An aerial photograph of a vast green field in the foreground, scattered with numerous cylindrical hay bales. The field is bordered by a fence line with several trees. In the background, a small town with houses and buildings is visible, followed by rolling green hills under a clear sky.

The Township of Langley Food System Study



Institute for Sustainable Food Systems

The Township of Langley Food System Study

This report summarizes the findings of three studies that explore the current and future capacity of the food system in the Township of Langley (the Township). More detail on each of these studies can be found in separately published detailed reports.

- [Findings from the Township of Langley Food Self-reliance Study](#)
- [Findings from the Township of Langley Post-production Study](#)
- [Findings from the Township of Langley Farm to Table Study](#)

This report has been prepared by the Institute for Sustainable Food Systems at Kwantlen Polytechnic University for the Township of Langley. Funding for the research described in this report was provided by the Township of Langley, and by the Creative Capital Grants, Kwantlen Polytechnic University.



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Institute for Sustainable Food Systems

The Institute for Sustainable Food Systems (ISFS) is an applied research and extension unit at Kwantlen Polytechnic University that investigates and supports regional food systems as key elements of sustainable communities. We focus predominantly on British Columbia, but also extend out programming to other regions.

www.kpu.ca/isfs

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1. Introduction

In early 2016, the Institute of Sustainable Food Systems (ISFS) completed the Southwest British Columbia Bioregional Food Systems Design Project (Southwest BC Project) which explored the food self-reliance, economic and environmental stewardship potentials of a bioregional food system. The main output of the project was a computational model which can be used to generate various food system scenarios that allowed researchers to evaluate contemporary food systems. Findings from this suggest that sustainable, bioregional food systems could play an important role in the vision for sustainable communities in the region¹. This is especially true as the region faces future changes associated with population growth, and climate change.

The Township of Langley (the Township) was one of nine municipalities within the Southwest BC bioregion who endorsed the Southwest BC project, and provided funding to support the research. Once the Southwest BC Project was completed, the Township expressed interest in applying the same computational model to the Township's food system to inform decision making about the development of the local agriculture sector. Funding for the Township of Langley Food Systems Design Project was approved on March 6, 2017 and work commenced in November 2017. The project completion date is fall 2018.

Figure 1: Context Map of the Southwest BC Bioregion and the Location of the Township of Langley



Agriculture in the Township of Langley

Agriculture in the Township is diverse and well developed, generating \$340 million in gross farm receipts in 2015 ². Forage, pasture and livestock (including horses) are the most prevalent activities by land area and number of farms ³. Other significant revenue generating sectors include greenhouse production, poultry and egg, as well as berry and vine crops. Other land based food production sectors include: field vegetables, and mushrooms.

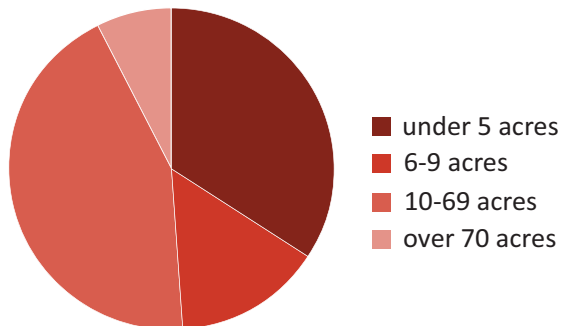
The Township has an abundance of land that is well suited to growing many different crops. In addition, the climate and weather conditions in the Township and throughout the SWBC bioregion do not impose any severe limitations on what can be produced. Generally, there are very few biophysical limitations to the kinds of crops that can be produced in the Township. The Township is also a significant agricultural area within the region. Half of the farms in Metro Vancouver are located in the Township, and there is more land available for farming than anywhere else in the Fraser Valley ⁴.

Township of Langley Farm Size

The Township of Langley is a rural and urban municipality with significant agricultural activity. Approximately 75% of the Township's land area is located within the Agricultural Land Reserve (ALR) ⁵. The character of farms in the Township is unique, and often classified as small-scale. About 48% of farm parcels are under four hectares (10 acres), and only 7% of farms over 28 hectares (70 acres) ⁶.

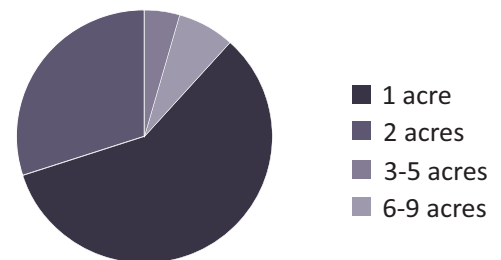
Figure 2: Farms in the Township of Langley by reported size (All farms and farms under 10 acres)

Number of farms by size in the Township of Langley




Total 1,103 farms

Number of farms under 10 acres by size in the Township of Langley



Total 540 farms

Source: CANSIM, Census of Agriculture Table 004-0005, Custom Table



Soil Classification and Agricultural Capability in the Township of Langley

In British Columbia, soil is categorized based on its capability for agriculture. There are seven capability classes ranging from land with no, or very slight limitations for crop production (Class 1) to land with no capability for crop production or sustained grazing (Class 7). Classes 1-4 are considered the most ideal lands for agriculture. Within BC only 2.7% of lands are classified as Class 1-4. The Township is located in one of the best agricultural regions in the province and can support diverse crop production. In the Township, 98% of currently farmed land is Classes 1-4, 1% of land is Classes 5-6 and 1% is Class 7. Under-utilized farmable land is 90% Classes 1-4, 2% Classes 5-6, and 8% Class 7⁷.

