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**THE SUPPLY CHAIN FOR ASIAN VEGETABLE RETAILERS:
A CASE STUDY OF MICHIGAN**

By

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Abstract

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The demand for fresh vegetables including specialty vegetables such as Asian vegetables is increasing in the US. In addition to broad-line food retailers Asian grocery stores and restaurants cater to this demand. However, the supply chain for these Asian vegetable retailers has not yet been documented while supply chain research has focused on the broad-line vegetable retailers. This study traces the supply chain of the Asian vegetable retailers, both groceries and restaurants, based on a case study of Michigan. It also analyzes the potential to grow vegetables in Michigan that are common to the supply chain of Asian vegetable retailer's in Michigan and evaluates the potential of Michigan produced vegetables to access the supply chain.

This study shows that the Asian grocery stores cater to a niche market that relies heavily on Asian customers. These Asian customers demand Asian specialty vegetables that are not common to broad-line grocery retailers and thus have a supply chain that is distinctive with ethnic ties. The variables such as ethnic presence, predominance of exotic Asian varieties and Asian customers, limited use of technology, fragmented businesses selling limited produce items and limited value addition make the supply chain distinctive. The study findings indicate that Michigan has potential to grow some general vegetables and limited Asian vegetables which gives Michigan producers a limited potential access to the supply chain of Asian vegetable retailers.

To my beloved parents for being my strength

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CHAPTER ONE

INTRODUCTION

The retailing of fresh produce including vegetables has been dominated by broad-line retail grocers.¹ Further, the supply chain research on fresh produce has been to date focused on these broad-line grocers, and there is a dearth of work in the supply chain of ethnic vegetables including Asian. This research work is conducted to develop baseline information about the supply chain of Asian vegetable retailers in Michigan. This research can contribute to more comprehensive studies of ethnic retailers in the future. This research is needed given the increase in the immigrant population that will continue to drive the increasing demand for specialty ethnic produce sold at ethnic retailers. By understanding these Asian ethnic supply chains, opportunities for local Michigan producers can also be uncovered.

This report has been divided into four chapters. The first chapter presents background for the research including objectives, methodology, and scope and limitations. The second chapter presents a literature review in the area of fresh produce and specifically in vegetable marketing channels and supply chains. The second chapter also gives an indication about what has been done in the area of specialty vegetables and Asian vegetables specifically. The third chapter presents the results and discussion using the following themes:

- a. The general characteristics of the Asian groceries and restaurants in Michigan

¹ Throughout the paper, the term “broad-line”, general, or “mainstream” grocer or supplier refer to grocery chains and other supply chain firms that serve broad customers or product markets rather than focus on specific niches or limited product categories. Wal-Mart, Kroger, Meijers and Sysco are examples.

- b. The suppliers and supply chain of the Asian vegetable retailers in Michigan
- c. Potential of growing Asian vegetables in Michigan.
- d. Different characteristics of broad-line vegetable retailers and Asian vegetable retailers in Michigan.

Finally, chapter four summarizes the study and draws conclusions based on the research work.

1.1. Background

The population of the United States is becoming more and more diverse with immigration from every part of the world. The estimated foreign born population in the United States was 28.4 million (10.4%) in March 2000, up from 7.9% in 1990. The foreign born population in the United States increased by more than half between 1990 and 2000. The rapid increase in this population from 9.6 million in 1970 to 28.4 million in 2000 reflects a high level of international migration to the US over the years (US Census Bureau, 2001).

According to Census 2000, among the different categories of the foreign-born population in the US, the Hispanic population is the largest with about 35 million (12.5%) followed by the Asian with 11.9 million (4.2%). The Census 2000 report groups the US Asian population in eleven categories. Chinese population is the highest amongst the different Asian groups with 23.8% of the total Asian population followed by Filipino (18.3%), Asian Indian (16.2%), Vietnamese (10.9%), Korean (10.5%), and Japanese (7.8%), with other groups of Asians contributing less than five percent of the total (US Census Bureau (2004).

The Asian population in Michigan has increased to 1.8% from 1.1% of the total population of Michigan between the Census 1990 and Census 2000. This shows that the Asian population in Michigan is increasing though it is less than the national 4.2% of the total US population. The major Asian ethnic groups in Michigan as shown in Table 1.1 are Asian Indian, Chinese, Filipino, Korean, Japanese and Vietnamese. The distribution of these Asian populations in Michigan is not uniform as seen from Figure 1.1.

Michigan cities with the highest population in the state and their corresponding Asian ethnic population are presented in Table 1.3. Although the Asian population is less than 2% of the total population of Michigan, most of the major cities in the state have a number of Asian grocery stores and restaurants managed and operated by people of Asian origin. Table 1.2 presents the different ethnic populations of the three surveyed cities and the number of the Asian groceries in those cities.

The immigrants from each of these countries bring with them some unique cultural traits including their food culture. Apart from the population of Asian origin, need and desire to try different Asian cuisines at home and at restaurants by the non-Asian US population have also created an increasing demand for Asian foods in the country. In response to the growing demand for Asian food items many producers, suppliers and retailers have started to venture into Asian foods. Many Asian food firms are expanding their reach to the US or are acquired by other American food companies; and many American food firms are also diversifying their product lines to Asian foods.

According to Mintel Group, the rising Asian ethnic diversity in the U.S. has increased the Asian food offerings through both restaurants and retail channels (Mintel Group, 2002).

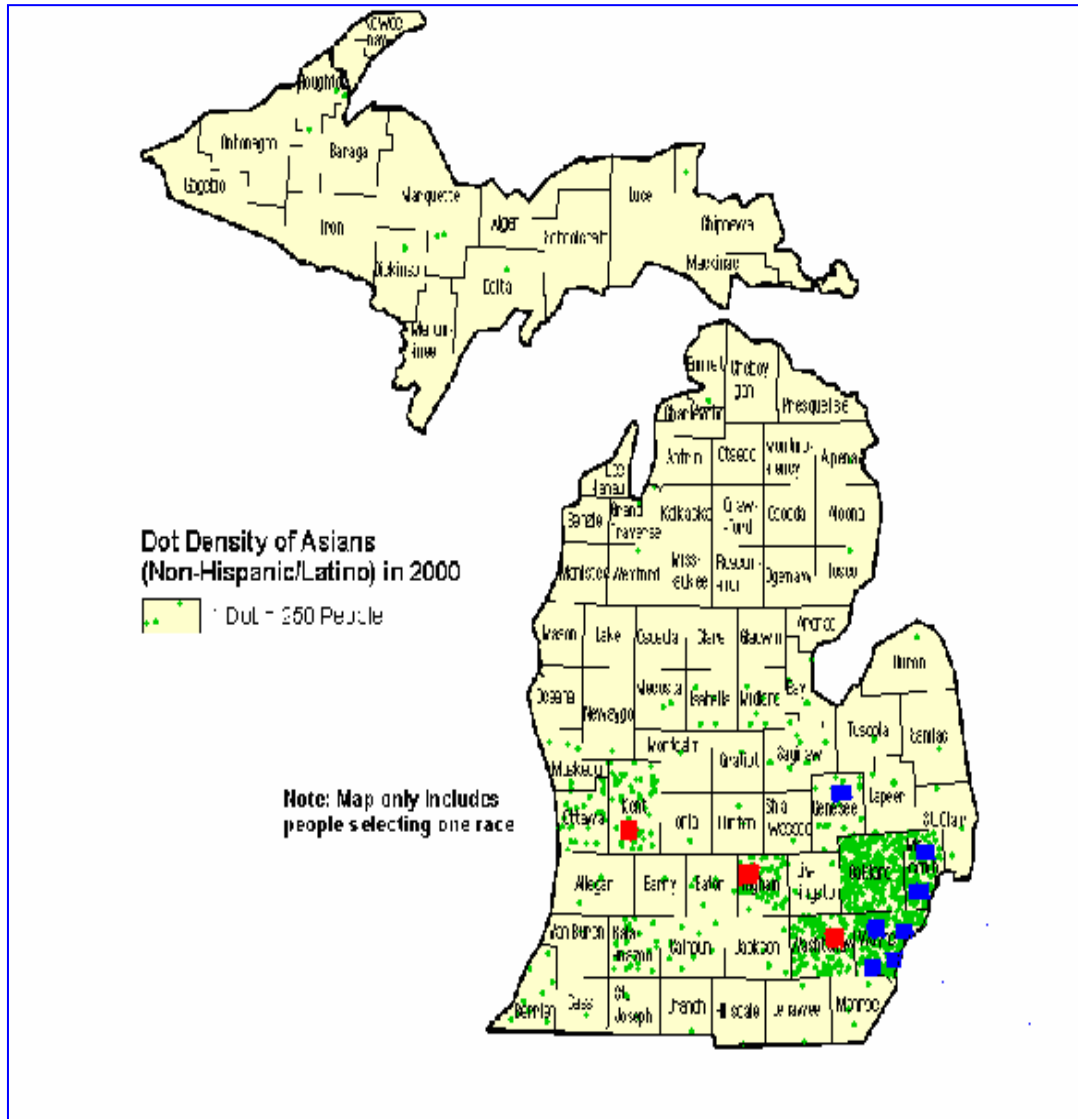
Table 1.1: Asian Population in Michigan

| Asian Ethnic groups | Total population in | |
|-------------------------------|-----------------------|-------------|
| | Census 2000 | Census 1990 |
| Asian Indian | 54,631 (0.5%) | |
| Chinese | 33,189 (0.3%) | |
| Filipino | 17,377 (0.2%) | |
| Japanese | 11,288 (0.1%) | |
| Korean | 20,886 (0.2%) | |
| Vietnamese | 13,673 (0.1%) | |
| Other Asian | 25,466 (0.3%) | |
| Total Asian Population | 176,510 (1.8%) | |

