

Vancouver's Asian-Owned Grocery Stores:

Distribution Supply Chains for Sourcing Asian Produce



By Thien Phan

Food Policy • Social Policy Division • City of Vancouver • August 2011



Table of Contents

- Executive Summary..... ii
- Focus and Research Question.....1
- Policy Background: The City of Vancouver’s Leadership1
- Discussion of Research Findings.....2
 - Regulated and Unregulated Sales and Marketing of Crops2
 - Figure 1: Regulated and Unregulated Sales and Marketing of Crops in BC.....2
 - Vancouver’s Chinatown3
 - Figure 2: Sales and Distribution of Regulated and Unregulated Crops.....3
- Small and Medium Asian-Owned Grocery Stores 4
 - A Greengrocer is4
 - Figure 3: Small and Medium Asian-Owned Grocery Stores in Sourcing Produce..4
- Large Asian-Owned Grocery Stores5
 - Case Study #1: Donald’s Market5
 - Figure 4: Large Asian-owned Grocery Stores in Sourcing Asian Produce.....5
 - Case Study #2: T&T Supermarket6
- Local Asian Produce and Imported Asian Produce6
- Large Asian-Owned Wholesalers 7
 - Figure 5: Large Asian-Owned Wholesalers in Sourcing Asian Produce.....7
 - Economics of Logistics8
 - Figure 6: Small and Medium Asian-Owned Wholesalers in Sourcing Asian Produce.....8
- Small and Medium Asian-Owned Wholesalers.....8
- Non-Asian-Owned Wholesalers in Sourcing Asian Produce.....9
 - “Parallel Economies?”9
 - Figure 7: Non-Asian Wholesalers in Sourcing Asian Produce.....9
 - Case Study #3: Gagan Foods10
- Asian Farmers in Metro Vancouver 11
 - History and Background 11
 - Asian Farmers’ Distribution Supply Chain.....11
 - Asian Farmers Sell their Asian Produce to11
 - Figure 8: Asian-Owned Farms and Distribution of Asian Produce.....11
 - Distribution and Operations 12
 - Limited Statistics12
 - Additional Challenges Faced by Asian Farmers.....13
 - Opportunities with Asian Farmers.....13
- In Summary..... 14
- Recommendations..... 15
- References..... 16



Executive Summary

Distribution networks that support Asian-owned grocers are essential for Vancouver's ever-growing culturally diverse city. We know that Asian produce is carried by Asian-owned grocers throughout Vancouver, yet not completely certain who, what, and how this produce is moved along supply chain networks. This project only begins to understand these links, barriers, and opportunities for sourcing Asian produce.

We hope this will provide insight and create deeper dialogue to come.

This research:

- (a) Focuses on the distribution networks of Asian¹-owned grocers, wholesalers, and farmers who are critical to the movement of produce along supply chains
- (b) Highlights challenges and opportunities for sourcing locally²-grown and imported Asian produce
- (c) Asks how the City can support the distribution of Asian produce

In recent years, there has been an increased appetite for local³ produce, and specifically, the growing trend for Asian produce has fast become a market segment opportunity. Consumer demand for Asian foods has grown substantially. This is not surprising since 51% of the City of Vancouver's population today identifies as a visible minority.⁴ Chinese groups are the largest ethnic minority (29.4%) in Vancouver followed by the South Asian (5.7%) and Filipino community (5.0%).⁵

Vancouver's growing culturally-diverse city needs produce. More specifically, Asian produce is absolutely essential for the economic sustainability of Vancouver's Asian-owned grocers and wholesalers. They are key players in supplying produce to Asian and non-Asian clientele who demand culturally-specific varieties. These distribution networks move Asian produce from farmland to Vancouver and other urban centres, relying heavily upon their extensive and deep network of imports. Imports are essential for groups that value produce grown in Asia and we respect, recognize, and are not seeking to disrupt these systems.

The following explores the distribution networks of Asian grocery stores in sourcing Asian produce. For this project, businesses are categorized according to their position in the supply chain and divided into three groups: *Asian-owned grocers, wholesalers, and farmers.*



Some have identified a "parallel" and "segregated" ethnic food system in Vancouver that is influenced by an established Asian network⁶. Rather, we found that the food distribution system that supports Asian produce in Vancouver overlaps with mainstream networks, but is also quite distinct. This is largely tied to cultural values and business practices that underpin this system.

Vancouver has valuable access and deep connections to overseas produce year-round. We also know that Asian vegetables, particularly Asian leafy greens, have grown in BC for decades. Creating enough demand and awareness for locally-grown Asian produce to ensure that *what can be sourced locally is being sourced locally* as much as possible has been a challenge. Impacts on the city and farmers are huge.

Local Asian farmers growing Asian produce exist throughout the Lower Mainland and throughout BC. Yet the low volume of Asian produce has been a struggle. Inconsistent and unstable local availability of Asian produce is an ongoing challenge related to several factors. Price competition from imports, lack of resources for local farming facilities means lower local produce quality, labour intensive farming of Asian produce requires greater farm resources, decline in interest in farming from younger generations, and BC's short growing season are among the challenges. Strengthening distribution networks for local Asian produce to create awareness and demand is crucial to building a more sustainable and inclusive food system.

Executive Summary continued...



Asian leafy greens are one of the many ingredients important to Asian cuisine (e.g., bok choy, Chinese cabbage, gai lan, etc.). Asian grocery stores carry this and also carry a large variety of Asian produce, including specific types of Asian fruit not grown in BC. Imported Asian produce is important, arriving year-round, increasing in winter, of shipments that include both locally-available produce as well as produce that is not locally available. Asian fruit and vegetables are being imported not only from the US and Mexico, but some are coming as far as the Dominican Republic and across the ocean from Asia. Wholesalers then become the important distribution hub for receiving international shipments of fruit and vegetables, that in turn, have a highly coordinated to distribute produce to large and small grocers throughout Vancouver (and across the country).

On the demand side, awareness-building among consumers to ask for locally-grown Asian produce can stimulate supply. “Local food” is becoming a mainstream norm among food advocates, yet for the most part, many *Asian consumers, Asian newcomers, even Asian-owned grocers and wholesalers we spoke to, are not certain what “local food” means, nor aware of the benefits.* Awareness and communication are missing pieces. Messages of “local food” are not necessarily reaching these groups, and if they are, are only reaching a small segment of the population. Language, translation, and communicating in culturally-appropriate terms with culturally-appropriate value propositions for Asian consumers require sustained effort. Inclusion and engagement of Vancouver’s large ethnic population needs to be a constant goal if we want to be able to support local Asian farmers already growing Asian leafy greens and various other types of produce.

Accessing local Asian produce is also a challenge for some consumers. Consumers need to know where to purchase Asian produce in Vancouver. Strengthening connectivity to grocers and farmers will create larger demand from local farmers and wholesalers to supply Asian produce.

We are also cautious to not over-emphasize “local food” as the City’s priority. Imports are extremely critical for this food network.

We conclude with clear recommendations. One important point is the need for additional future research to better explore the linkages, trends, and opportunities within this distribution system. Insight and knowledge can strengthen existing local food networks and build a more inclusive urban food system.

ACKNOWLEDGEMENTS

This would have been impossible without the brilliant minds of Dr. Wendy Mendes & Metha Brown who conceived of the need for this project. Wendy for your extensive knowledge, guidance, and genuine inclusion that allow ideas to flourish. Metha, thank you for being a supportive force and a connector, linking curious minds with powerful outlets.

