna Urban Farming Focus Group. (HBL-Golder, Interviewer)

The Sharing Farm Society. (2012). Retrieved 10 30, 2012, from Sharing Farm Society: <http://www.sharingfarm.ca/herbs/>

The Vertical Farm. Retrieved November 27, 2012, from The Vertical Farm: <http://www.verticalfarm.com/more>

Toronto Public Health. (2011). Assessing Urban Impacted Soil for Urban Gardening. Toronto: Toronto Public Health.

Willenbockel, D. (2012). Extreme Weather Events and Crop Price Spikes in Changing Climate. Sussex: Oxfam.

Yummy Yards. (2012). Retrieved from Yummy Yards: <http://www.yummyyards.ca/>



10. GLOSSARY

Agricultural Land Reserve: A zone of agricultural land regulated by the province of British Columbia to preserve and protect farmland from development pressure. The zone includes 4.7 million hectares of public and private land on which agriculture is promoted and non-agricultural uses are controlled (Government of British Columbia).

Aquaponics: A closed loop system (e.g., water tank) containing plants and aquatic species (e.g., fish, that share a symbiotic relationship, providing food and cleaning functions). A closed loop system is a self-sustaining system whereby wastes/outputs of one system element are used as a resource/input for another system element (Burmeister, 2012).

Community Garden: The practice of gardening or growing food either as a group or as an individual or family in a shared garden space. Community gardens are often located on public lands or undeveloped private land and are the result of a group of people coming together to make land available for gardening (American Community Gardening Association).

Edible Landscaping: Landscaping, typically in the public realm, that is designed with edible fruit, berries and nuts for public consumption. These landscapes are generally maintained by the city or volunteer residents or organizations (Creasy, 2009).

Enterprising non-profit: A not for profit business that aims to earn revenue while also achieving social or environmental goals and/or giving back to the community in some way. Once operational costs are covered, surplus revenues are used to achieve the organization's goals or support existing community initiatives (National Center on Nonprofit Enterprise).

Farm Practices Protection Act: Also known as the Right to Farm Act, this provincial legislation ensures the rights of farmers to farm on Agricultural Land Reserve (ALR) designated lands without undue hardship from surrounding land uses or local governments. The Act protects farmers from nuisance lawsuits or bylaws caused by normal farm practices (e.g., aesthetics, odours, noise, etc.), and provides a process to address complaints and concerns (Government of British Columbia, b).

Market Garden: The practice of growing a range of fresh produce, herbs and other foods for selling to restaurants and other food markets (Government of Alberta, 2008).

Permaculture: A design approach that mimics patterns and relationships found in nature, while yielding an abundance of food, fibre, and energy for the provision of local needs.

Social enterprise: A for profit business that aims to earn revenue while also achieving social or environmental goals and/or giving back to the community in some way (BC Centre for Social Enterprise, 2012).

SPIN Farming (Small Plot Intensive Farming): A vegetable farming system, usually in urban settings, that makes it possible to earn significant income from land bases under an acre in size. It is considered non-technical, easy to learn, and inexpensive to implement (SPIN Farming LLC, 2012).

Urban agriculture: The practice of cultivating, processing and distributing food in, or around, a village, town or city (Bailkey, 2000).

Urban farm (working definition): A portion of urban land where food is grown primarily for sale.

Urban farming (working definition): Growing, cultivating and distributing food within a city or town boundary to generate revenue. Revenue generating urban agriculture has also been termed market gardening, commercial urban agriculture and entrepreneurial urban agriculture.

Vertical Farming: Growing food in stacked trays, on green walls or through other systems to increase growing efficiency in small spaces. Hydroponics are often used in vertical growing systems (The Vertical Farm).