Table 1.2: Asian population in the surveyed cities in Michigan:

| City | Population | | | |
|--------------|--------------------|-----------------|--|------------------|
| | Asian | Indian | Oriental | Other Asians |
| Ann Arbor | 13566 (11.9%) | 3292 (2.89%) | Vietnamese: 268 (0.24%) Korean: 2432 (2.13%) Chinese: 5060 (4.44%) Japanese: 1204 (1.06%) Filipino: 419 (0.37%) ----- 9383 (8.24%) | 891 (0.71%) |
| Lansing | 3367 (2.83%) | 214 (0.18 %) | Vietnamese: 1275 (1.07%) Korean: 301 (0.25%) Chinese: 285 (0.24%) Japanese: 90 (0.08%) Filipino: 145 (0.12%) ----- 1096 (1.76%) | 1057 (0.89 %) |
| Grand Rapids | 3195 (1.62 %) | 322 (0.16%) | Vietnamese: 558 (0.79%) Korean: 445 (0.22%) Chinese: 348 (0.18%) Japanese: 64 (0.03%) Filipino: 210 (0.11%) ----- 2625 (1.33 %) | 248 (0.13%) |

Figure 1.1: Dot Density of Asians (Non-Hispanic/Latino) in 2000



■ ■ *Blue and red spots show ten cities with highest Asian population in Michigan*
■ *Red indicates the selected cities for this study*

In addition to the processed Asian food-market, there is market segment for fresh Asian foods, including vegetables. A number of vegetables that are originally associated with Asian countries are gaining popularity in North America and are available at a variety of retail outlets. Supermarkets dominate in the sale of ethnic foods (Mintel Group, 2002); however, there will always be a demand for some ethnic food products that are carried by specialty stores (Wong and Denq (2002)). Some Asian vegetables are only available at Asian specialty grocery stores which also carry limited other varieties that are available at other mainstream stores. Some work has been done (see chapter two) in the area of food firms and their Asian ethnic food products but it has been mostly focused on food items such as sauces & marinades, Chow mien noodles and Chatney (Pickles). However, the supply chain for Asian fresh produce including vegetables is still not studied and documented though much is known about the mainstream grocers in many states including Michigan (see chapter two).

1.2. Objectives of the study

This study will focus on exploring the supply chain for vegetables of interest to Asian grocers and Asian restaurants in Michigan. Michigan is an agriculture state with increasing Asian population. It could be a potential producer and supplier for many of the Asian vegetables to Michigan and neighboring states. However, this potential can not be realized unless the supply chain and the requirements of the participatory firms is known and understood. This study will trace out the prevalent supply chain of the Asian specialty vegetable retailers, and see how similar or unique it is as compared to other general vegetable retailers.

The general objective of this study is to trace out the supply chain for Asian retail businesses that deal with vegetables in Michigan. The specific objectives are:

1. To find out the major vegetables sold in the Asian specialty grocers and restaurants in Michigan.
2. To trace out the supply chain of the vegetables sold or used at Asian specialty grocers and restaurants in Michigan.
3. To find out the potential of growing Asian vegetables in Michigan and assess the possibility of Michigan producers participating in this supply chain.

1.3. Research Propositions

There have not been any prior works on the supply chain of ethnic vegetable retailers in the US in general and Asian vegetable retailers in Michigan in particular. Due to this research gap, this study takes the following a priori propositions to be examined through its case study research method.

1. Asian vegetable retailers cater to a niche market that relies heavily on ethnic consumers and thus these retailers have unique demands for vegetables that come through their supply chains.

This proposition follows from observing the fact that Asian vegetables (a) are exotic to the US consumers and producers, and (b) are not part of the broad line retailer's supply chain as they commonly sell vegetables that have observable variations to the Asian specialty vegetables.

2. Supply chains for Asian vegetables are distinct from the supply chains used by more broad line retailers. In particular, the Asian vegetable supply chains are likely to have Asian ethnic ties.

This proposition is consistent with the observation that Asian vegetables are exotic and are treated as specialty crops in the US. Successful participants in the supply chain would require considerable knowledge about the characteristics of the vegetables, their potential customers, and their preferences which are likely to be far more familiar to Asians than to non - Asians.

3. As a large vegetable growing area, Michigan has the potential to produce and market vegetables into Asian retailers supply chains. However, this potential may be limited by the unique needs of the Asian retailers.

Michigan is a significant producer of vegetables with 137,887 acres of vegetable harvested for sale in 2002 (USDA, 2002). However, literature reviewed and other web searches conducted for this study did not give any substantial information about whether Asian specialty vegetables were currently grown in Michigan. Similarly, due to the exotic nature of Asian vegetables and limited seasonal growing potential of vegetables in Michigan, it can be argued that the potential for producing and marketing to the Asian vegetable supply chain participants may be limited.

1.4. Methodology

This study is the first of its kind. Literature reviewed did not indicate any prior study on the supply chain of ethnic vegetable retailers in general and Asian vegetable

retailers in particular. Before conducting more detailed work in this area, it is necessary to develop base-line information about (1) which firms constitute the supply chain, (2) the general characteristics of these businesses, and (3) the nature of their supply chain relationships. Therefore, this study is carried out to generate descriptive information on Asian vegetable retailers and their supply chains. For this reason, the study has adopted an exploratory qualitative method using a case study of Asian retailers in Michigan.

Data was collected through a series of on-site interviews with supply chain participants. The survey instruments used in the interview are presented in the Appendix to the paper. Open ended questions were primarily used to gather information in order to get the broadest possible insights into the nature of the retailers and their supply chains.

In order to establish information about the supply chain, the following order of interviews was adopted:

- I. The survey of supply chain participants started with the retailers. The types of retailers targeted were Asian restaurants and grocery stores each of which were grouped in two types, Indian and oriental.
- II. Based on retailer identification, the survey moved backward in the chain to wholesalers/suppliers.
- III. Based on the wholesalers/suppliers and some information from prior works, the study moved backward to more basic suppliers/distributors/exporters in the US and other countries.

1.4.1. Selection of the cities for the study

Cities were selected in a two-stage process. First, the distribution of Asian population in Michigan was observed. The distribution of the Asian population was more concentrated in the central and lower part of the state (Figure 1.1). The state was divided into three regions longitudinally namely, west, central and east. Secondly, ten cities in Michigan with highest Asian population were identified based on Census 2000 (see Table 1.3) and plotted on the Michigan map (Figure 1.1). One city with the highest population of Asians was selected from each of the regions. The selected cities were Ann Arbor from the east, Lansing from the central and Grand Rapids from the west. The purpose in selecting three cities was to get a better representation of the state to generalize the study findings for the state as a whole.

Table 1.3: Ten Largest Cities by population census, 2000

| City | Total population | Asian population | Asian pop as % of total population |
|------------------------------|------------------|------------------|------------------------------------|
| Detroit | 951,270 | 9268 | 0.97 |
| Grand Rapids (west) | 197,800 | 3195* | 1.62 |
| Warren | 138,247 | 4275 | 3.09 |
| Flint | 124,943 | 547 | 0.44 |
| Sterling Heights | 124,471 | 6123 | 4.92 |
| Lansing (central) | 119,128 | 3367 * | 2.87 |
| Ann Arbor (east) | 114,024 | 13566 * | 11.9 |
| Livonia | 100,545 | 1951 | 1.94 |
| Dearborn | 97,775 | 1306 | 2.24 |
| Westland | 86,602 | 2434 | 2.81 |
| * <i>The selected cities</i> | | | |

1.4.2. Selection of the grocery stores and restaurants

1.4.2.1. Asian Grocery Stores

A master list of the Asian groceries was prepared from an extensive internet search of information and from telephone directories. The grocery stores in the master list were then grouped into Indian type and oriental type. The requests for interviews were made through telephone or on-site visits. An attempt was made to do a census of all the Asian grocery stores, but the surveyor only obtained consent from a limited number of them. All who agreed to be interviewed within a certain time frame in a city were given a personal interview.