Sincere gratitude to the City of Vancouver’s Food Policy team: I will miss the laughter, wisdom, and plentiful food explorations. Big thank you to the City’s Social Policy team for your valuable feedback and excitement. I am very grateful to Dr. Tom Hutton, supervisor-extraordinaire, in providing the space for me seek out creative opportunities.

Thank you to the grocers, wholesalers, farmers, & food-enthusiasts I was so honoured to connect with. Your insights, time, and devotion to food gave this project richness and depth.

Profound gratitude to Wendy Tse for your late-night hours of creativity and a design flare that made the shape and colours of this project really come alive. Susan Dean, your deep listening and generous feedback over burgers and banana bread could not be more appreciated.

To my incredible family, words are not enough: I devote this project to you. My Mom & Dad, for their boundless love, support, and memorable trips to diverse restaurants that sparked my food exploration interests, I am forever appreciative. My sisters Yang, Ky, & brother-in-law Yan for consistent encouragement, interest, and being downright amazing.

Focus and Research Question

Distribution networks that support Asian-owned grocers are essential for Vancouver's ever-growing culturally diverse city. We know that Asian produce is carried by Asian-owned grocers throughout Vancouver, yet not completely certain who, what, and how this produce is moved along supply chain networks. This project only begins to understand these links, barriers, and opportunities to sourcing locally-grown Asian produce. Drawn from qualitative interviews, literature review, and statistics, this is a preliminary attempt to understand the distribution networks of how Asian grocery stores source their Asian produce.

This research:

- (a) Focuses on the distribution networks of Asian-owned grocers, wholesalers, and farmers who are critical to the movement of produce along supply chains
- (b) Highlights challenges and opportunities for sourcing locally-grown and imported Asian produce
- (c) Asks how the City can support the distribution of Asian produce



Policy Background: The City of Vancouver's Leadership

Research from this project is intended to inform the City of Vancouver's Food Policy and Social Policy strategies. This is guided by asking how the City can better understand and engage ethnically-diverse residents in moving towards a more inclusive urban food system.

The time seems ideal given the current and upcoming policy initiatives. Urban food systems and recognition of diverse ethnic groups and distribution networks are seeking enhanced opportunities to work together. The City of Vancouver created a Food Policy Council in 2004, adopted the Vancouver Food Charter in 2007, and has since, made several steps to becoming a food system leader through a range of clear initiatives⁷.

In 2010, Vancouver City Council adopted 10 long-term goals of Vancouver's Greenest City Action Plan 2020 (GCAP)⁸ followed by Council's unanimous approval of all 10 of the Greenest City 2020 targets. In 2011, GCAP's Local Food Action Plan aims to move towards a more "local dimension of food" as the City strives to be a leader in urban food systems. This is guided by detailed baseline, metrics, and targets.

One specific strategy in the Local Food Action Plan is to develop a coordinated municipal food strategy.⁹ Vancouver's upcoming Food Strategy is currently undertaking internal consultation to be followed by an external public engagement strategy. GCAP's "local food" and "urban food systems" goals are matched with five short, medium, and long-term actions and strategies. We hope that understanding the wider food networks can help to inform Vancouver's food policy initiatives. The opportunity to understand distribution networks and value supply chains of Asian food networks, including public outreach and engagement, can be an important component of this phase to ensure that a cultural diversity lens is applied.

Regional food policy initiatives have been underway as well. Metro Vancouver's 2011 Regional Food Strategy also sets out regional food system goals, strategies, and actions.¹⁰ The Province of BC's Ministry of Agriculture tracks statistical trends for the food industry, including production, processing, and its distribution. The City of Vancouver, in a coordinated approach with various levels of government, can advance food systems as a regional priority.

Discussion of Research Findings

We looked at three points of distribution in this research: Asian-owned grocers, wholesalers, and farmers.

The Asian wholesalers we interviewed handled both Asian vegetables and non-Asian vegetables. Owners of grocery stores and wholesale businesses were all Asian and had predominantly Asian staff (80-95%), of which a small percentage have English-speaking staff for improved customer service.

This distribution chain does not have a single simple flow chart. Patterns are different; they depend on key players, seasons, the type of fruit and vegetables, and other factors. Therefore it is not reducible and we have tried to tease out as many of the key linkages as possible.



REGULATED AND UNREGULATED SALES & MARKETING OF CROPS

First, there is an important differentiation between “regulated” crops and “unregulated” Asian/Chinese crops in their *sales and distribution only*. Farmers growing regulated crops must be registered with the BC Vegetable and Marketing Commission. Farmers growing unregulated Asian crops do not rely on an agency in their sales and marketing of their crops. This means a separate distribution method exists. According to the Commission, there has been *no* move to regulate any Chinese vegetables grown in BC¹¹.

Note: “Regulation” here refers *only to the sales and marketing of crops*, not related at all to food safety regulations. Food safety is separate. We are in no way advocating or supporting that “unregulated” crops should become “regulated” in their sales and distribution. This distribution system with “unregulated” crops have functioned for decades and requires no need for prescriptive regulation of *how* and *who* they sell to. Differentiations made here are simply to draw comparisons.

FIGURE 1: “REGULATED” AND “UNREGULATED” SALES AND MARKETING OF CROPS IN BC

REGULATED CROPS	UNREGULATED CROPS
Farmers growing “regulated” crops must be registered with the BC Vegetable and Marketing Commission, a board that sets a standard price and controls the volume for the sale of regulated crops.	Not a single Chinese vegetable is a regulated crop. Supply and demand is dictated by the marketplace, not by an agency.
Regulated crops are sold through agencies that set prices every two weeks to their list of retailers.	Chinese vegetables are not marketed or sold through “mainstream” or “regulated” channels of trade. So “unregulated” produce farmers are responsible for their own direct marketing and selling efforts, mainly through their networks of Asian wholesalers, grocers, and some consumers direct.
Regulated components are: <u>Greenhouse Crops</u> including beefsteak tomatoes, tomatoes-on-the-vine, peppers and cucumbers <u>Processing Crops</u> including peas, beans, corn, broccoli, cauliflower, and <u>Storage crops</u> including potatoes, carrots, rutabagas and others.	Some commonly grown vegetables are bok choy, choy sum, gai choy, sui choy, and gai lan, Chinese cabbage, daikon radish, and lotus root. Others include South Asian produce such as brinjal, gobo root, okra, yellow ginger, curry leaves, and pointed joryg.

Some have referred to the sales and marketing of “unregulated crops” as part of an “alternative distribution network.” Asian-owned grocers are

then one of the most important direct selling outlets for Asian farmers. A comparative flow chart details the two parallel networks.

FIGURE 2: SALES AND DISTRIBUTION OF “REGULATED” AND “UNREGULATED” CROPS

“REGULATED” DISTRIBUTION OF REGULATED CROPS



“UNREGULATED” DISTRIBUTION OF UNREGULATED ASIAN CROPS



Not only is the sale of crops divided in the distribution channels, but according to the Commission, there is a clear divide among farms: “regulated” crops and “unregulated” crops do not grow on the same farms in the Lower Mainland. Asian produce is grown primarily by Asian farmers with their own “alternative distribution networks” for produce.