Agricultural Planning and Policy in the Township of Langley

In the Township, planning for agriculture is guided by the Agricultural Viability Strategy (AVS) which was endorsed by the Township Council in July 2013. The comprehensive document identifies ways that the Township can pro-actively support the agricultural sector over a 20-year time frame. In the AVS there are a variety of initiatives, policies and actions that include promoting agriculture, increasing awareness of farming, protecting agricultural land, promoting agricultural use, nutrient management and processing and value-adding, among others. Policies specifically target areas such as on-farm processing, use of agricultural land for agriculture, farmer's use of best management practices, and improving access to local food. Increased food security is also recognized as a desired outcome. Other outcomes include economic viability of farming, environmental enhancement, and providing a welcoming environment for farming.

Food System Project Objectives

The Township of Langley Food System Study aims to apply the same model used in the Southwest BC Project, in order to provide local and regionally specific, data driven information about the food system in the Township. In practical terms, this information will support the implementation of the Township's Agricultural Viability Strategy (AVS).

For the Township this can be best accomplished through recommendations about what to grow, based on food self-reliance analysis. This can be expressed in terms of what production sectors may have the greatest potential to support the development of the local food system. The project also aims to provide information that can help to better understand the role the Township can play in the broader bioregional food system. In addition, the ISFS team will look at other food system areas, including the post-production sector, and direct sales to restaurants. The objectives of the study are to:

1. Generate and compare food system futures. We will provide the "what-if analysis" through different food system scenarios generated from ISFS's computational model utilizing the collected data.
2. Explore the Township of Langley's post-production sector. We will identify the local food network that shows economic connections between local food processors, farmers, and other businesses.
3. Examine local food demand through direct sales to restaurants. We will identify types of produce that local restaurants often buy. Barriers encountered by both restaurants and producers will also be identified in order to increase local consumption through restaurant marketing channel.







2. Township of Langley Food Self-reliance Study

The Township of Langley Food Self-reliance Study is a theoretical study that applies methods from the Southwest BC Project to assess food self-reliance of the local food system in the Township. By generating and comparing different scenarios this study evaluates the capacity of the Township's food system, while also providing information to support efforts to increase viability of the agriculture sector, and support a local food system. Models, such as the one developed for the Southwest BC project and used in this study help to simplify the complex components of the food system and gain insights into how the system functions and what can be achieved.

Data Used in the Food Self-reliance Model

The computational model uses the most up to date information from national, provincial, and regional sources. Provincial or regional data is preferred to give a more accurate indication of potential food system futures, however in many cases this information is not available. Detailed information about data inputs and sources can be found in the report entitled Township of Langley Food Self-reliance Study ⁸.

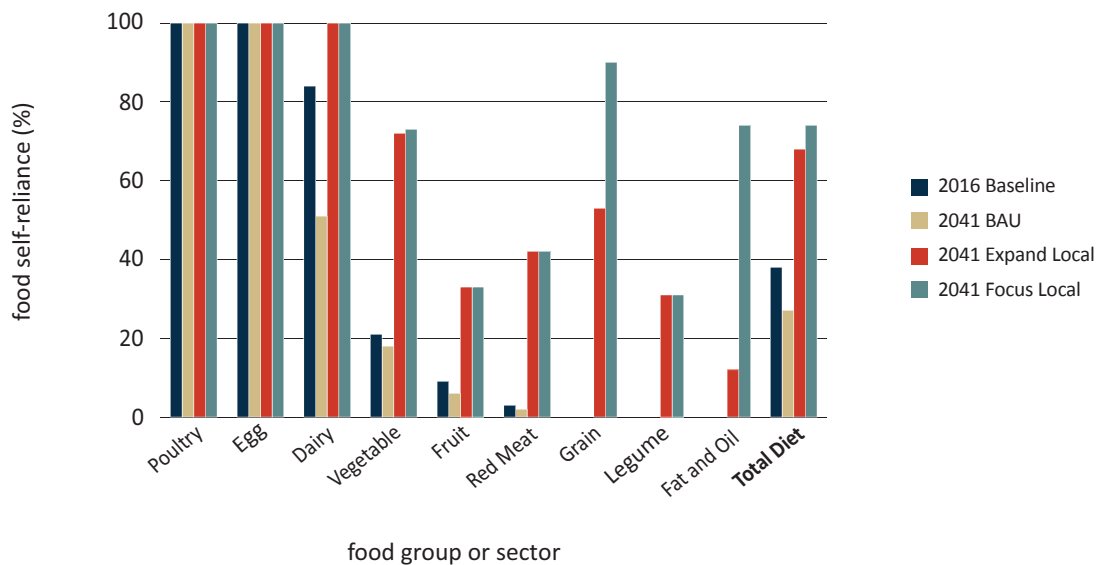
Food Systems Scenarios

-  **2016 Baseline:** This scenario models current food system conditions; a snapshot of today expressed in terms of food self-reliance potential, total food production, economic outcomes, and environmental impacts.
-  **2041 Business as Usual (BAU):** For this scenario, compared to the 2016 Baseline scenario the population is increased to the estimated population for the Township in 2041. All other variables or conditions in the model including the amount of agricultural land in food production and types and proportion of crop and livestock production.
-  **2041 Expand Local:** This scenario explores a future where the population, and the amount of agriculture land in food production increase. Land that was in production in 2016 (currently farmed) continues to produce the same crops and livestock as in 2016. Additional land brought into production (underutilized land) focuses on growing crops and livestock specifically to satisfy local food need.
-  **2041 Focus Local:** This scenario explores a future where the population, and amount of agriculture land in food production increase. The types and proportion of crop and livestock produced on that land also changes. In this scenario, all farmable land (currently farmed and underutilized farmable land) focuses on growing crops and livestock that will satisfy local food need.