All the stores contacted for interviews were visited and the public spaces of all were observed. However, the ability to get detailed interviews with some of the retailers visited was at times limited. The observation of the public spaces of these stores furnished information such as physical size of the retailer, commodities sold, types of customers, and variety of vegetables sold. A total of 15 Asian grocery stores were visited, out of which nine were interviewed (see Table 1.4). Some of the grocery store owners/workers were contacted at a wholesale market in Detroit when they came to purchase vegetables.

In the stores interviewed, trading practices, display of the vegetables and other activities in the grocery store were observed to supplement the information obtained from the interview. Some photographs were also taken.

Table 1.4: Selected cities and the number of grocery businesses interviewed

| City | Indian grocery Store | Oriental Grocery Store | Total interviewed |
|-------------|----------------------|------------------------------------|---------------------------------|
| Ann Arbor | 2 (interviewed) | 2 (interviewed), 1 (Observed), | 4 (interviewed) 1 (observed) |
| Lansing | 2 (interviewed) | 2 (interviewed), 2 (observed) | 4 (interviewed) 2 (observed) |
| Grand Rapid | 1* (interviewed) | 1 (interviewed) 3 (observed) | 2 (interviewed) 3 (observed) |
| Total | 5 (interviewed) | 4 (interviewed), 6 (observed) | 9 (interviewed) 6 (observed) |

* No longer selling vegetables

1.4.2.2. Asian Restaurants

The list of Asian restaurants was also prepared using the internet. Like grocery stores, the restaurants were also classified into Indian and oriental types. The surveyor attempted to contact and interview as many restaurants as possible during travel to different cities, with at least one Indian restaurant and one oriental restaurant interviewed in each city. Some of the restaurant owners/workers were contacted at a Detroit wholesale market when they came to purchase vegetables. The restaurants interviewed in these cities are presented in Table 1.5.

Table 1.5: Selected cities and the number of restaurant businesses interviewed

| City | Indian restaurant | Oriental type Restaurant | Total |
|------------------|-------------------|--------------------------|-------|
| Ann Arbor area | 1 | 1 | 2 |
| Lansing area | 2 | 3 | 5 |
| Grand Rapid area | 2 | 2 | 4 |
| Total | 5 | 6 | 11 |

1.4.3. Selection of other respondents in the supply chain

All the wholesalers and suppliers as identified from the interviews with the grocery stores and restaurants were approached for interview and those who gave consent and time were interviewed. As many of the retailers just mentioned the cities or just gave the names of the suppliers and did not provide the contact information, it was not possible to reach all of them. Additional information about the wholesalers/suppliers such as trading practices, varieties of vegetables in their business, packing of the vegetables and the labels in the packs were obtained by the observation of the trading practices. The types of vegetables were obtained by observation.

From the information obtained from the vegetable cartons at grocery stores and the wholesale market in Detroit some of the countries of origin were noted. Internet search for the Asian vegetables in these countries of origin made it possible to arrive at some contact with a key informant in Honduras who was reached by e-mail and was asked to provide export information helpful for the study. However, a detailed study about distributors was beyond the scope of this exploratory study.

Information on the possibility of growing Asian vegetables in Michigan conditions was obtained through different secondary sources and farmers growing Asian vegetables in Michigan. Two local growers who supply to an oriental store in Lansing were approached and asked about the varieties of vegetables they have been growing. Due to the limited proficiency of the growers in English, informal and short meetings were arranged at the grocery stores when they came to deliver produce. A list of other

participants in this survey apart from the Asian retailers (restaurants and grocery stores) is presented in Table 1.6.

Table 1.6: Types and number of other respondents

| Respondent | Number | Type of method used | Location of Respondents |
|-------------------------------------|--------|---|--|
| Wholesaler/ Distributor | 4 | Personal interview, mailed back surveys, observation, photographs and Telephone contact | Detroit, Windsor-Canada, Ontario-Canada, Chicago |
| Food Service Companies | 2 | Personal Interview | 1 Lansing 1 Grand Rapids |
| Farmers | 2 | Informal interview | Lansing |
| Horticulturist/ Extension agents | 2 | Informal meetings | MSU |
| USAID official in Exporting country | 1 | e-mail response | Honduras |

1.5. Scope and Limitations

According to the culinary historians and anthropologists, Asia is grouped into three dietary cultures, namely southwest, northeast and southeast (Le, C.N. (2005). The southwest includes the cuisines from the Indian sub-continent which includes countries such as India, Pakistan, Sri Lanka, Bangladesh, Nepal and Burma. The southeast includes Thailand, Laos, Cambodia, Viet Nam, Indonesia, Malaysia, Singapore and Brunei. In this study, the southwest dietary culture is represented by the classification type called Indian. Similarly, the northeast and southeast are classified as oriental. Generally speaking,

oriental is just the northeast but due to high involvement of Vietnamese and Pilipino immigrants in grocery retailing similar to that owned by immigrants from the northeast and catering to similar customers they were not considered as a separate type of retailer.

Many of the oriental stores approached for interviews declined to participate especially in Grand Rapids. However, the consistency of interview results from other oriental stores favors the generalization of the study especially about their supply chain. Similarly, the interview results were consistent for the Indian grocery stores. However, due to the limited number of interviews, the findings of the study should be taken as an indicative picture of Michigan rather than fully generalizable.

The broad-line grocery retail chains such as Meijers and Krogers were not separately studied. Available secondary information on the grocery retail chains in the US was used to make a comparison of these stores with the Asian stores in Michigan.

CHAPTER TWO

REVIEW OF PRIOR WORK IN SUPPLY CHAIN OF PRODUCE

This chapter reviews prior work done in produce supply chain and marketing, particularly in the US. It reviews past studies that are related to production, marketing and the supply chain of Asian vegetables with particular emphasis on the US. This chapter indicates the focus of prior studies and what research gap exists in understanding the supply chain of Asian vegetables in the US. This chapter consists of five sections which deal with (1) general grocery retailing trends for fresh produce, (2) the fresh produce supply chain in general, (3) Asian ethnic foods including Asian produce, (4) production potential of Asian vegetables in US and in Michigan, and (5) conclusions based on the literature reviewed.

2.1 General trend of fresh produce retailing in the US

Lin (2004) reported that US agricultural consumption is changing due to multiple factors such as improvement in income, education, health quality, and diet knowledge. According to Lin more frequent eating out and growing, diversifying (race and ethnicity) populations also contribute to changing U.S. consumption patterns. Consumers are spending more on and enjoying more varieties of produce and at the same time getting year round supply of fresh produce including vegetables. US per capita consumption of fresh produce increased 12% between 1987 and 1997. The average produce department in supermarkets carried 350 items in 2001 as compared to 133 items in 1981. This increase reflects more diversity in eating habits, and increasing demand for specialty and

ethnic fresh produce in addition to the introduction of convenience items such as dressed and cut produce (Carman, 2004).

With the increase in the number of items in the produce department, floor space allotted to fresh produce has also increased in supermarkets. Average supermarket size, according to Progressive Grocer, in 2000 was 31,500 sq. ft. up from 25,607 sq. ft. in 1994. According to FreshTrack participants in 1999 and 2001, the produce department has also occupied more and more space in the supermarkets, an increase from 10.3 % in 1999 to 12.9% in 2001.

Food retailers are also getting more powerful and bigger with mergers and acquisitions. A limited number of such players command major share of the sales of fresh produce including vegetables in countries such as the US. Between 1996 and 1999, there were 385 mergers in the grocery industry and the acquired firms in these transactions had over \$67 billion in annual sales (Richards and Patterson, 2003). Consumers are buying more of their grocery needs at supermarkets and supercenters. U.S. consumers purchase \$30.9 billion of produce through supermarkets and superstores in 1997. Supermarkets captured 88% of grocery retail produce sales, supercenters 10%, and other retail stores (e.g. convenience stores) 2% (Richards and Patterson, 2003). Apart from supermarkets, fresh produce, including vegetables, reaches consumers through other type outlets such as food service, farmers markets and other smaller specialty grocery stores.

Average produce sales have been constantly rising over the years as indicated by the produce departments of supermarkets. The produce department contributed 9.5% in 1996, 10.4% in 2001 and it is projected to reach 11.4 % of the store sales by 2006 (Perosio et al, 2001). The produce departments are profitable for the supermarket with their profits accounted for 14.6% in 1996 and 15.9% in 2001 of total company profits (Perosio et al, 2001).