Our research finds that these distinctions are not so clear. Some non-Asian farmers growing regulated crops have dabbled into growing unregulated Asian vegetables. Often, unfamiliarity with techniques, BC’s climate, lack of networks have proved challenging. Asian farmers, especially those having grown up in Canada, have themselves experienced limited success in growing Asian produce. Some have tried on their farms; many have given up. This will be discussed in the “Asian Farmers’ Distribution Supply Chain” section.

So it is clear that Asian produce is not grown only on separate farms nor are they only grown by Asian farmers. Asian farmers in BC are

growing Asian produce as well as mixed produce in order to diversify their farms. And the more established Asian produce farmers are mainly Asian farmers. There are few very specialized Asian farmers growing Asian produce only (20-30 year family businesses), and highly competitive. Although there is greater specialization of Asian produce, there has also been a decline in the number of Asian farmers harvesting Asian produce as they face a number of challenges.

VANCOUVER’S CHINATOWN: Does Chinatown’s high concentration of Chinese residents mean unique food networks? Chinese immigrants have settled here since the late 1800s, opening grocery stores and food carts where they could. Chinatown today is not as heavily concentrated with Chinese families since newer immigrants are settling throughout the city. This area is still home to Chinese grocery stores who provide for the city’s diverse residents. Business transactions can be done entirely in Chinese as food business owners and their clientele remain largely Chinese. Further research is needed to carefully unpack how Chinatown’s food networks operate in an area with a high number of Chinese residents who frequent both new and old Chinese-owned grocers.

SMALL AND MEDIUM ASIAN-OWNED GROCERY STORES

These grocers carry dozens of variety of Asian produce. Year-round, non-leafy greens and imported specialty fruit items are sourced from wholesalers. In the summer, almost all of their leafy Asian greens are locally sourced from Asian farmers. In the winter, Asian grocery stores rely on some Asian farmers, but mainly receive imported produce from wholesalers.

Small and medium Asian-owned grocers' distribution networks for produce come from multiple suppliers:

a) **Wholesalers:** Wholesalers are a one-stop source of "common" and "specialty" Asian produce for grocers year-round. Wholesalers have adequate storage and facilities. Asian-owned grocers rely on wholesalers for simplicity, convenience, and a steady supply of Asian and non-Asian produce. Imports of specialty Asian produce is extremely important here.

b) **Large and Asian-Owned Farmers:** Long-standing business relationships with Asian farmers mainly during summer months. Orders are usually placed in advance.

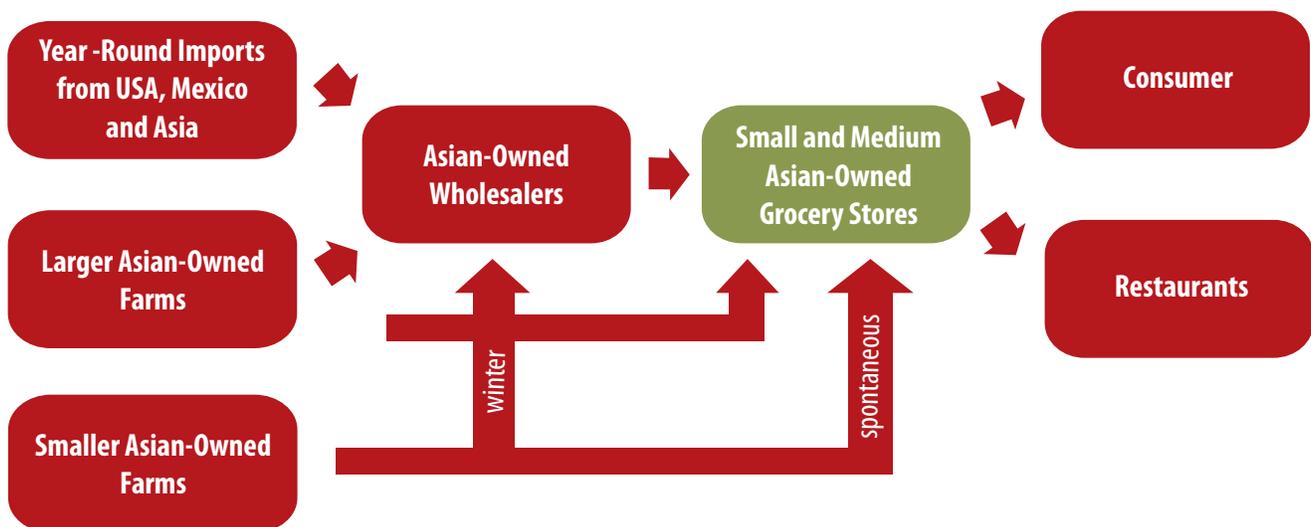
c) **Smaller Asian-Owned Farmers:** It is common for Asian-owned grocers to receive unplanned and spontaneous direct selling from Asian farmers. These farmers approach grocers based on daily door-to-door selling. Farmers arrive to grocers in unrefrigerated trucks with oversupply or product that is at the end-of-shelf-life which allows grocers to sell produce to consumers at a lower price. Freshness, price, and supply determine the purchase of these products, not necessarily the source of produce.

A GREENGROCER is...

Defined as "small markets often specializing in cuisine of a particular population"¹². In 1935, 125 of Vancouver's 158 greengrocers were owned by Chinese-Canadians¹³ and today, estimates tell us that Asian greengrocers are 34% of Vancouver's 361 grocery stores¹⁴. This leaves out estimates for greengrocers of other Asian ethnic groups, including Punjabi, Filipino, Korean, and Sri Lankan. Today, the City of Vancouver does not define "greengrocer" nor do they link ethnic group to business license ownership. We must then be cautious not to over- or under-estimate. Anecdotally though, Chinese-Canadian and Asian greengrocers are ubiquitous in Vancouver and a source for dozens of varieties of fresh local Asian and non-Asian produce. They are an important customer for Asian farmers¹⁵.

d) **Grocer-to-Restaurant Sales:** Specialty niche Asian produce at the retail level is growing in demand. Some grocers supply regularly to Asian restaurants and non-Asian restaurants in Vancouver; they also supply to restaurant/grocers in Victoria. Some medium-sized Asian-owned grocers have a regular daily customer base of over 100 restaurants in Vancouver (e.g., Guu, Toshi, Joey Tomatoes, Sala Thai).

FIGURE 3: SMALL AND MEDIUM ASIAN-OWNED GROCERY STORES IN SOURCING ASIAN PRODUCE



LARGE ASIAN-OWNED GROCERY STORES

Large Asian-owned grocers carry a large variety of Asian produce and almost all Asian leafy greens are locally-sourced in the summer. Some have multiple stores throughout Metro Vancouver, as well as their own warehouse facilities. Others have such a rapid turn over that their produce is kept within the store's facilities.

a) **Asian Wholesalers:** Multiple Asian wholesalers supply year-round Asian and non-Asian produce. Wholesalers provide produce 80-90% of the time in the winter, 60-70% in the summer; the remainder is from local farmers.

b) **Asian Farmers for Spontaneous Selling:** Sourcing from local farmers for immediate orders. Usually, local Asian farmers make (unplanned) door-to-door sales to grocers of small volume. Instead of being the grocers' primary source of produce, local farmers act more as "fillers," supplementing grocers with local Asian produce only if wholesalers cannot supply that produce, or if local produce has a lower price point.

c) **Connections with Asian Farmers:** With the exception of a very small percentage of long-standing stable relationships with Asian farmers, the Asian-owned grocers we interviewed had unstable connections with farmers. Most grocers stated that sourcing from Asian farmers are seasonal and inconsistent, depending mainly on supply and demand. Large grocers usually have a list of 30 Asian farmers for local Asian produce, allowing them to obtain the best price possible. An extensive list of farmers also minimizes the grocers' risk of produce shortages but also means loyalty to farmers is rare.