Food Self-reliance Potential in the Township of Langley

Food self-reliance is represented as a percentage of the total diet, or specific food group that can be satisfied from locally produced foods. These results demonstrate the potential for the Township to feed its population under specified conditions for agricultural land use, and crop and livestock production. Figure 3 shows food self-reliance for the Township across major food groups or sectors as well as for the total diet for each of the scenarios described in this report. This measure can be important for local and regional governments because it can provide assessment of food system capacity, and prepare communities to deal with forthcoming changes.

Figure 3: Food self-reliance potential for the Township of Langley for total diet and food groups



Key Findings

This study found that the potential for food self-reliance in the Township generally follows the same trends as the broader Southwest BC bioregion. Given the amount of land available for food production, and the high agricultural capability the Township has the potential to achieve higher levels of food self-reliance, and significantly contribute to food self-reliance across the bioregion. Key findings from this study are summarized below.

- Bringing under-utilized farmable land into production would double the area available for food production in the Township
- The Township has the potential to increase food self-reliance if underutilized land is brought into production, and production focuses on growing food to satisfy local food need
- The Township could increase food self-reliance and also support export of food to other communities in the region
- Increasing local food production can mean an increase in ecological impacts, such as greenhouse gas emissions – local mitigation and adaptation is key



The Challenges of Local Food Self-reliance: Access and Availability

For the purposes of the food self-reliance study, the scenarios and associated outcomes assumes that if the type of food people eat is produced in the Township, it will be consumed by the local population. In reality there are barriers to local food consumption such as cost, availability and access that are not accounted for in this type of study. These factors can make it difficult for people to prioritize local products when making everyday food choices.

Although these limitations represent real world challenges in the food system, they also highlight opportunities for future economic development. This includes supporting increased access to local food by developing local food distribution and retail businesses. Supporting the diversification of production on small lots may also be a strategy to increase the amount of local food available in the Township. Although availability and access to local food cannot be accounted for in the model, it is recognized that these conditions have a significant impact on development of the local food system.

3. Township of Langley Post-production Sector Study

The agri-food sector in British Columbia is a complex \$22 billion industry creating employment opportunities for over 57,000 people⁹. Within this system, the post-production sector represents a critical step that is closely linked to primary production (agriculture) because it is necessary in order to prepare raw agricultural products for human consumption. Post-production activities include cold and dry storage, primary processing, and value added processing. The majority of food, and the revenue generated from post-production activities, currently flows through conventional systems of nationally and globally organized wholesalers, processors, distributors, and retailers¹⁰. Developing local post-production capacity that meets the needs of local producers, can allow a region to capture more value from primary agricultural products, and will contribute to increased food self-reliance.

This study involved primary data collection through interviews with post-production food businesses and primary producers (farmers) in the Township. Based on interviews with farmers in the Township, the study focused on post-production analysis for two sectors that are most prevalent in the Township: produce (fruit and vegetable) and meat.

"Our region is on the brink of losing what little community focused meat production it has left due to roadblocks and bottlenecks created by regulations and policies that do not facilitate regional scale production models."

-Julia Smith, President, Small-Scale Meat Producer's Association

Key Findings

This study investigated the existing conditions in the post-production sector in an effort to identify specific barriers and opportunities that could be addressed to increase food self-reliance and farm viability. Results suggest that there are a number of barriers faced by small-scale producers growing for the local market that limit their access to consumers and their opportunities to grow their businesses. Key findings from this study are summarized below.

- Existing post-production facilities are designed to serve primarily large scale producers
- Regulations (provincial and federal) can prohibit the development of alternative facilities to serve the small-scale, direct market farmers
- Wholesalers control many of the distribution channels making it difficult for smaller producers to access traditional sales channels and markets



Importance of the Post-production Sector for Food Self-reliance

Virtually everything we consume, with the exception of some fresh fruits and vegetables passes through the post-production sector. Agricultural products produced locally would have to leave the Township to be processed, stored, and distributed. This means that it would be impossible to achieve a high level of food self-reliance because other regions or jurisdictions would be responsible for a vital food system step. Another implication of this would be that all the economic benefits associated with food processing and other post-production activities, including revenue, and jobs would also leave the Township.

For comparison in this study we modeled the food self-reliance potential for the Township with and without post-production and processing capacity. In the 2016 Baseline scenario food self-reliance capacity is 38%. Without this capacity, food self-reliance drops to only 6%. In the 2041 Focus Local scenario food self-reliance increases to 74%. Without post-production capacity, food self-reliance in this scenario drops as low as 14%.

4. The Township of Langley Farm to Table Study

Building demand for local food is key when considering the viability of the local food sector. Unfortunately, there is little data, especially at the municipal level, about the type of local products that are in high demand by the local population. The Township of Langley Farm toTable Study aims to explore local food demand in the Township through a case study of local food procurement in the restaurant sector.

This study involved conducting interviews with restaurant owners and managers, and with primary producers (farmers) in the Township. A total of 55 restaurants were interviewed and four of those restaurants were chosen for in-depth interviews. Restaurants were asked about their local food buying habits, and about the perceived demand for local food in the Township. Local food supply was also considered through interviews with farmers in the Township involved in direct to consumer sales. A total of 20 farmers participated in short interviews and seven of those farmers participated in in-depth interviews.

Restaurants that support local producers often cite the high quality of ingredients sourced locally as a benefit. However, there are many barriers that prevent widespread local sourcing within the restaurant supply chain. Based on the interviews with restaurants and farmers the barriers most often cited include; communication, sales volume, seasonality, and cost of locally produced food.

“The best relationships between chefs and farmers are ones where restaurants know who farmers are and how they grow - and vice versa farmers know what the restaurant menu options are. It comes down to knowing what the other side needs and opening good communication.”