U.S. consumers consumed fresh fruits and vegetables, reaching them through different outlets, equivalent to \$78.5 billion in 2000 (McLaughlin, 2004) up from \$70.8 billion in 1997 and \$34.6 billion in 1987 (Kaufman et al., 2000). According to Kaufman et al. (2000) retail store's share of total produce sales to consumers has fallen dramatically, from 63.6 % in 1987 to 48.4% in 1997. Food service share meanwhile rose from 34.7% to 50.0%. The share of consumer sales through grower-direct markets remained nearly constant at 1.6%. The final value of food sold through all grocery retail channels was \$482.2 billion in 2002 with an additional \$415 billion sold through food service channels (Carman, H.F. et al, 2004). The share of consumer's expenditure for fresh produce is growing more at foodservice outlets than at the traditional food stores (Kaufman et al, 2000).

2.2. Fresh Produce Supply Chain

The traditional market relationship among producers, consumers, and supply chain intermediaries (wholesalers, distributors and retailers) of fresh produce has changed significantly over the past 15 years. These changes come as a result of retail consolidation, advancement in production and marketing technology, and the changing

nature of consumer demand (Dimitri et al., 2003). During 1987-1997, the share of produce moving through merchant wholesalers (including wholesale produce markets) declined while the share of shipments to large self-distributing grocery retailers increased. The merchant wholesalers have survived by becoming larger, performing more functions and consumer services, and handling a larger array of specialty produce items (Kaufman et al., 2000). Other prior research also shows that the role of the wholesalers in the produce industry has become less important now than before. Dimitri et al. (2003) reported that the share of the volume of fresh produce sold directly through grower-shippers and big grocery retail channels has increased considerably. The role of the wholesalers is getting less important while importance of the food service sector has increased (Dimitri et al., 2003).

According to Perosio et al. (2001), large firms have a tendency to prefer direct buying to spot market buying. As a result, they are increasing the use of contracts and are trying to concentrate most of their business with top 10 preferred suppliers. The criteria of choosing the supplier now does not rely on price as heavily as it did before. Other criteria such as quality, variety, safety, taste and reliability matter more each day.

Perosio et al. (2001) also report the increasing trend of directly shipping produce from the production areas to supermarket distribution centers (74.9% in 2001 up from 61% in 1999). This trend has changed at a rate faster than expected by produce executives. However, for smaller groceries, the wholesalers shipped 43.1% of total

produce, and the executives of these firms expected to increase their share of direct shipping from 24.7 % in 1996 to 41.3% by 2006.

According to Perosio et al. (2001), the trend and number of suppliers used by the supermarkets varies with size. The large firms (sales of more than \$1.5 billion in total in 2001) are decreasing the number of suppliers (from 424 in 1996 to 367 in 2001) and expect this trend to continue. On the other hand the smaller firms, who depend on wholesalers heavily, had on average 68 suppliers in 1996 which increased to 76 suppliers in 2001 and they expect to use more suppliers in the future. Use of telephone dominates as the means for communication between the buyers and the sellers even in this era of the internet. However, the use of other technologies such as Electronic Data Interchange (EDI), internet and email, case coding, and B2B e-commerce is increasing but not at a pace expected by produce department managers of broad-line grocers. Similarly, returnable containers, pallet bar coding, vendor managed inventory (VMI), and automated purchase orders are also increasing though not at an expected rate. The size of the stores (large or small) does not show significant differences in the lead time (5 days for each) to request everyday items in the produce department of the stores in 2001 (Perosio et al., 2001).

In the past, many shippers sold to many buyers a typical type of produce. This situation represents the classic case of a perfectly competitive market where the nature of the transaction was spot market with observable price. Today, a large share of fresh produce is sold directly by shippers to retailers, bypassing intermediaries and terminal

wholesale markets (Calvin, L. et al, 2001). The wave of mergers in the food retailing sector has increased the power of retailers. Grocery retailers today are able to exercise oligopsony power in procuring iceberg lettuce shipped from California and Arizona and vine ripe tomatoes shipped from Californian and Florida and lettuce based fresh salads (Sexton et al, 2003).

There are not as many research works done in the food service sector as there are in the grocery retail sector. This is likely due to the fragmented nature of the full service restaurant sector. Work of Friddle, Mangaraj, and Kinsey (2001) as cited in Martinez, S.W.(2002), classified the food service companies that supply to the restaurants into three groups, namely broadliners (e.g. Sysco and U.S. Foodservice), specialty distributors (e.g. Costco, McLane, Smart & Final) and system distributors (e.g. AmeriServe/ McLane and Martin Brower). According to Kinsey broadliners account for half of the US food distribution sales and serve the diverse needs of broad categories of customers whereas specialty distributors which account for one third of food service sales focus on specific items such as dairy and meat or focus on special customers such as airlines and convenience store. System distributors account for 17% of the food service distribution sales and serve customers with large chains at low-cost with reliable delivery services.

Sysco Corporation is the largest broad-line distributor which accounted for 13% of the total food service sales. The company is currently more vertically integrated and expanding its service to specialty products such as meat processing than before. Food service distributors are consolidating and this is expected to continue. In 2001, according

to Friddle, Mangaraj, and Kinsey (2001) as cited in Martinez, S.W.(2002), the top four distributors accounted for 27% of the total sales up from 15% in 1994 .

2.3. Asian Ethnic foods and Asian ethnic fresh produce

The review of literature in the prior section indicates that researchers have been closely following the development of grocery retailers, the changing demand for varieties of fresh produce by consumers, and the consumer's desire for convenience shopping, lower price and safe food products in the retail outlets. The major thrust of research in the area of fresh produce has been centered on mainstream grocers that sell general produce with some limited specialty produce including Asian. For the general-line grocers that carry specialty ethnic produce, there were three objectives for carrying the tropical and specialty produce including targeting ethnic customers, differentiating from competitors, and increasing profit (Cuellar, S.R. 2002).

There are very limited studies that have focused on the US ethnic food marketing in general and Asian foods in particular. Of the limited work done in the US ethnic Asian foods, the major emphasis has been in the non-perishable processed foods and again the major emphasis has been on Chinese foods which are the most dominant Asian ethnic food in the US. Mintel Group has conducted a series of studies on US specialty and ethnic foods. The Mintel Group (2002) categorizes Chinese, Mexican and Italian as the major ethnic foods, and most of the other Asian foods such as Thai, Korean, Japanese, Indian, and Vietnamese as emerging ethnic foods.

Chinese restaurants made up more than 10% of all U.S. restaurants in 1997, and it is common to have Chinese food in other restaurants that do not advertise themselves as Chinese (Mintel, 2002). According to Mintel Group, Chinese food is the major Asian food item in the market (in terms of sales). According to this report, three main players in six market segments based on the sauces and marinades, chow mein noodles, water chestnuts/bamboo shoots, oriental cooking oils, won ton and eggroll wrappers and other Chinese foods. ConAgra's La Choy and Chung King sold the most at an overall level while Kikkoman was the leader in the soy sauce category. Mintel Group also reports that supermarkets emphasize the sauces and marinade products even though all six categories of Chinese foods are sold. The Asian food stores are the most important rivals for the supermarkets. Chinese processed foods are both manufactured in the US and imported. Soy sauce, bamboo shoots and water chestnuts are food items with net imports to the US.

According to Mintel (2005) the sales of specialty foods is rising and has reached \$ 22.9 billion in 2003, higher by 12% compared to 2002. Specialty foods are available at a variety of retail outlets, but supermarkets dominate with about 67% share of the sales followed by specialty food stores with 23% of sales and the natural food stores have a share of 10%. Research groups, such as Mintel and Nielsen Marketing Research, have conducted a series of studies on the ethnic foods including Asian foods both in the US and Europe. However, studies on fresh Asian produce such as fruits and vegetables are very scarce.

There are however a series of studies conducted in Australia on Asian vegetables by Rural Industries Research and Development Corporation (RIRDC). According to RIRDC (2003) the production of Asian vegetables in Australia is both for domestic consumption and for export (16%) mainly to neighboring Singapore where it faces tough competition with China as other important competitors. A total of 80 Asian vegetable varieties are seen in the Australian domestic market. There are two types of producers of these specialty vegetables, master gardeners ($\frac{1}{4}$ to 5 ha) and scale producers (5 to 50 ha). The report says the former occupy a limited niche while the second group serves the supermarkets and has to meet the stringent requirements of the supermarkets. The report says that sporadically new mainstream products emerge from the niche products of small producers/stores and enter the produce department of supermarkets as the demand for a particular vegetable is attractive enough to the supermarkets.

Wong and Denq (2002) conducted a study to get a profile of demand for Asian and Hispanic foods in metro Atlanta and to identify the opportunities for Canadian food exporters. They found more than 18 varieties of Asian vegetables and 10 varieties of fruits to be in Asian stores in addition to some vegetables and fruits found at the mainstream stores. They found that some mainstream stores in Metro Atlanta carry selected ethnic varieties of produce including some oriental vegetables such as bok choy, yu choy and some tropical fruits. They also reported that the tendency of restaurants in the city was to purchase from distributors or brokers rather than to buy at retail stores.