CASE STUDY # 1: DONALD'S MARKET

Donald's sources from Asian-owned wholesalers and local Asian farmers to ensure low price and a steady supply of produce. These deliveries consist of 15-19 local Asian vendors year-round.

• **Signage of Local Produce:** Donald's is currently extensively upgrading their signage system of where produce is sold. They have committed to coordinating signage as part of their daily marketing strategy to respond to customer demand for locally grown produce. This has been one of the most difficult challenges for Donald's to implement an accurate and reliable signage. Previously, an ad hoc system was in place, in which staff would label origin as produce was placed onto shelves. Such high volumes and various sources made it difficult to keep up with because each produce and the variety's origin changed daily. Every invoice must be checked and sometimes there is an error on the invoice. Donald's is currently using a signage company that allows them to quickly and accurately label the source of their produce and varieties of produce daily. By December 2011, the entire Hastings Street location will label each produce and each variety as they are put on shelf on a daily basis.

FIGURE 4: LARGE ASIAN-OWNED GROCERY STORES IN SOURCING ASIAN PRODUCE



CASE STUDY # 2: T & T SUPERMARKET

- Clientele is 90% Asian and staff is 95% Asian.
- Asian fruit and vegetables are 60-70% of all produce, the rest are “common” produce.
- Sources locally as much as possible in the summer; minimal local produce in the winter.
- Relies on 2-3 small Asian growers with small plots of land to supplement their produce supply for all nine T&T stores. Consistency of product from these farms is difficult. Orders can be placed, but Asian growers either don't have facilities (trucks or people) to deliver to all nine stores, or find a better price elsewhere and will not always retain their commitment to deliver product to T&T. Purchasers will begin phasing out local farmers as of 2011.
- Are open to supporting local farmers but farmers lack facilities which compromises quality. US farmers and wholesalers have storage and pre-cooling facilities to keep produce fresher.
- Sourcing from Asia increases in winter to up to 60% and 30-40% in the summer. T&T sources 1-2 items from Asia arriving by boat weekly (Taiwan cabbage and sui choy in the summer) but health scares in China mean decrease in Chinese imports. Although freight is cheaper from Asia (\$5000 from LA to BC vs. \$3000 from Asia) but shelf life cannot hold so often rely on produce from US.
- Wholesalers have 30-40 year-round vendors from US, Mexico, & Asia that together, make up 7-10 loads of mixed product per week. 10-20 are US suppliers that import large volumes.
- For non-Asian produce, T&T sources from wholesalers since they don't have the high volume demand for common produce to support purchasing from individual local farmers.



LOCAL ASIAN PRODUCE AND IMPORTED ASIAN PRODUCE

Wholesalers and grocers we interviewed tell us that non-English speaking grocers in ethnically diverse communities are slower to get behind this “local food” trend. Awareness among Asian consumers to support locally-grown (Asian) produce is reaching younger and more English-proficient populations, but not yet found a wider reach. Asian-owned wholesalers and grocers we spoke to were also not aware of GCAP, nor is “local” and defining “local” clear to them.

Grocers and wholesalers who have been in the business for years tell us that ethnic media is heavily relied upon but Asian groups are not yet receiving information about “local food” and GCAP from their main news sources. “Local food” has found only minimal in-roads with ethnic media outlets in Vancouver. Perhaps related to transation, perhaps related to cultural values.

We are told that *if* Asian customers *are* aware of the “local” food trend, they are still guided more by price. The Richmond Food Security Society found that “local” is not among the top five priorities in what Asian consumers look for when purchasing produce. Price consciousness and quality have meant a slower move by Asian customers to ask for grocers to carry local Asian produce.

This is another challenge: culturally-sensitive definitions of “local” and the benefits of “local”, especially to recent immigrants who may have a trans-Pacific notion of “local.” Vancouver that prides itself as being home to newcomers. When one says “local” to an Asian newcomer, does that mean supporting local farmers in their home country? The challenge here is to find appropriate ways of communicating benefits to customers of what “supporting local produce” means with relatable and culturally-sensitive terms.

It also means respecting the values and priorities of the city's diverse population. This means being careful not to fall into the “local food trap” in assuming that local production and consumption is necessarily more ecologically sustainable nor just. Being attentive to this is even more pressing when many ethnic groups *choose* to purchase culturally-specific foods from Asia-Pacific for multiple reasons (durian cannot be grown here and even if it were, the quality would not be comparable to durian from Thailand). Sometimes, even if aware, Asian and non-Asian consumers prefer imported produce because variety and quality are superior. We must acknowledge and value that imports play an integral role in our food system.

LARGE ASIAN-OWNED WHOLESALERS

Large Asian-owned grocers heavily rely on Asian-owned wholesalers for produce. Primarily located on Malkin Avenue in Strathcona, these wholesalers supply fresh produce to grocery stores in Vancouver, handling Asian and non-Asian produce. Our research then looked briefly at the distribution networks of Asian-owned wholesalers as part of the supply chain. Wholesalers are an important hub because of their strong foothold in the imported vegetable market to provide grocers with a variety of Asian that is not found in BC. And since farmers prefer to sell direct to Asian grocers, Asian-owned wholesalers handle mainly imported Asian produce, with only a small percentage from local farmers. This produce is, in turn, supplied to Vancouver's grocery stores to meet Vancouver's growing appetite for Asian produce. Owners' bilingual and cultural proficiency means smooth business transactions between networks of Asian importers overseas.

Asian-owned wholesalers are few in number but retain a large portion of the market share. Larger wholesalers are almost exclusively Asian owners, carrying on decade-old family businesses, with 20, 30, and 40-year networks to grocers. They are well-educated, English-proficient, with connections to grocers, importers, and importantly, a channel for local Asian farmers that have large volume to meet large orders from wholesalers. Large Chinese-owned wholesalers and South Asian-owned wholesalers have sophisticated facilities with exceptional logistic coordination to move produce.



- Carry 300-400+ varieties of produce that allow them to supply large and small grocers.
- 20-30% of imports are Asian produce and 70-80% is "common" produce
- 10% of customers are Chinese grocers that purchase Chinese produce (30 out of 300+ customers)
- Many wholesalers perceive imports as superior in quality, freshness, variety, shelf life, and price. They are then heavily import-dependent year-round. Specific varieties are not available in BC so sourcing from abroad is essential:
 - Winter: imported produce is 80-90% of all produce
50% from California, 15-30% from China, 20% from Mexico)
 - Summer: imported produce IS 70-80% of all produce
- Sourcing produce from abroad is commodity-specific, relying on 6-7 importers throughout Asia (e.g., durian imported from Viet Nam) as supplier fluctuate depending on season, product, and price.