- Farmer

Key Findings

This study offers a glimpse into local food demand in the Township through the restaurant sector. It demonstrates a number of challenges that face local food producers when selling produce direct to consumers. Key findings from this study are summarized below.

- Farmers and restaurant owners often struggle with communication and this can make it difficult to consistently source local food
- Many of the products purchased most often (fresh vegetables) are only available seasonally
- Local growers are in direct competition with imported food, which is often cheaper and more consistently available
- There are some business owners who are committed to supporting local producers, and are motivated by personal and business values, regardless of the challenges

7. Barriers & Opportunities for a Local Food System in the Township of Langley

Barriers

The Township of Langley has a vibrant agri-food sector which includes significant food production capacity. However, this study recognizes there may be significant barriers that impede the growth of the sector, and limit the potential for local food self-reliance.

■ **There is a significant amount of land in the Township that is available for farming, but not currently used for food production.**

One of the reasons why farmland is under-utilized (not used for farming) is because it may not be accessible to those who want to farm. In the Township, and across Metro Vancouver, land located within the Agricultural Land Reserve (ALR) is often not accessible to farmers because of high prices¹¹. For example, in 2016 there were 263 land parcels sold in the Township of Langley at an average cost of \$160,000 per acre¹². This value inflation is due to the fact that land is either owned in speculation (often for residential development), or purchased as a rural residence by non-farming owners¹³. Although much of this land is still available for farming (i.e. it is not developed), and is located in the ALR, the chances that it could be used for meaningful food production under current ownership is quite low. When farmers cannot afford to buy or lease land to farm, there is little hope in increasing food self-reliance.

■ **Available post-production sector is not scaled to fit local producers selling direct to the local market.**

The post-production sector, including processing, packaging, storage and distribution, is critical in order to ensure that raw agricultural products can be accessed by consumers. However, much of the post-production infrastructure is designed to serve large scale agriculture and the trans-national food system. In many cases farmers growing food for local distribution have to develop their own costly infrastructure, or limit the growth of their business based on the type of infrastructure that is available.

■ **Retail opportunities for local producers are limited.**

Similar to the shortage of infrastructure in the post-production sector, local farmers may also face barriers resulting from limited opportunities in the retail sector. Traditional food retailers favour working with large scale distributors who aggregate products from many large farms and food processors from around the world. Farmers producing food for the local market then rely on outlets like farmers' markets, farm gate sales, and specialty retail stores. Many consumers may also face barriers when trying to access local foods because of their limited presence in traditional food retail spaces (i.e. grocery stores).

Opportunities

Through this study we also identified a number of opportunities in the Township's food system that could be capitalized on as a way of helping the Township move towards a local food system that could increase food self-reliance and the viability of local farms.

■ The Township could expand crop and livestock production onto underutilized, farmable land.

Based on available Agriculture Land Use Inventory (ALUI) data for the Township from 2016 it is estimated that there is approximately 9,700 ha of land that could be available for food production. Much of this land is categorized as Classes 1-4 in terms of agricultural capability, meaning there are few limitations on what can be produced.

■ The Township is strategically located in a prime agricultural area close to large, regional urban population centres.

Within Southwest BC the Township is a significant agricultural municipality with about 75% of its total land area located with the ALR. The Township also has more land available for farming, than any other municipality in the Metro Vancouver¹⁴. In addition to having significant potential for the production of food, the Township is strategically located to support other food system activities such as processing, distribution, and retailing. By supporting these sectors the Township could increase the economic contributions from the food systems, and become a key player in development of a regional food system.

■ There is potential to reach a high level of food self-reliance, even as the population grows.

The food self-reliance model suggests there is potential for the Township to reach a high level of food self-reliance. More specifically, the Township has enough available agricultural land to reach 100% food self-reliance in poultry, egg, and dairy food groups, and total diet food self-reliance of 74%. Reaching this theoretical maximum food self-reliance for the Township means growing foods that are in demand locally.



8. What to Grow in the Township of Langley

This study explores the potential for development of the Township's food system, more specifically the opportunities to increase food self-reliance, and local farm viability. There is significant potential for the Township to increase the amount of food produced locally by expanding production onto under-utilized farmable land. With more land in production, the Township would theoretically be able to increase the food self-reliance by strategically growing foods that will be consumed by the local population. The key principles behind reaching this high level of food self-reliance are protecting agricultural land, and encouraging its use for food production.

In this report it has been established that the Township has an abundance of arable class 1-4 land that is suitable for the production of a wide range of vegetable, fruit, forage and other crops. Additionally, the climate and weather across Southwest BC does not impose any severe limitations for temperate zone fruit and vegetable crops (most of what we eat, with the exception of tropical and subtropical fruits). For those crops adapted to warmer growing season weather protected production methods (e.g. poly covered hoop houses) can, and are being easily and cost effectively utilized. With climate change, warmer and longer growing seasons are to be expected; this will likely extend the range of crops that can be readily and economically produced in our region. Precipitation patterns are also expected to change and this may impact crop suitability though this is difficult to speculate on. Generally there are very few biophysical or agricultural limitations to what can be grown in the Township. As such, the answer to the question, "What to grow?", largely comes down to the skill and expertise of growers, the resources available and accessible to these growers, and economic and business objectives of individuals, and the Township's food sector more broadly.

The results of this study suggest that there is potential to reach a high level of food self-reliance in the Township in poultry (chicken and turkey) and egg sectors, while also producing enough to be exported outside the Township. The production of poultry products and eggs is a supply managed sector in British Columbia. The quota controlled market may be difficult to access, and is often not well suited for small-scale operations. Therefore, an alternative opportunity for growth could be found in the sector for small-scale producers selling direct to market.