Wong and Denq (2002) report some of the ethnic vegetables including some Asian were also found at different Farmers Markets in the Metro Atlanta area. These farmers markets were found to be getting Asian produce and groceries from California and New York. Some growers are also found involved in distribution business. Sanwa Growers in California not only grow specialty vegetables including Asian vegetables but also do wholesaling and have distribution centers in Atlanta, Florida and an office in Canada. Sanwa Growers ship some Sanwa-grown commodities including Asian produce and specialty herbs; however, the bulk comes from states like New Jersey, California, Wisconsin and Michigan (Harvester Online, 2003).

Fintrac (2000) conducted a survey US market for six selected Asian vegetables: bitter melon, Asian okra, long squash, fuzzy squash, Asian eggplant, and Chinese flowering chives. Markets in New York, Miami, and Las Angeles were surveyed and information on each of the products was obtained from major producers, major importers and the report was supplemented with other secondary information. The major international suppliers of these vegetables were Mexico followed by Honduras both in terms of quality and quantity.

Fintrac (2000) reports that domestic production during the summer is sizable which makes the price lower during these months and international supplies are likely to earn higher prices in the domestic counter-season which is October through May. Domestic production in California followed by Florida and then New Jersey are the major producers of these vegetables in the summer months. Produce from New Jersey

was primarily targeted for the New York market. The imports from Mexico primarily enter from California while most of the imports from other Central American countries enter through Florida.

Fintrac (2000) concludes that the market for Asian vegetables is very limited and is targeted for the area with high ethnic population. The report also says that a smaller scale production of high quality products would be more appropriate than larger scale production of lower quality product.

Fintrac (2000) tried to study the US market at the macro level for six vegetables that are imported from Honduras and tried to explore the quantity exported by Honduras, the exporters and the distributors/importers in US and tried to document their perceptions. However, it did not indicate anything about the supply chain after the produce is grown or imported from international markets to the US.

2.4. Production of Asian vegetables in the US and Michigan

Specialty vegetables are characterized as difficult to grow, grown out of season, foreign to where they are grown, command a higher price than their ordinary counterparts, and in sufficient demand to have them in wholesale, retail, and direct sales (Bachmann, 2002). Ethnic vegetables including Asian vegetables are one of the specialty vegetables in the US and are also known as oriental crops.

The majority of the US Asian crop production acreage is located in California for which some production, post harvest handling, and marketing information is available

(Ohio Vegetable Guide, 2003). However, there is evidence which shows that many other states in US are also growing or researching the possibility of growing Asian crops. The literature shows that states such as Florida and New Jersey also produce and market Asian vegetables though not as much as California. Other states such as Virginia, Kentucky and Ohio conducted research on the possibility of growing Asian vegetables in these states (Welbaum, 1995 and Jia et al., 1996).

Welbaum (1995) reported that some Asian warm season Cucurbits performed well at the research stations in Virginia. According to Welbaum, the current market supply of Asian vegetables in many stores in Virginia comes from New York or New Jersey, and that this indicates an opportunity for local vegetable growers to grow Asian vegetables for local market. About thirteen vegetables were found to perform well in research trails in Ohio.³ Similarly, several Chinese vegetables and herbs were found to perform well in Kentucky. Experiment on growing and marketing of several Chinese vegetables and herbs in Kentucky for five years (1990-1995) showed some vegetables to give good returns to the growers (Jia, et al., 1996).

2.5. Conclusion

The review of the prior work done in the produce industry indicate that a lot has been done in the area of the mainstream grocery retailers, and this work is updated at regular intervals in the US. However, there is very limited information available about the marketing and supply chain of Asian vegetables and Asian vegetable retailers in the US in general and in Michigan specifically. Similarly, information on the supply chains for full service restaurants both, mainstream and ethnic is scanty. The review of literature

indicates a clear research gap in the area of Asian vegetables and Asian retailers in the US, including Michigan.

CHAPTER THREE

RESULTS AND DISCUSSION

3.1. Introduction

The results and discussions presented in this chapter are based on the survey work done during the field phase of the research (May, June and July, 2005). The survey results are based on 11 Asian groceries (5 Indian and 6 Oriental) and 11 restaurants (5 Indian and 6 Oriental).

Table 3.1 presents the total number of possible respondents and the number of Asian groceries and restaurants actually surveyed by city. An additional eleven supply chain participants or key informants were interviewed to complete the analysis of the supply chain.

Table 3.1: Asian vegetable retailers in surveyed cities*

| City | Indian groceries | | Oriental groceries | | Indian restaurant | | Oriental restaurant | |
|---|------------------|---------------|--------------------|---------------|-------------------|---------------|---------------------|---------------|
| | Estimated number | Sample number | Estimated number | Sample Number | Estimated number | Sample number | Estimated number | Sample number |
| Ann Arbor | 4 | 2 | 4 | 2 | 7 | 1 | 55 | 1 |
| Lansing | 2 | 2 | 5 | 3 | 4 | 2 | 30 | 3 |
| Grand Rapids | 1 | 1# | 5 | 1 | 4 | 2 | 43 | 2 |
| Total | 7 | 5 | 14 | 6 | 15 | 5 | 128 | 6 |
| <p><i>* The numbers are based on an extensive search of internet, yellow pages and some key informant; however, the list of groceries thus obtained may not be exhaustive. The table only includes stores that gave personal interviews.</i></p> <p><i># No longer selling vegetable.</i></p> | | | | | | | | |

This Chapter is organized into eight major sections. Following this introduction, the second and third sections give the general description, suppliers, and vegetable procurement

practice of Indian and oriental grocery stores respectively. The fourth section presents the general characteristics of Asian restaurants, their vegetable suppliers and procurement system. The fifth section lays out the three distinctive supply chains of Asian vegetable retailers. The sixth section is about the potential of growing Asian vegetables in Michigan. The seventh section presents the difference in the supply chain of Asian vegetable retailers versus broad-line vegetable retailers. Finally, the eighth section concludes the chapter.

3.2. Indian Grocery Stores

3.2.1. General description

Based on the close similarity found among the five respondents, Indian grocery stores in Michigan appear to be small businesses with limited transactions as indicated by one or more of the study variables, such as, number of cash registers, number of workers in the store, floor space, and weekly store sales. All the surveyed Indian grocery stores had one cash register. Total floor space ranged from 1000 – 2000 sq. ft. of which 7%-10% was allocated to produce, mainly vegetables. The approximate sales of these stores from vegetables ranged from \$150-\$1000 per week which translates into 10%-15% of total store sales. These groceries had a maximum of two people working in the store at one time, and these personnel were mostly the owners themselves.

Indian stores that were surveyed were either owned by Indians or people of similar cultural background such as Bangladeshis. The store customers are 95% from south-east Asia (primarily Indian) with people from the Middle East and other occasional Asian and non-Asian customers making the other 5%. Use of ethnic languages in these groceries is very important for their business as understood from the ethnicity of the

grocery owners and their customers. The principal language used in these stores is Hindi, but other specific Indian ethnic dialects are also used. Surveyed Indian groceries were in this business for 3 to 10 years. The ones which have been in business for more than 10 years have a tendency to start a similar business in other cities in Michigan. These extension stores were managed by other family members.

Items in these groceries can be categorized into food and snacks, music and movies, Indian spices, vegetables and fruits, consumer products such as soap, tooth paste and beverages of popular brands in India and some specialty kitchenware. Of the various items sold in these stores two items, vegetables and movie rental are key for attracting customers. The owners indicated that many of the customers will not visit their store to buy other items if they do not carry vegetables and movie rentals. These items are critical because they are not readily available at other general grocery outlets; however, other store items or very close substitutes for them are available at other stores. Store sales cycle across a week. The sales of Indian stores are high when they have vegetables (Mondays to Wednesdays) and during the weekend when the demand for movies is high.

Indian grocery stores keep 20-30 varieties of vegetables. Most varieties were Asian varieties while a limited number of more generally available varieties were also part of the sales mix. Most of the varieties kept in these stores were tropical semi-perishable varieties that are non-leafy and are available in the stores throughout the year. More than 95% of vegetable sales came from the sale of typical Indian vegetables. These

stores do carry some preserved vegetable pickles and frozen vegetables, but their sales are limited.

Some of the important vegetables that are available at these stores are presented in Table 3.2.

Table 3.2: Vegetables available at the Indian grocery stores in Michigan:

| Name of the vegetable | |
|-----------------------|------------------|
| Okra | Garlic |
| Indian Bitter Melon | Ridge Gourd |
| Opo | Curry leaves |
| Indian egg plant | Tindora |
| Hot chilies | Taro |
| Snake Gourd | Yam |
| Sponge gourd | Fenugreek leaves |
| Pointed Gourd | Chayot |
| Cilantro | Tomato |
| Ginger | Radish |
| Onion | Amaranth |

3.2.2. Suppliers, procurement process and business relationship

3.2.2.1. Suppliers

All Indian grocery stores surveyed were found predominantly using a single common supplier, a wholesaler in Eastern Market, Detroit, for their vegetable supplies. Of the five stores surveyed only one store used two other sources but only occasionally. These occasional sources were either (1) a smaller wholesaler in Canton Michigan or (2) an Indian distributor in Florida that sold direct.