FIGURE 5: LARGE ASIAN-OWNED WHOLESALERS IN SOURCING ASIAN PRODUCE



ECONOMICS OF LOGISTICS

- Transportation costs are less expensive from across the Pacific Ocean than they are from across the US border. It is roughly \$3,000 for one container of produce from China vs. \$4,000 for one container of produce from California. Imports are then extremely important.
- Although imports are less expensive from China, the longer shipment time of two weeks from China and throughout Asia means wholesalers order one container every two weeks from Asia versus 7-8 loads per week from the US.
- Health scares in China mean greater reliance on US imports.
- Chinese green vegetables are imported from US, Mexico, Asia, and also available locally.
- Air shipments of produce can arrive from India in 24 hours.

Challenges: Wholesalers we spoke to prefer imported produce because of its superior quality, longer shelf life due to better facilities, which mean more competitive prices. Their experience with local farmers is marked with unreliability and poor quality. Imports then make up 70-80% of their business as trying to localize the product mix given these challenges are difficult without diversity that consumers demand.

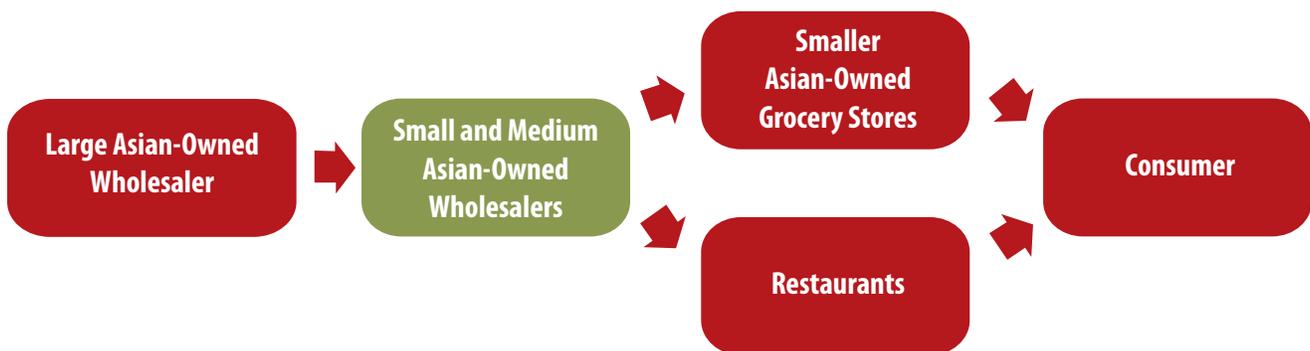


SMALL AND MEDIUM ASIAN-OWNED WHOLESALERS

What is lesser known in our research is the distribution networks of small/medium wholesalers. What we do know is based on preliminary research and further research is needed here.

- Source from larger wholesalers and re-sell to smaller retails and restaurants.
- Smaller wholesalers (25 employees) focus specifically on Asian specialties and carry 80% Asian produce.
- Daily or weekly purchasing trips to larger wholesalers to inspect produce quality.

FIGURE 6: SMALL AND MEDIUM ASIAN-OWNED WHOLESALERS IN SOURCING ASIAN PRODUCE



NON-ASIAN-OWNED WHOLESALERS IN SOURCING ASIAN PRODUCE

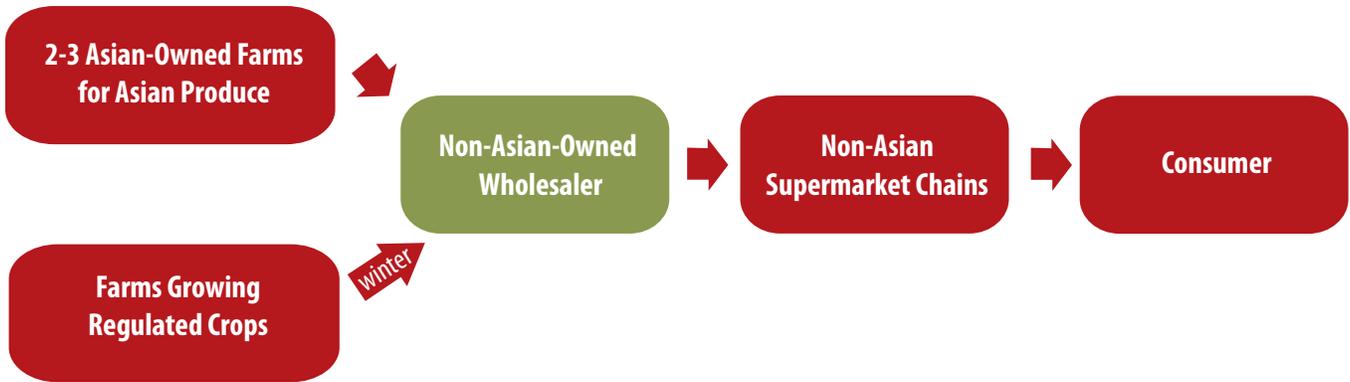
“Parallel” Economies?

Asian-owned wholesalers handling Asian produce are a part of a strong distribution chain that operates almost separately from other “regulated” crops. Non-Asian-owned wholesalers have an interesting distribution chain.

Competing non-Asian-owned wholesalers operate within a parallel food economy. They handle a very small amount of Asian produce and do not supply to the same customers as competing Asian wholesalers. They **do not** overlap with the territory of Asian-owned wholesalers’ firm networks of Asian-owned grocers who purchase their Asian produce. Non-Asian-owned wholesalers instead, supply to non-Asian chain supermarkets (e.g. Thrifty Foods). Some non-Asian-owned wholesalers deal with only two or three Asian growers for their Asian vegetables. These Asian growers have medium-sized plots of 40-50 acres of mixed vegetables including Asian vegetables.