Small Flock Poultry and Eggs for the Direct Market: Raising poultry for meat and eggs is well suited for the Township because it produces high value products that are in demand by local and regional populations. It is also less land intensive than other types of livestock production, which means it is suited for small lot farming, and can be produced alongside other crop and livestock products, which could increase production diversity in the Township.

In BC farmers may apply for a license to grow up to 2,000 meat chickens per year for farm direct marketing¹⁵, and up to 399 egg layers¹⁶ without being subject to the supply management system. The economic viability of such operations depend on access to scale appropriate post-production infrastructure; such as slaughter facilities and cut and wrap operations (i.e. butcher shops).



Food self-reliance in the dairy sector also reaches a high potential when the amount of available land increases. Due to supply management in this sector, there may be little opportunity for growth in the production of liquid milk. However, there could be growth opportunities in the sector for farmers who engage in value added processing of milk creating products such as cheese, yogurt, ice cream and kefir. Increasing food self-reliance in this sector also requires the development of appropriate post-production infrastructure.

Within the vegetable production sector there is a diversity of crops, production scales, and business models that can be explored in the Township. Vegetable production requires specific expertise to be profitable, however it is possible to make successfully grow vegetable crops at the small-scale with minimal infrastructure. In the Township small parcels that are not currently farmed could be ideal for vegetable production. Additionally, vegetable production could be well suited for land that is rented, because the necessary infrastructure is limited when compared to other sectors. Many vegetable growers produce a variety of crops in order to mitigate risk from crop failure and expand their market share. There is growth potential in local and regional markets for vegetables grown in the Township. Providing unique foods for ethnic populations, supplying restaurants, and small retail outlets could be profitable enterprises.

Garlic: Garlic, especially organically grown garlic is a high value crop that is well suited to small lot production. Garlic is planted in the fall and harvested in early to mid-summer which means labour requirements are limited when compared to other vegetable crops. Garlic could retail between \$12-\$14 per pound in the direct retail market ¹⁷.

Asian Greens: Asian greens (i.e. gai lan, bok choy, yau choy, pea shoots, etc.) are in demand by immigrant populations, and the supply of these greens is limited in local market. Other crops such as daikon, and okra are commonly used in Asian cooking and could be successfully grown in the Township. Asian greens such as bok choy can sell in the retail market for about \$2.50 per head, or \$6.50 per pound ^{18,19}.

Root Vegetables: Root vegetables are in demand locally and can be stored throughout the fall and winter. Developing scale appropriate and efficient primary processing and storage for root crops can help make this type of enterprise even more profitable. Root crops can be grown at a variety of different scales. These crops can also be grown in succession throughout the growing season, and stored for distribution and use over the fall and winter seasons. Beets can be sold in the retail market for \$2.00-\$3.00 per pound and carrots for \$2.50 per pound ^{20,21}.

According to meat producers in the Township there is growing demand for locally, and ethically produced meat, but there are barriers to expanding these operations due to a lack of appropriately scaled post-production facilities (i.e. abattoirs and cut and wrap operations). Expanding meat production, especially red meat, in the Township could increase environmental impacts. Therefore, it is necessary to plan at the local level to mitigate those impacts. The most notable impact is excess nutrients from animal manure as a possible environmental and water contaminant, and associates GhG emissions. Composted animal manures could be used as a supply of essential nutrients (e.g. nitrogen, and phosphorous) for crop production.

Fruit production in the Township is limited to a few major commodities, including blueberries, raspberries and cranberries. The Township produces more of these three crops than can be consumed by local people, so much goes to export. There may be opportunity for new farm parcels



to focus on producing more diverse fruit crops for the local and regional markets. For example, there is growing demand for fruit produced using organic or pesticide residue free methods utilizing biologically based pest management, and for locally grown fruit to be made into value added products (i.e. wine, cider, beer, jam baked goods).

Organically Grown Fruit: Fruit commodities, especially berries are widely grown in the Township. Bringing more small lots into production could be a good opportunity to increase the diversity of locally grown fruits from the local market. Small lot production of organic or low pesticide fruit (berries and tree fruit) could be a viable farming enterprise.

This study suggests that the Township has significant potential to increase food production due to the amount of farmland available, and the untapped potential in local and regional markets. Based on these factors and an assessment of food self-reliance capability, this study highlights the sectors, and types of crops that may have growth potential in the local food market in the Township. Production represents only one component of the food system. When asking “What to Grow?” in the Township it is essential to also consider how those production sectors will be supported by shifts in other areas of the food system. In this study we address questions such as what type of post-production infrastructure is necessary, how and where local food can be aggregated and sold, and how the Township will deal with potential environmental impacts of increased local food production.





What is the Definition of Local Food?

The Township of Langley Farm to Table Study demonstrates that there are existing barriers to the procurement of local food and development of a local food economy. Among the restaurant owners selected for in-depth interviews the definition of what was considered local food was expanded outside of the Township. Many considered products coming from other municipalities in the Fraser Valley, and even the Okanagan to be fit their definition of local. Interviews revealed that the Township is part of a vibrant food economy across Southwest BC, and that “local” can actually mean “regional” or even “provincial”. This suggests a more regional, or bioregional approach to local food may provide more opportunities for farmers, restaurant owners, food retailers and consumers in the Township.

9. Food System Recommendations for the Township of Langley

This study examines the capacity of the Township's food system by considering the potential for increased food self-reliance and farm viability. This high level food system analysis provides insight into what the outcomes of such a food system could be. How those outcomes are achieved and how the local food economy is structured depends on the specific needs and/or objectives of local government, business owners, farmers and community members (that is, food system stakeholders).