3.2.2.2. Procurement, transportation and value addition

None of Indian grocery stores and their suppliers had any kind of business contract between them. Everything worked on a spot market relationship.² Most of the Indian groceries were dependent on a single supplier for a long time and their business relationship had been very good even without any contracts. The parties reported having no major problem since they started business with each other.

The wholesalers and distributors do not deliver vegetables to these stores. Therefore, the stores must manage or arrange for transport or pick up from these sources. The collection days for Indian grocers at the Detroit wholesaler were every Monday and Thursday. However, the wholesaler receives most of the produce delivery on Mondays, and, most of the stores reach the wholesaler early Monday mornings. The difficulty of getting the produce from the wholesaler is the need to drive to Detroit or otherwise arrange to pick up vegetables from the wholesaler. Because, the trading hours begin early in the morning, the grocers have to get prepared to drive early in the morning and reach the market as early as 5 am. Early arrival at the wholesaler ensures availability of quantity and variety of vegetables for the grocery owners. The grocers come to the wholesalers in small vans or cars, and they load what they want for a week's sales.

The wholesaler supplies just the vegetables and some seasonal fruits to these Indian grocers. The other grocery items sold in these stores come from different

² Spot market relationships are characterized by a focus on specific buy/sell transactions between economic actors that are done at arms length without implying any continuing commitment to transact.

sources. The grocers have some idea where the wholesaler sources. They indicate Florida to be major source. However, all grocers do not know which countries those vegetables are imported from even though they assume some of the vegetables are produced in Florida and other southern states.

Indian grocery stores in Michigan were found selling the vegetables without any repackaging, cleaning or any other form of value addition. They pick up cartons of vegetables from the wholesaler and simply open the cartons for retail sale. They put these vegetables in coolers selectively, depending upon the perishable nature of the vegetables. Apart from keeping some vegetables in coolers, the value addition is by simply changing the place (place utility) by transporting from wholesaler to store.

3.2.2.3. Business relationship with suppliers

Most Indian grocers are very satisfied with their suppliers, especially the Detroit wholesaler. They are satisfied with the price, available varieties, and quality and most important of all the business dealing of the wholesaler with these grocery owners. The indication of their satisfaction with the wholesaler is also reflected by the fact that many of the groceries have adopted the same wholesaler as their only source of vegetables since they started their grocery business and they have never bothered to find any other alternative. Positive points about this supplier are (1) fixed days for the availability of produce, (2) a chance to inspect the produce before the store owners make the purchase, and (3) effective dealing with them by the wholesaler.

The store that gets produce delivered directly from Florida, however, has the disadvantage of having bad quality produce at times. The arrangement of the shipment with transporters and the lead time of 48-72 hours to receive the produce after shipment from Florida were other difficulties of ordering directly from Florida. However, when good quality produce is delivered from Florida, the grocery owner does not have to make the inconvenient drive to Detroit.

3.3. Oriental grocery stores

3.3.1. General description

Although some close similarity was found among the six oriental store respondents, they varied more by basic characteristics than the Indian groceries. Most of the oriental grocery stores in Michigan appear to be small businesses with some stores being big but not as big as the grocery departments of Meijers and Krogers. There is considerable variability in the indicators of store size, number of cash registers, and number of people working in these stores at a time, store floor space and weekly sales. Oriental grocery stores that were surveyed had one to three cash registers and the approximate sale from vegetables in these stores ranged from \$400-\$12,000 per week which makes up 10%-25% of total store sales. The total floor space of these stores varied from 2,000 – 10,000 sq. ft. of which 5%-15% was allocated to fresh produce, primarily vegetables. The smaller oriental groceries were found to be managed by the owners themselves while the larger ones have hired workers.

All surveyed oriental stores were owned by people of Asian origin mostly from countries such as China, Korea, Vietnam and the Philippines. The smaller ones which can

be identified as Chinese or Korean stores had most of their customers from their respective countries/origins while the bigger stores attracted customers from many ethnic groups including Indians. In general, 95% of customers in smaller oriental stores were Asians while in larger stores 80% of customers are Asian.

Use of ethnic languages was very important for their businesses especially for smaller oriental stores. The ethnic language was not very important for bigger stores as customers of broad ethnicity visited such stores and English is more commonly used. Some bigger oriental stores offer discounts on grocery items during the Indian festival season and also during the Chinese festival season which indicates that they tailor value to each category of customers.

The surveyed oriental groceries were from 4-21 years old. Some of these businesses have been transferred to a second generation. Items in these groceries can be grouped into categories such as food and snacks, music and movies, spices, vegetables and fruits, and beverages. Some oriental stores especially bigger ones carried seafood and meat, specialty kitchenware and gift items as well. All surveyed oriental groceries indicated vegetables as very important items in attracting customers. In contrast to the Indian groceries, movie rental was not common to all the oriental stores, especially for bigger ones.

Oriental stores keep 30-50 varieties of vegetables including some general vegetables that are available in the produce department of broad-line supermarkets. Many

varieties are leafy vegetables. More than 95 % of total vegetable sales come from the sale of Asian specialty vegetables. These stores do carry some preserved vegetable pickles and frozen vegetables but their sales are limited. Some of the important vegetables that are available at these stores are presented in Table 3.3.

Table 3.3: Vegetables available at the Asian grocery stores in Michigan

| Name of the vegetable | |
|--|---------------------|
| <i>Okra</i> | Lettuce A Choy |
| <i>Bitter Melon</i> | Yu Choy |
| <i>Opo</i> | Baby Bok choy |
| <i>Indian egg plant</i> | Chinese egg plant |
| Bell peppers | Gai Choy |
| Lemon grass | Napa |
| <i>Chinese Okra</i> | Mustard green |
| Banana Inflorescence | Vietnamese Spinach |
| <i>Cilantro</i> | Calla Loo |
| <i>Ginger</i> | Bacha |
| <i>Onion</i> | French sea weed |
| <i>Garlic</i> | Water spinach |
| Spinach | Chinese celery |
| Choy Sum Long | Snow pea tip |
| Fuzzy squash | Long bean |
| <i>Taro</i> | Winter Melon |
| <i>Yam</i> | Gobo root |
| Cabbage | Banana Blossom |
| <i>Chayot</i> | Lotus root |
| Cucumber | Taiwan Okra |
| <i>Tomato</i> | Turnip |
| Pumpkin shoots (tendrils) | Oriental squash |
| Zucchini | Green garlic leaves |
| <i>Radish</i> | Bean sprouts |
| Green Papaya | Red Cabbage |
| <i>The ones in italics are also available at Indian grocery stores</i> | |

3.3.2. Suppliers, procurement process and business relationships

3.3.2.1. Suppliers

Oriental stores have multiple sources of supply for vegetables ranging from 2 to more than ten including some direct sourcing with three local producers in Lansing for one surveyed store. Suppliers of these stores are located in three cities in the US and one city in Canada. The US cities that supply to these oriental stores are Detroit, Chicago and New York and the city in Canada is Windsor. The wholesaler in Detroit which supplies to Indian stores also supplies to many Oriental stores in Michigan. The major share of supply in bigger Oriental stores comes from Chicago where there are number of suppliers. All of the surveyed oriental stores reported that they use one or another of the suppliers in Chicago at least once in a while.

From the list of names furnished by the oriental stores about their suppliers, it was clear that almost all of their suppliers had some Asian ethnic connection as evident from names of owners/founders or CEOs of these companies or the names of the companies themselves. Some of the major suppliers in Chicago supplying to oriental grocery stores are (1) Trung Enterprises, (2) Korean Farms, (3) Five Continents, and (4) Long Bean Farm. Items sold at oriental stores vary with the type of store such as Chinese, Korean or a more general oriental store. It is reasonable to assume that due to some specific needs of their customers, different oriental stores are more attached to certain specific suppliers while the bigger ones which target broad customers use more suppliers. All the oriental stores were found to keep at least two to ten or more suppliers.

The suppliers of vegetables to these grocery stores in most of the cases only provide fresh produce such as vegetables and fruits. Other grocery items for most stores are obtained from sources other than where they get vegetables.

3.3.2.2. Procurement Process, transportation and value addition

No oriental grocery stores and their suppliers had any kind of business contract between them and everything worked on a spot market relationship. Quantity of vegetables and variety that these stores purchase from each of their suppliers is not fixed but is decided each week depending on store need and price comparison among their suppliers. Oriental stores, especially bigger ones, have to have multiple suppliers as none of their suppliers will carry all produce of interest to these stores.