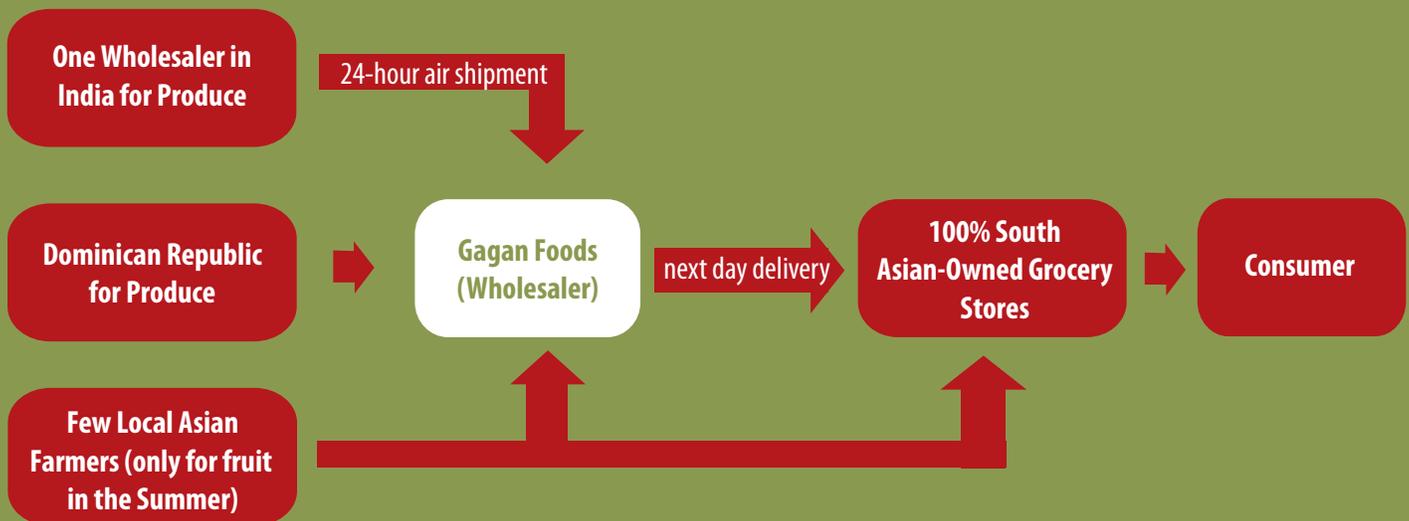


FIGURE 7: NON-ASIAN-OWNED WHOLESALERS IN SOURCING ASIAN PRODUCE



CASE STUDY #3: GAGAN FOODS

GAGAN FOODS, WHOLESALER OF SOUTH ASIAN FOOD, IN SOURCING ASIAN PRODUCE



- South Asian customers ask for varieties of South Asian produce not grown in BC
- Receives one air shipment per week of \$4,000-\$6,000 worth of produce from only one supplier in India
- Cost of shipment is \$400-\$500
- Dominican Republic is their second largest import country
- Dry foods are either internationally imported or shipped from neighbouring provinces (e.g., lentils from Saskatchewan)
- 19-year relationships with grocery stores that are all South Asian-owned



ASIAN FARMERS IN METRO VANCOUVER

History and Background

Since the mid-1850s, Asian farmers have been supplying Vancouver's grocery stores with fresh Asian vegetables. This local Asian produce supply chain has been in place over a century, long before today's "local food" movement.

Asian Farmers' Distribution Supply Chain

What is unique in our research is the distribution supply chain of how Asian produce is using well-established channels of selling produce. Asian farmers have a differentiated selling strategy. The absence of agency regulation in selling means that unregulated Chinese vegetables have their own distribution channels. Asian farmers rely on orders from wholesalers. Asian farmers are also remarkably persistent in commuting on a daily basis to Vancouver for door-to-door selling to Asian-owned grocers. This is a system that has been in place for years and we are in no way advocating or promoting regulation of unregulated produce.

Chinese vegetables are all harvested and packed by hand in BC. Since this process is not mechanized, it demands greater staff resources and time. Lack of facilities is also a challenge. Some farms have cold and dry storage facilities and sophisticated infrastructure to ensure freshness of produce, but most rely on same-day harvesting and selling to grocers and wholesalers.

Asian Farmers Sell their Asian Produce to:

a) **Asian-Owned Wholesalers:** Larger Asian farms use local wholesalers (on Malkin Ave. particularly) based on business relationships established over decades. Storage and infrastructure facilities are either available on large farms or are not needed because produce can be stored at the wholesalers' facilities. They also have larger farms and more stable source of produce for direct selling to Asian-owned grocers. This ensures freshness.

a) **Asian-Owned Grocers:** Most lack storage and infrastructure facilities so this means produce is packed in boxes, and loaded onto unrefrigerated trucks for same-day delivery to grocers in Vancouver and other cities. Asian farmers fill in the grocers' produce gaps by supplying small amounts of Asian produce to grocery stores daily. These farmers provide produce for for many grocers who carry end-of-shelf-life product that can be sold quickly and at a lower price. Asian-owned grocers that have a small amount of produce shortages mean local farmers have a market for their small volume produce. This has led to Asian farmers relying on door-to-door sales of their product to smaller Asian grocery stores on a daily basis. This shorter supply chain leaves out wholesalers.

c) **Roadside Farms:** Some have roadside farms to sell their own produce and their neighbours' produce. This is not extremely popular as roadside farm and selling selling means only small volume sales. Farmers see roadside farms as inconvenient for customers who cannot commute outside of the city for local produce.

FIGURE 8: ASIAN-OWNED FARMS AND DISTRIBUTION OF ASIAN PRODUCE



Distribution and Operations

Farmers battle with inconsistency and unpredictability as constant challenges of Asian produce supply chain. Farmers may have 100 boxes baby bok choy one day and not the next so the challenge of a steady customer base of wholesalers and grocers is difficult.¹⁶ As mentioned, in this distribution network, Asian grocery stores rely on wholesalers for a steady supply of produce, and only source from local farmers to supplement what is missing from their already steady flow of produce. This means smaller Asian farmers must rely on inconsistent orders from Asian grocery stores. Grocers seek the best price available which means the ultra-competitive environment of price-cutting makes it economically challenging for farmers to compete.

What we also hear is the decline in the number of Asian growers and size of farms in recent years. Asian farmers interviewed had been farming for decades; many second- or third-generation farmers are running their family business. Many of their farms had shrunk in size from previous years. Some estimate that BC went from 150 Asian growers previously to roughly half those numbers today. Most Asian farmers today have small parcels (5-10) acres and small volumes; larger plots (40-50 acres) are rare.¹⁷

This is related to several factors, including competition from imports, economic difficulties, and the lack of desire for children to go in to farming. Harvesting Chinese vegetables have a shorter growing time of roughly 30-40 days (e.g., baby bok choy), which allows faster turnover and replanting on smaller parcels of land. But price undercutting from importers has made Asian vegetable farming a very difficult livelihood so most diversify their crops; others have given up completely on growing Asian vegetables because price and quality cannot match imported produce that have storage, cooling, and pre-cooling facilities, and volume to sell at much lower prices.

Fruit farming is also becoming more popular than vegetable farming, as fruit is much more amenable to BC's growing climate. Punjabi Sikh population in Metro Vancouver and surrounding areas are common.

Limited Statistics

Still, little is known about Asian farmers and Asian produce. Chinese vegetables have grown in BC for decades but statistics are limited. Statistics Canada tracks only a small percentage of Asian produce in BC, the produce that is tracked includes a small number of large-volume producing Chinese vegetables only. Statistics Canada groups all other Chinese/Asian vegetables under the generic "other" category and they tell us that volume of production has not been high enough to create a category of their own.

Neither the City of Vancouver nor Statistics Canada links ethnicity to business ownership, nor do they link ethnic group to the type of produce they farm. What we have then is a very narrow snapshot of larger trends, so these statistics must be taken with caution. BC Stats tell us that Chinese-Canadians make up 375 (or 15%) of Metro Vancouver's 2,520 farmers and farm managers.¹⁸ Lesser known are the South Asian farmers even though Punjabi farmers are widespread in the region.¹⁹ 5.3% of the farm population in BC is Sikh compared to 3.5% of the general population.²⁰ After Canadian-born farm operators, the next largest group of farm operators are from India, at 1,260.²¹



Additional Challenges Faced by Asian Farmers

Specific types of Asian produce are available locally, but smaller farmers often lack resources and facilities to meet packing requirements of growers. As our awareness of the origin of produce increases, there is also growing demand by grocers for produce specifications. Requests for labelling the origin of the produce has been especially difficult for smaller farms. One Asian farmer, growing Taiwanese cabbage, was asked by retailers to wrap each individual head of cabbage in plastic to lengthen its shelf life. This, along with labelling that his Taiwanese cabbage was locally grown in Burnaby was also requested. Unable to purchase a wrapping machine, this wrapping was done by hand. Profit increased by \$1.50 per box but his labour cost doubled. He must compete with individually labelling and wrapping of competitors in California that have a larger and faster harvesting crew. In BC, it is cost and labour intensive for smaller farms. Lack of facilities for smaller farms means decrease in quality and decreasing their competitiveness. This means grocery chains will not buy locally even though produce is locally grown.