The study findings demonstrate that there is significant potential for the Township to increase the amount of food produced locally by expanding production onto under-utilized farmable land. The key principles behind reaching this theoretically high level of food self-reliance are protecting agricultural land, and encouraging its use for food production. The following recommendations support the goals of increasing food self-reliance and farm viability. They focus on all components of the food system, including:

- Primary Food Production
- Post-production and Processing
- Distribution and Retail
- Waste Management and Environmental Impacts

Recommendation 1: Support the development of an incubator farm for small-scale vegetable producers

Incubator farms provide opportunities for new farmers to learn, and establish their farm businesses. These program facilitate access to land, and often provide farmers with technical support, shared tools, or help with marketing and distribution.

Actions

- 1.1. Identify partners who could help in establishing an incubator farm in the Township.
- 1.2. Identify strategic locations in the Township for the development of an incubator farm(s)

Recommendation 2: Support new farmers in the Township to develop viable business plans, and access funding from a variety of sources

Like other small businesses, farmers require start up capital to invest in land, tools and processing facilities. Accessing capital for business start up can provide farmers with the support they need to establish their businesses and be successful in the long term. Possible funding sources for new farmers include: Vancity's Small Growers Program, and the Investment Agriculture Foundation.

Actions

- 2.1. Work with educational institutions, government and industry partners to develop a Township specific business development training extension program for farmers.
- 2.2. Establish a small grant program to support new farmers in developing viable business plans.



Incubator Farms: Growing the Next Generation of Farmers

ISFS Incubator Programs, Richmond and Tsawwassen, BC: The Incubator Farming opportunity is an integral part of the ISFS' Farm School Program. After students complete their farm school training it is recommended that they apply to be an incubator farmer, which will give them access to up to ½ acre plot of land at one of the two farm school sites. In addition to land, incubator farmers are also provided with shared tools and resources and the continued technical support of farm school staff. This opportunity is ideal for aspiring farmers to start their businesses, hone their farm business management and farming acumen, and create their own network and their markets.

Plate-forme agricole de L'Ange-Gardien, Gatineau QC: The Plate-forme agricole de L'Ange-Gardien is a ready-to-use farm site where you can rent certified organic land and access farm infrastructure (heated greenhouse, tunnels, central irrigation, a cold room, a cleaning and preparation area, cultivation machinery, etc.). Users are invited to join the Plate-forme temporarily in order to start your business.

Recommendation 3: Support land owners in the Township to make their land available to farmers through affordable, and farmer friendly lease agreements

There is a significant amount of land in the Township that is available for farming. This study recognized that bringing this land into food production could have a significant impact for food self-reliance, and development of a viable agriculture sector. However, much of this land is owned by non-farmers, and may not be accessible to farmers, especially new farmers.

Actions

- 3.1. Collect available resources about land leasing and farmland matching that can be shared with new farmers in the Township.
- 3.2. Continue to explore models for small-scale agriculture on small residential parcels in the Township.
- 3.3. Evaluate the current property taxation model for non-farming agricultural land and consider amendments that would encourage meaningful food production on these lands.

Recommendation 4: Support the development of scale appropriate and accessible slaughter and cut and wrap facilities in the Township that can accommodate small-scale livestock producers.

Scale appropriate, and accessible post-production infrastructure is a critical element in regionalized food systems. In some cases a significant barrier to the development of a viable local agriculture sector is a lack of infrastructure that can support small to mid-scale farms. This also impacts food self-reliance, especially for food sectors where a significant amount of post-production processing occurs including livestock sectors.

Actions

- 4.1. Connect with provincial actors in the Small-Scale Meat Producers Association.
- 4.2. Host a dialog with small-scale livestock producers to analyze of the most significant post-production barriers.
- 4.3. Engage with communities who have successfully developed small-scale abattoirs to better understand licensing and development strategies.

Recommendation 5: Create a supportive policy environment for the development of shared primary processing and storage facilities for small-scale vegetable producers

Small-scale food producers are a critical part of a diversified local food system. It can be challenging for these businesses to establish and be sustainable especially when food system infrastructure is geared towards larger, export oriented producers. Developing facilities that can be shared by a number of small producers can increase efficiencies and reduce the barriers to entry that some small-scale farmers may face.

Actions

- 5.1. Identify private sector partners who could be involved in the development of shared processing facilities.
- 5.2. Identify strategic locations in the Township for shared primary processing facilities.



Development of Shared and Cooperatively Owned Post-production Facilities

Mission Mountain Food Enterprise Centre, Montana, USA: Mission Mountain Food Enterprise Center (MMFEC) is a fully functioning food processing, research, and development facility. The food processing facility is inspected by the United States Department of Agriculture (USDA), United States Food and Drug Administration (FDA), and Montana Department of Agriculture Organic Program.

The MMFEC is a response to a community based food system assessment conducted in 1998. The assessment identified community based actions that could increase local food production, add value to local agriculture, and create new resources for local food consumption.

Windemere Farmers Institute – Micro Abattoir, Invermere, BC: The Windermere District Farmers’ Institute led the development and construction of a small abattoir where locally produced livestock can be custom slaughtered, inspected and sold. The nearest licensed abattoir is 133 km from Invermere which meant that farmers had to transport animals a significant distance and then make a second trip to retrieve the meat. This is stressful for the animals and costly for farmers. As a result many of the small producers went out of business and the number of livestock raised locally has decreased significantly. The abattoir site is surrounded on all sides by the property owned by the Windermere District Farmers’ Institute and is well set back from the highway.

Recommendation 6: Aggregate locally produced food in the Township for local and regional distribution

Distribution can be a major challenge for the local food system, especially when the food system is dominated by global actors. There is often little incentive for distributors and retailers to prioritize local food, meaning that local producers can be shut out of the market. By aggregating local food it can be possible for local producers to increase economies of scale, and compete in a market dominated by large-scale producers, distributors, and retailers.