None of the oriental stores received deliveries from their suppliers. Most of them liked to pick up at the suppliers place because (1) it would be less costly than receiving deliveries, and (2) it gives them a chance to inspect produce before making the purchase. Oriental stores that get produce from Detroit and Windsor travel to these cities to collect the produce on some specific days of the week. Monday and Saturday are preferred days for collecting produce from Detroit and Windsor respectively. Stores that have sourced their vegetable supplies from some of the Chicago suppliers receive their supplies mostly on Thursdays.

Vegetables are mostly purchased in bulk, in cartoons, wooden boxes or plastic bags depending on variety of vegetable. Smaller oriental stores did not do much except

put the produce in a cooler in the form collected from their suppliers. They mostly did not do repacking or cleaning or any other value addition except adding place utility.

However, for bigger oriental stores repackaging, labeling, cutting and bagging were common activities for value addition to their produce. Displaying and labeling with name and variety of vegetable was also very organized in big oriental stores. Cleanliness of bigger stores and other facilities such as shopping carts, restrooms and diversity of items also contributed to value addition.

3.3.2.3. Business relationship with the suppliers

Oriental grocery stores in general are satisfied with their suppliers. Most surveyed oriental stores had some favorite suppliers. Oriental grocers had continued business with one or more suppliers for more than 10 years, and they are satisfied with these long term suppliers.

3.4. Asian Restaurants

3.4.1. General description

The number of Asian restaurants in Michigan is far greater than Asian groceries (see Table 3.1). Asian restaurants have good diversity in the size and specialty of the foods they serve. Asian restaurants that are most common are Chinese, Japanese, Korean, Thai and Indian. Asian restaurants were all exclusively serving Asian cuisines.

3.4.1.1. Indian Restaurants

The owners of the five surveyed Indian restaurants were all of Indian origin, however; according to some key informants there are some Indian restaurants that are owned by other Asians such as Bangladeshis and Pakistanis in Michigan. All surveyed

Indian restaurants regard vegetables as very essential to their business. About 60%–75% of menu items in Indian restaurants require vegetables. Indian restaurants use up to 20-30 varieties of vegetables with some common general vegetables. Apart from some general varieties of vegetables that are available at the produce departments of supermarkets, Indian restaurants need specific Indian vegetables (such as okra, egg plant, pointed gourd, onion, garlic and curry leaves) for about 20%-30% of their menu items. The share of vegetable cost to the total material cost of the Indian restaurants is about 20%-25% and meat and seafood contributed the most to the material cost for these restaurants.

3.4.1.2. Oriental Restaurants

The six oriental restaurants interviewed were all owned by people of Asian origin. Ethnicity of owners differed based on type of restaurant. However, some Koreans were found operating Japanese restaurants. All oriental restaurants consider vegetables to be critical to their business. As much as 85%-90% of menu items in oriental restaurants (including avocado in Japanese restaurants) require vegetables, and they use as much as 30-40 varieties of vegetables in their kitchens. In addition to some varieties of general vegetables, oriental restaurants need some specific oriental vegetables (such as bok choy, bean sprouts, bamboo shoots and Napa) for about 40%-50% of their menu items. The share of vegetable cost to total material cost of the restaurants was about 25%-35%. Like Indian restaurants, meat and seafood shared the highest cost in total.

3.4.2. Suppliers, procurement and business relationship of Asian restaurants

Indian and Oriental restaurants do not differ much with respect to the suppliers, procurement process, value addition and the business relationship with suppliers. As a result, discussion of these issues for these two restaurant types is made under a single heading.

3.4.2.1. Suppliers

Asian restaurants use multiple sources for their vegetable supplies including occasional purchases at local grocery stores. Some restaurants in the Detroit area purchased vegetables from wholesalers to supplement deliveries they received from other suppliers. All surveyed restaurants had at least one and as many as five food service companies supplying vegetables. Most restaurants kept multiple options for vegetables and other supplies as that allowed them some price comparison, assured timely delivery, and maintained access to the quantity and varieties of vegetables required by customer demand.

Purchase of vegetables at local grocery stores was minimal and not common to all surveyed restaurants. The preferred store for local purchases was Sam's Club followed by other general grocers such as Meijers and Krogers. These restaurants rarely visited the Oriental and Indian grocery stores for the supplies they needed. No restaurant depends on local grocery purchases alone. Some small restaurants which receive one delivery a week were mostly the ones that purchased at local stores to meet their needs for vegetables till they could get a next delivery made.

Food service companies used by these restaurants are local (only operating in Michigan or certain cities only), national and international suppliers. All food service companies supplying to Asian restaurants in surveyed cities were operating from areas such as Detroit, Grand Rapids, Lansing and Chicago. Chicago based suppliers were not as common as the others. There were some big suppliers that were common to the surveyed restaurants such as Gordon Foods, Sysco and US Food Service. Out of eleven surveyed restaurants there were four companies supplying vegetables to Indian restaurants and five companies supplying vegetables to Oriental restaurants. The survey identified a total of eight food service companies out of which two only supplied to Indian restaurant, three only supplied to Oriental restaurant, and three supplied to both types of restaurants.

Big suppliers such as Sysco, US Food Services and Gordon Foods which are operating nationally are providing supplies that meet most of the food and non-food needs of these restaurants including vegetables. However, local suppliers were supplying only food items including vegetables, fruits, meat and milk.

Most restaurants had used a new supplier in the past 2-6 months, but placed orders cautiously and kept orders minimal while depending more on long-term suppliers. Restaurants are constantly checking prices and services offered by different suppliers and adding new ones occasionally. Most restaurant owners/managers have no idea where their suppliers get vegetables that they supply. Quality, variety, timely delivery and price are the key variables for judging the suppliers by restaurants.

3.4.2.2. Procurement Process

None of the restaurants and their suppliers had any kind of contract between them about supply of vegetables or any other supplies. Everything worked on a day-to-day basis. This spot market relationship gave flexibility to constantly find and try new suppliers. However, long term satisfactory business relationships among parties and knowing each other have been major factors for continuing with the same suppliers as long as 10 years or more for most restaurants. All restaurants have one or two favorite suppliers and mostly have other suppliers to access when needed.

All surveyed restaurants get at least one delivery a week. The number of deliveries for some restaurants was found to be as many as four in a week depending upon size and business of the restaurant. However, with each delivery they receive other restaurant supplies along with vegetables. All restaurants received supplies other than vegetables from their suppliers. The decision to choose a supplier for vegetables does not only depend than on prices of vegetables but also on the prices for other supplies the restaurants need to order on a certain day or for a certain week. Most vegetables required are obtained in fresh form with very limited in canned or pickled form.

The larger non-local suppliers also have a delivery schedule for each city and the number of deliveries to each city is dependent on the number of restaurants to be served and their demand for produce. Two local suppliers that were interviewed had multiple deliveries in a week to cities such as Kalamazoo, Grand Rapids and Lansing, with fewer deliveries to other smaller towns. Smaller local suppliers focus mainly on fruits,

vegetables, and meat. They supply more than 50 varieties of vegetables and do not supply non-food supplies to restaurants.

3.4.2.3. Business relationships with suppliers

All restaurant owners/managers were either satisfied or very satisfied with their current suppliers which are indicated by the fact that the same suppliers are kept for as long as 10 years or even more. Due to the nature of the restaurant business, they need a short lead period to receive the ordered vegetables. This requirement, however, leads bigger restaurants to keep several supplier options. Suppliers also follow some delivery schedule to different cities to match the demand of restaurants.

3.5. Comparison between Indian and oriental grocery stores:

The variables listed in Table 3.4 show that oriental and Indian grocery stores in Michigan have some characteristics that are distinct. These differences lead to two different supply chains as described in the next section. The variability among the oriental stores was found to be more than that among the Indian stores. The oriental stores are in general bigger, carry more varieties of vegetables and have higher sales than that of Indian grocery stores. Oriental stores have a more developed supply chain for their vegetables with multiple suppliers and stronger ethnic ties than the Indian grocery stores. In particular, it can be said with greater confidence that this research has traced out the supply chain of the Indian grocery stores which is relatively less complicated than the oriental grocery stores in Michigan. Similar set of differing characteristics was not found to hold for the two types of Asian restaurants.