Asian produce is also labour intensive and harvested by hand into cartons; mixed vegetable farms of Asian and non-Asian produce with varying harvesting times means that variety will not allow mechanization of harvesting.

Farmer's markets and roadside farms are important selling outlets for smaller growers, but larger growers depend on selling large volumes. Farmers interviewed were extremely enthusiastic about a year-round selling and storage hub where sellers could have a steady customer base and and storage options (e.g., New City Market).

The lack of a centralized marketing and selling agency for Chinese and Asian farmers means there is a high level of competition among farmers as well as competition with imports. Many smaller Asian growers do not have a steady market or steady customer base for their produce. This means the lack of a collective to increase economies of scale means individual farmers lack finances to invest in infrastructure. Some say that the market is still small for farmers growing Chinese vegetables compared to the demand for mainstream crops.

Meanwhile, retailers seek out the lowest price so it is difficult for farmers to remain competitive. Some have suggested an agency, or a cooperative, that would function to influence economics of scale for farmers growing Asian produce. A Chinese Farmer's association existed in the past, but was disband for multiple reasons, largely based on Chinese who opted out due to discriminatory practices against them²².

Opportunities with Asian Farmers

Although limited, what we do know about Asian vegetables is revealing. It can also be an important opportunity. For instance, one of the only types of Asian produce tracked by Statistics Canada is Chinese cabbage. More types and varieties of Chinese vegetables in BC are grouped in the "other" category, so we are unclear as to which ones or the amount. Stats Canada tells us that volume is too low to warrant giving these vegetables their own category. This may or may not be accurate. When we looked closer, we found an interesting trend.

Here, enhancing the competitiveness of the BC Asian vegetable industry has a bright spot. Even though BC has fewer farms reporting Chinese cabbage (89), the number of acres of Chinese cabbage (282) surpasses other "regulated" or more "common" produce such as spinach (163), cauliflower (210), asparagus (224), and beets (228)²³. This tells us that although fewer farms are growing Chinese cabbage, the volume of acreage means local availability and production of this particular product has great local distribution opportunities. Strategically focussing on what can be grown locally and supporting channels for that produce (such as asking grocers to supply it) is one suggestion.

Strengthening distribution opportunities for farmers growing Asian produce requires support on multiple levels: technological upgrades to ensure product shelf life, freshness, relationship-building direct to retailers and consumers, greater opportunities for smaller farmers to access mainstream distribution networks, inclusion of Asian farmers in policy and public engagement, and consolidating farmers' produce to increase volume can strengthen supply chain/logistic requirements of retailers.

In Summary

This research was preliminary, teasing out how Asian-owned grocery stores source their Asian produce.

Understanding and engaging multiple groups along distribution channels is important for our ethnically diverse city. We realize that this research is ever-more pressing as the City of Vancouver begins to look at its short, medium, and long-term actions and strategies of its Greenest City Action Plan. Supporting an urban food system means digging deeper into understanding the networks, values, cultural practices, that underpin the urban food system, and incorporating them into the City's initiatives as much as possible. Great strides have already been put into place. Individuals and organizations work tirelessly at better understanding the intricacies of genuine inclusion and engagement, interrogating our own blind spots in understanding, and evaluating our own perceptions. When applying this to food policy, change can truly be influenced.

Recommendations in the next section remind us that our research and understanding is not complete, but we hope that this begins to lay a foundation for exciting new possibilities to come.



Recommendations

Timing and motivation seem ideal now to connect Asian networks to better coordinate, compliment, and make more robust the GCAP and the City of Vancouver's Food Strategy.

Additional Research with Specific Ethnic Groups and Supply Chain Networks. Our research is preliminary only. There still remains a gap in understanding the different layers of Asian produce supply chain networks that support a large Asian population. Further research into distribution networks of other ethnic minority groups need focussed attention. South Asian, Korean, and Japanese grocers and farmers are examples.

Inclusion and Engagement with Diverse Groups is Critical as the City of Vancouver's Food Strategy public consultation begins in 2011. Most Asian -owned produce businesses we spoke with are almost completely unaware of GCAP or its goals. Greater outreach here can be powerful. More clearly defining "local" to Asian consumers (while being aware of the need for imports), translation of key terms, and explaining benefits can be a focus here. Appropriate communication and engagement with culturally diverse groups can position the City as a leader on inclusive urban food systems.

Strengthen Connections Between Asian Produce and Local Retail Outlets. This means opportunities for local neighbourhood food hubs to connect both locally-grown and imported Asian produce directly with consumers and retailers. Providing the New City Market with our list of interviewees in their tenant casting phase is a key opportunity for diverse inclusion. This, and other urban farming where different models can be explored and should continue to be supported by the City of Vancouver.

Farmers Market for Asian Farmers Growing Asian Produce. Coordinating with a large Asian grocer, such as Donald's Market, who sources from Asian farmers, to host a weekly Asian farmer's market is one opportunity. This builds awareness, availability, and celebration over Asian produce. An Asian produce market can be held in the grocer's outdoor parking lot or on City land.

Matching Seasonality and Availability of Asian Produce with the City's Food Initiatives. The City's food vendor selection criteria and procurement strategies can strongly influence the demand for Asian produce. Specific criteria or quota can further Vancouver as a leader in urban food systems. Many successful models can be found. A City Council motion in 2010 called for culturally-diverse food vendors--a significant step in influencing change. One model for quotas is Happy Planet that sets a quota in which 60% of their ingredients are sourced locally.

Communicating Where Asian Produce is Available in Vancouver. A one-page map or simple directory that lists which neighbourhoods carry (locally-grown) Asian produce is one way to stimulate demand. A single-page, translated insert can be included in the City of Vancouver's Newcomer's Guide--a guide that is already distributed to newcomers. This page can also be displayed in grocery stores to inform consumers that Asian produce is available. The City of Toronto's piece, "Many things grow in Ontario" is a simple and effective example for Vancouver.

The infographic is divided into two main sections. The left section, titled "Many things grow in Ontario", features a grid of 12 images of different vegetables and fruits, each with a label below it: Eggplant, Bok Choy, Red Amaranth/Callaloo, Red Carrots, Bitter Melon, Bottle Gourd, Daikon Radish (Lo Bok), Fuzzy Melon, Red Hot Peppers, Tomatillo, Okra/Okro, and Kale. The right section, titled "Did You Know...", contains four bullet points: "Freshly picked produce tastes great", "Vegetables and fruit are packed with health benefits", "Newcomers to the GTA spend nearly \$800 million/year on ethnocultural vegetables, a lot of this produce is imported and could be grown in Ontario", and "Increasing the amount of locally grown ethnocultural produce could be worth millions to the economy". Below these points, it states "The GTA's food manufacturing sector is the region's number one employer, ahead of the automotive sector" and "Locally grown produce can significantly reduce greenhouse gas emissions". At the bottom right of the infographic is a logo for "toronto.ca/foodiesconnections" featuring a stack of colorful produce.