Actions

- 6.1. Identify strategic locations in the Township for local food aggregation (for local and regional distribution).
- 6.2. Identify partners to support the development of local food aggregation facilities.

Recommendation 7: Create a supportive policy environment for the development of on-farm retailing and agri-tourism

Retail opportunities for local food can be limited. Farmer's markets are a popular outlet, but they are not always well suited for all farming operations. Traditional retail channels (i.e. grocery stores) on the other hand may not be accessible for local farmers, or they may have limited opportunities for marketing local food. Providing opportunities for creative and innovative on-farm retail could help create a vibrant local food sector.

Actions

- 7.1. Develop best design and development practices for on-farm retail facilities in the Township.
- 7.2. Host a dialogue with farmers involved in on-farm retailing and agri-tourism to better understand the barriers they face.

Recommendation 8: Encourage the development of cooperative retail facilities that can support small-scale producers (i.e. food co-ops, food hubs)

Local food producers require retail opportunities where their products can be differentiated from other products on the market. Cooperative food retail ventures such as food co-ops, and food hubs are a growing trend in local food retail for the clear differentiation of local food. They also provide economies of scale for small producers and offer a "one stop shop" of local food to consumers.

Actions

- 8.1. Identify partners who could participate in development of cooperative local food retail facilities or food hubs.
- 8.2. Host dialog with potential partners who may be involved in the development of a local food hub.
- 8.3. Engage with regional partners to initiate discussion of a regional or bioregional food hub located in the Township.

Recommendation 9: Providing information to the public about when and where locally produced foods (especially high value, perishable crops) are available in the Township

Part of increasing the vibrancy of the local food sector is supporting the demand for local food amongst the local population. Part of the low demand for local food may be due to a lack of information about what is available locally, and where products can be found. Creating local food guides, in a variety of mediums, can help provide local consumers with the kind of information necessary to access local food.

Actions

- 9.1. Develop a local food guide or map for the Township that included producers, post-production businesses, food retailers, and restaurants.
- 9.2. Leverage provincial partnerships through the Buy BC campaign (Grow BC, Feed BC, Buy BC).

Recommendation 10: Support livestock producers to manage manure on farm in a responsible way

With the specialization of agriculture farmers face challenges to managing manure in a responsible way when there is no longer a link between livestock production (nutrient supply) and crop production (nutrient demand). Supporting farmers to manage manure responsibly to reduce the amount of nutrients that leach into the environment as pollutants

Actions

- 10.1. Collaborate with academic institutions to research and develop different manure composting and management options for livestock farmers.
- 10.2. Encourage and assist farmers to have Environmental Farm Plan for their farms.
- 10.3. Continue to support the work of the Langley Environmental Partners Society (LEPS) to provide education for farmers about manure management.

Recommendation 11: Support farmers to switch to a more efficient practices to reduce greenhouse gas emissions, and capture carbon on farms

A significant amount of the emissions associated with the food systems are connected to food production. More local food production in the Township, there could also be local environmental impacts, such as increased GhG emissions. This means that supporting more local food production also means addressing the potential environmental impacts by adopting new practices, and increasing carbon capture on farms.

Actions

- 11.1. Support the development of an extension education programs to help farmers increase soil carbon.
- 11.2. Connect with other jurisdictions with soil carbon projects to develop a framework for a local program to increase soil carbon capture potential.



Local Food Guides and Maps: Building Connections in the Local Food System

[Taste Real Local Food Guide, Guelph and Wellington County, ON](#): Launched in 2011, Taste Real started out as the new branding initiative of Guelph Wellington Local Food, developed to support local businesses, farms and producers who are passionate about the way local food is grown, prepared, presented and enjoyed, and how real it tastes! Taste Real is now a County of Wellington initiative and continues to support the same local businesses, farms and producers. Taste Real was developed with stakeholder engagement and is built upon the many successes of promoting local food that have taken place across the region. Working together with partners and supporters, Wellington County is growing one of the most vibrant, local food economies and food tourism destinations in Ontario.

[Vermont Food System Atlas, Vermont, USA](#): The Vermont Food System Atlas features thousands of agricultural resources to help connect Vermont farmers to food processing businesses, specialty food producers, educational institutions, nonprofit organizations, consumers, and state government. Farmers and agricultural producers can use the Atlas to build economic partnerships based on production, distribution, marketing, and outreach goals. The Atlas also features thousands of food system resources including stories, videos, job listings, data, and a map searchable by people and places, region, keyword, and food system categories.

Mitigating the Environmental Impacts of Agriculture

Young Carbon Farmers Project, Australia: The Young Carbon Farmers project is funded by the Australian Government as part of the Carbon Farming Futures Program. It focuses on helping about helping the next generation of farmers, to find the way forward through the maze of information about greenhouse gas emissions in agriculture, climate change. This includes exploring adaptation options and to practical strategies for increasing soil carbon, and carbon capture potential on farms.

Manitoba Livestock Manure Management Initiative, Manitoba: The Manure Initiative has pioneered efforts to investigate solutions to manure management issues from both a practical and research angle. Practical research involving studies on biofilters and manure storage structures have led to commercial ready products, while projects such as the 'Phosphorus Study' have provided first-hand scientific knowledge about the nutrient situation in the Province of Manitoba. The mission for the future is to continue building on this solid research basis in order to develop practical and timely solutions to manure management.



10. Conclusion

This evaluation of the Township's food system was proposed based on the findings of the Southwest BC Food System Design Project, which was supported by the Township and 18 other municipalities. That project demonstrated potential food self-reliance, food production, economic and environmental implications of a bioregional food system in Southwest BC. The model, developed to examine food self-reliance in Southwest BC, was successfully scaled down and applied to the Township using updated data from Statistics Canada the 2016 Census, and 2016 ALUI data for the Township. In order to provide additional local context two additional inquiries were added; assessment of the post-production sector, and examination of local food demand in the restaurant sector.

Findings from these studies suggest that the Township could significantly increase food self-reliance by expanding production onto underutilized land, and focusing on the production of high value crop and livestock products. For the Township this includes: vegetables such as; Asian Greens, root crops and garlic, fruit that is produced organically or with low pesticide use, and livestock products such as eggs, poultry and other ethically raised meat.

How Does the Township of Langley fit into the Southwest BC Bioregional Food System?

It has been determined that within the Township of Langley 17,759 hectares of land are available for food production representing 14% of all available land for agriculture in the bioregion. This suggests that the Township will be a significant contributor to achieving higher potential for food self-reliance in the bioregion.

This food system study suggests that there is potential for the Township to be a significant producer in poultry, egg, and vegetable sectors in the bioregion. The Township is also strategically located within the bioregion to serve as a hub for aggregation of agricultural products for regional distribution. There is also potential for the Township to develop a post-production sector that can serve the unique needs of small-scale producers, including shared or cooperatively owned facilities.

It is also demonstrated that if the Township continues with the status quo, in terms of farmland availability and use, there could be serious implications for food self-reliance in the future. This includes greater reliance on imports, decreasing food security and loss of revenue generated by the agri-food sector through local production, and processing. While the global food trade will continue to be a part of the food system, strengthening regional food systems, and increasing food self-reliance, represents a significant opportunity to increase the resilience of our food system in the face of climate change and global food system uncertainty²².

10. Resources

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11. Appendix

Recommendations Summary

Primary Crop and Livestock Production	
Recommendations	Actions
1. Support the development of an incubator farm for small-scale vegetable producers	1.1. Identify partners who could help in establishing an incubator farm in the Township 1.2. Identify strategic locations in the Township for the development of an incubator farm(s)
2. Support new farmers in the Township to develop viable business plans, and access funding from a variety of sources	2.1. Identify potential funding sources for small-scale farmers who wish to farm in the Township 2.2. Work with educational institutions, government and industry partners to develop a Township specific business development training extension program for farmers 2.3. Establish a small grant program to support new farmers in developing viable business plans
3. Support non-farming land owners in the Township making their land available to farmers via affordable and farmer friendly lease agreements	3.1. Collect available resources about land leasing and farmland matching that can be shared with new farmers in the Township 3.2. Continue to explore models for small-scale agriculture on small residential parcels in the Township 3.3. Evaluate the current property taxation model for non-farming agricultural land and consider amendments to encourage meaningful food production on these lands
Post-Production and Processing	
Recommendations	Actions
4. Support the development of scale appropriate and accessible slaughter and cut and wrap facilities in the township that can accommodate small-scale livestock producers	4.1. Connect with provincial actors in the Small-scale Meat Producers Association 4.2. Host a dialog with small-scale livestock producers to analyze of the most significant post-production barriers 4.3. Engage with communities who have successfully developed small-scale abattoirs to understand development strategies
5. Create a supportive policy environment for shared primary processing and storage facilities for small-scale vegetable producers	5.1. Identify private sector partners who could be involved in the development of shared processing facilities 5.2. Identify strategic locations in the Township for shared primary processing facilities

Distribution and Retail	
Recommendations	Actions
6. Aggregate locally produced food in the Township for local and regional distribution	<p>6.1. Identify strategic locations in the Township for local food aggregation (for local and regional distribution)</p> <p>6.2. Identify partners to support the development of local food aggregation facilities</p>
7. Create a supportive policy environment for the development of on-farm retailing and agri-tourism	<p>7.1. Develop best design and development practices for on-farm retail facilities in the Township</p> <p>7.2. Host a dialogue with farmers involved in on-farm retailing and agri-tourism to better understand the barriers they face</p>
8. Encourage the development of cooperative retail facilities that can support small-scale producers (i.e. food co-ops, food hubs)	<p>8.1. Identify partners who could participate in development of cooperative local food retail facilities or food hubs</p> <p>8.2. Host dialog with potential partners who may be involved in the development of a local food hub</p> <p>8.3. Engage with regional partners to initiate discussion of a regional or bioregional food hub located in the Township</p>
9. Providing information to the public about when and where locally produced foods (especially high value, perishable crops) are available in the Township.	<p>9.1. Develop a local food guide or map for the Township that included producers, post-production businesses, food retailers, and restaurants</p> <p>9.2. Leverage provincial partnerships through the Buy BC campaign (Grow BC, Feed BC, Buy BC)</p>
Waste Management and Environmental Impact Mitigation	
Recommendations	Actions
10. Support livestock producers to manage manure on farm in a responsible way (direct connection between increased livestock production and nutrient surplus)	<p>10.1. Collaborate with academic institutions to research and develop different manure management options</p> <p>10.2. Encourage and assist farmers to have Environmental Farm Plan for their farms</p> <p>10.3. Continue to support the work of the Langley Environmental Partners Society (LEPS) to provide education for farmers about manure management</p>
11. Support farmers to switch to a more efficient practices to reduce greenhouse gas emissions, and capture carbon on farms	<p>11.1. Support the development of an extension education programs to help farmers increase soil carbon</p> <p>11.2. Connect with other jurisdictions with soil carbon projects to develop framework for a local program</p>

12. Endnotes

- 1 Mullinix, K., Dorward, C., et al., 2016
- 2 Census of Agriculture, Table: 32-10-0436-01 (formerly CANSIM 004-0233)
- 3 Census of Agriculture, Table: 32-10-0403-01 (formerly CANSIM 004-0200); Ministry of Agriculture, Land Use Inventory database for the Township of Langley
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- 11 Condon, P., et al., 2010; Mullinix, K., et al., 2013
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