References

1. Our project defines “Asian” as individuals who identify their ethnicity as from Southeast Asian, East Asian, and South Asian countries.
 - The City of Vancouver uses the term “visible minority” to refer to people who are Chinese, South Asian, Black Filipino, Latin American, South East Asian, Arab, West Asian, Korean, Japanese or any “persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour.” The 2006 census poses an additional challenge in that 51% of the City identifies as a visible minority, which means they are now the “visible majority.”
2. Defining “Asian Produce”: For this research, Asian produce include vegetables and fruits commonly used in Asian cuisine. We are also aware that Asian produce is also used in non-Asian cuisine. Our list is not intended to be exhaustive but is a compilation of input with supply chain networks as well as information from a variety of sources based on what they identify as commonly consumed produce and commonly imported produce from regions in Asia.
 - Ministry of Agriculture defines Chinese vegetables as: “Chinese vegetables associated with Asian cooking. The most commonly grown vegetables are bok choy, choy sum, gai choy, sui choy, and gai lan, Chinese cabbage, daikon radish, and lotus root.” We have expanded this to include also South Asian produce including brinjal, gobo root, okra, yellow ginger, curry leaves, and pointed joirg.
3. The City of Vancouver defines “local” as “as close to home as possible.” The definition here is not bound by geography, but implies as close to home as possible being within Metro Vancouver, the Lower Mainland, the Fraser Valley, and the Okanagan Valley.
4. 2006 Census of Population, Statistics Canada
5. In 2006, the five largest visible minority groups out of Vancouver’s total population were:
 - Chinese 29.4%
 - South Asian 5.7%
 - Filipino 5.0%
 - Southeast Asian 2.6%
 - Japanese 1.7%This does not include the many other smaller visible minority groups who live in Vancouver.
6. Hild, C. 2009. “The Local Economy of Food in Vancouver.” Published by Vancouver Economic Development Commission, page 3. Retrieved from <http://www.vancouvereconomic.com/userfiles/file/Local-Food-in-Vancouver-webversion%281%29.pdf>.
7. Major initiatives include:
 - Creating a Food Policy Council to act as an arms-length advisory body on food issues (2004)
 - Creating and approving a Vancouver Food Charter to underpin the goals of a just and sustainable food system (2007)
 - Increasing public involvement in community gardens and community orchards through the 2010 by 2010 Challenge (2007-2010)
 - Creating guidelines and bylaw changes to encourage hobby beekeeping (2005) and the keeping of backyard hens (2010)
 - Initiating curbside pick-up of food waste and to take strides in the diversion of food waste from the landfill (2010)
8. Vancouver’s Greenest City 2020 Action Plan:
 - **Long Term Goal #10:** Vancouver will become a global leader in urban food systems.
 - **2020 Target:** Increase city and neighbourhood food assets by a minimum of 50% from 2010 levels.
 - **Accountability:** Social Policy, with support from Engineering (Streets) and Parks.More information can be found at <http://vancouver.ca/ctyclerk/cclerk/20110712/documents/rr1.pdf>.
9. Vancouver’s 2011 Food Strategy
 - Goals of Vancouver’s Food Strategy:
 - Goal 1:** Create Food Friendly Neighbourhood
 - Goal 2:** Empower Citizens to Take Action
 - Goal 3:** Use Food to Create a Healthy and Equitable City
 - Goal 4:** Make Food a Centrepiece of Vancouver’s Green Economy
 - Goal 5:** Connect City with Farmers and Farmland
 - Goal 6:** Advocate for Just and Sustainable Food System
10. Metro Vancouver 2011. “Regional Food System Strategy.” February 2011. Retrieved from <http://www.metrovancouver.org/planning/development/RegionalFoodSystems/Documents/RegionalFoodSystemStrategy.pdf>.

References continued...

11. I would be cautious with this statement made by the BC Vegetable Marketing Commission. The regulation of crops, Asian farmers, and selling strategies of Asian farmers has a contentious history in BC. In 1927, BC enacted a provincial law to regulate marketing of vegetables. This was seen by Chinese Canadian farmers, wholesalers, peddlers, and storekeepers, as a move to limit and reduce their business activity, in which Chinese Canadians quickly protested. Since then, little associations have gained much ground among Asian farmers and distributors of produce. In 1934, the BC Coast Vegetable Marketing Board was established (Yee, P. (2006). *Saltwater City: An Illustrated History of the Chinese in Vancouver*. Vancouver, B.C.; Berkeley: Douglas & McIntyre: p. 84). The BC Coast Vegetable Marketing Board and the Interior Vegetable Marketing Commission merged to form the BC Vegetable Marketing Commission in 1980.
12. Forum of Research Connections. 2006. "Community Food Action Initiative Three-Year Action Plan." Page 50. Retrieved from http://vancouver.ca/commsvcs/socialplanning/initiatives/foodpolicy/tools/pdf/VCH_FoodActionRpt.pdf.
13. Yee, P. (2006). *Saltwater City: An Illustrated History of the Chinese in Vancouver*. Vancouver, B.C.: Berkeley: Douglas & McIntyre: p. 87.
14. FORC. (2006). *Community food action initiative three-year action plan*. Vancouver, BC: Vancouver Coastal Health.
15. Vancouver Food Policy Council [VFPC]. (2009). *Food secure Vancouver baseline report*. Retrieved from the City of Vancouver Community Services website: http://vancouver.ca/COMMSVCS/socialplanning/initiatives/foodpolicy/tools/pdf/FoodSecure_Baseline.pdf.
16. Interview with a non-Asian-owned wholesaler.
17. Discussions with Asian farmers and wholesalers in Metro Vancouver.
18. Statistics Canada. (2006). Occupation - national occupational classification for statistics 2006, sex and selected demographic, cultural, labour force, educational and income characteristics for the population 15 years and over of Canada, provinces, territories, census metropolitan areas and census agglomerations. (Catalogue number 97-564-XCB2006005). Retrieved from Statistics Canada website: <http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/sip/Rp-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=0&GK=0&GRP=1&PID=97611&PRID=0&PTYPE=97154&S=0&SHOWALL=0&SUB=0&Temporal=2006&THEME=74&VID=0&VNAMEE=&VNAMEF=>
- 19-21. Statistics Canada. (2006). Occupation - national occupational classification for statistics 2006, sex and selected demographic, cultural, labour force, educational and income characteristics for the population 15 years and over of Canada, provinces, territories, census metropolitan areas and census agglomerations. (Catalogue number 97-564-XCB2006005). Retrieved from Statistics Canada website: <http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/sip/Rp-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=0&GK=0&GRP=1&PID=97611&PRID=0&PTYPE=97154&S=0&SHOWALL=0&SUB=0&Temporal=2006&THEME=74&VID=0&VNAMEE=&VNAMEF=>
22. Yee, P. (2006). *Saltwater City: An Illustrated History of the Chinese in Vancouver*. Vancouver, B.C.: Berkeley: Douglas & McIntyre: pp. 50, 55-59.
23. Farms Reporting vegetable producing according to Statistics Canada in 2006:

Crop	Farms Reporting	Acres
Asparagus (producing)	112	224
Beets	384	228
Broccoli	271	1141
Brussels Sprouts	74	681
Cauliflower	179	210
Celery	70	25
Chinese Cabbage	89	282
Radishes	167	155
Spinach	205	163

Source: Statistics Canada. 2006. "Agriculture overview, Canada and the provinces - Vegetables (excluding greenhouse vegetables), census years 2006 and 2001." Retrieved from <http://www.statcan.gc.ca/pub/95-629-x/1/4182378-eng.htm#59>.

By Thien Phan

For my Mom & Dad, Yang, Ky, & Yan