Table 3.4: Comparison of Indian and oriental grocery stores in Michigan

| Variables | Indian stores | Oriental stores |
|-------------------------------|---|---|
| Categories of items | Food & snacks/ vegetables and fruits/ music/ Movies | Food & snacks/ vegetables and fruits/ music/ movies, meat and sea food |
| No. of people | 1-2 | Small stores: 1-2 small, big stores: hired workers |
| Cash registers | 1 cash register | 1-3 cash registers |
| Floor Space | 1000 to 2000 sq. feet. | 2000 – 10,000 sq feet |
| Floor Space for vegetables | 7 % - 10% of floor space | 5 % -15 % of total floor space |
| Vegetable sale/week | \$150-\$1000 | \$400-\$12,000 |
| Vegetable sales | 10 % - 15% of total store sale | 10 % - 25 % of total store sale |
| Vegetables | Mostly non leafy, 95% of vegetable sale from Asian varieties | Mostly leafy, 95% of vegetables sale from Asian varieties |
| Varieties | 20-30 | 30-50 |
| Customers/ Ethnic dialects | 95 % Indian or similar | Bigger store: 80 % Asian Smaller stores: 95% Asians |
| Supplier | Indian: 1-3 (Single dominant) Very satisfied Ethnic ties limited | Oriental: 2-10 Satisfied Strong ethnic ties |
| Procurement | Spot market Variety and freshness are key requirements <u>Days of procurement</u> Detroit: Mondays | Spot market Variety and freshness key requirements <u>Days of procurement</u> Detroit: Mondays Windsor: Saturdays Chicago: Thursdays |
| Transportation | Arrange own delivery or pick up, Small vans/ cars w/o coolers | Arrange own delivery or pick up (Small vans/ cars w/o coolers) |
| Value Addition | Limited value addition (primarily add place utility) | Limited in small stores Some in bigger stores |

3.6. Tracing the supply chain of Asian vegetable retailers

With the general characteristics and procurement practices of the various Asian retailers documented, the analysis can turn tracing the various supply chains. The supply chains for the two categories of Asian groceries are discussed in separate subsections while the supply chain for the two types of Asian restaurants is discussed as a single entity due to the similarity of chain for the two restaurant types. Tracing the supply chain backward from the retailers relied only on survey findings for wholesalers. Moving back from the wholesalers to distributors/importers required information from prior works to supplement the survey findings in order to fill missing links in the chain. Some links remain weakly understood due to low participation in or minimal information from surveys and lack of prior work in the area.

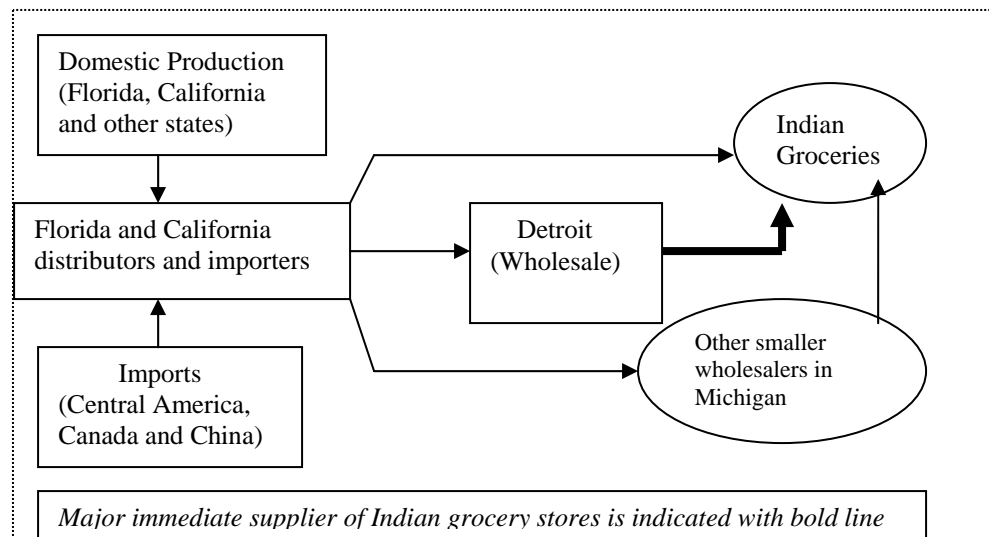
3.6.1. Indian grocery Supply Chain

The source of vegetables for Indian stores in Michigan is primarily the wholesaler in Detroit. One surveyed store was also using two other occasional sources, a smaller wholesaler in Canton, Michigan and a Florida distributor (an Indian distributor) that could be accessed directly.

The Detroit wholesaler gets produce from Florida and California distributors. The distributors in Florida and California collect the domestic production from Florida, California, New Jersey and Puerto Rico in addition to imports. As discovered during the survey major countries that export Asian vegetables to the US are the Central American countries with principal exporters being Mexico and Honduras. Other

countries such as the Dominican Republic, Guatemala and Costa Rica also export vegetables to the US. Ginger and onion bulbs were found imported from China. Canada also exported a few relevant vegetables to the US. The supply chain for Indian grocery stores in Michigan is depicted in Figure 3.1.

Figure 3.1: Vegetable marketing Channel of Indian groceries in Michigan



3.6.2. Oriental grocery supply Chain

Oriental grocery stores have multiple suppliers with the number of suppliers ranging from two to ten. Suppliers of the oriental stores are located in four cities, namely Chicago, Detroit, Windsor and New York. Many of the oriental stores also use the same wholesaler in Detroit as the Indian stores. One oriental grocery store also used the seasonal supplies from local producers during the summer; however, this source is less than 5 % of the total vegetable sales of the stores. Such local producers are limited and supply 5-6 varieties of vegetables during summer.

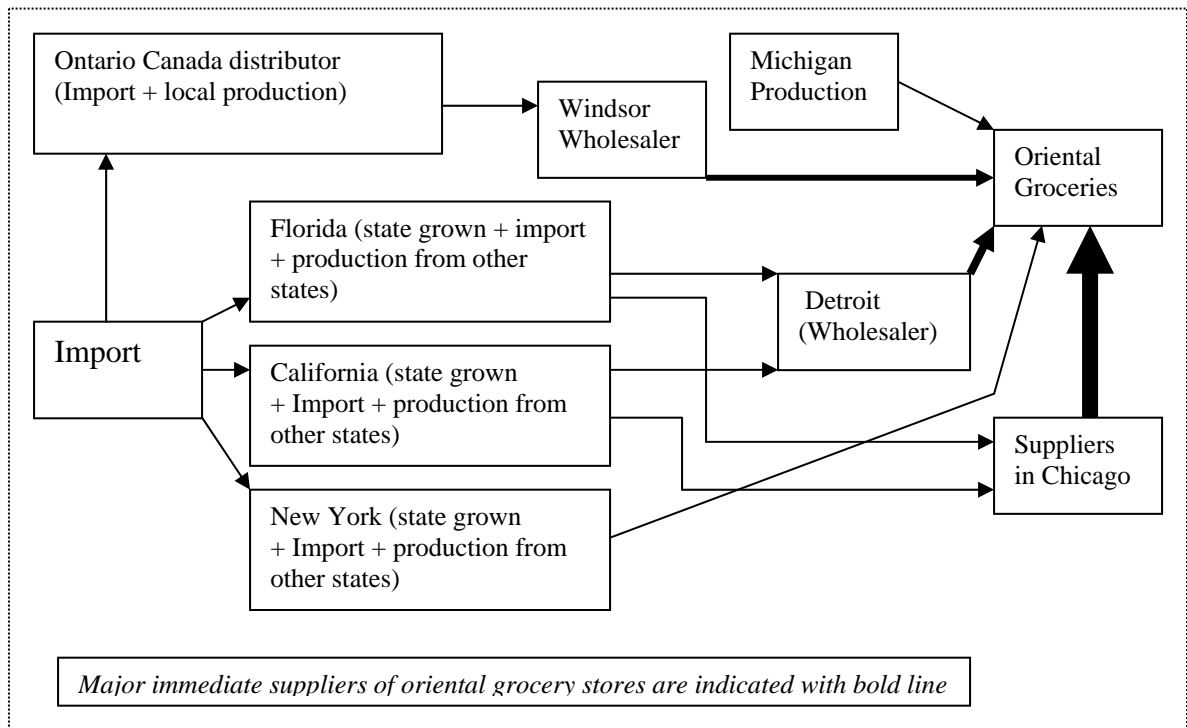
A wholesaler in Windsor reported that some oriental grocers from Michigan come to them for vegetables. This wholesaler received its supplies from a distributor in Scarborough, Ontario, Canada. The distributor in Ontario supplies to many cities in Canada, and it sources its vegetables from Mexico supplemented by limited local production in summer. The majority of the vegetables they supply are Oriental vegetables or more specifically Chinese. The wholesaler in Canada was Asian.

Oriental grocery owners/managers believe the source of their Chicago suppliers to be Florida and California. They, however, could not say which vegetables are imported and which are produced in these states and do not know the distributors and importers in these states. Suppliers in Chicago did not participate in this survey which restricted first hand information about their supplies. However, according to Fintrac (2000), the distributors of Asian vegetables are located in three states, namely, Florida, California and New York. This confirms the information obtained from surveyed Asian grocers.

Two stores reported that they order produce from New York occasionally but did not furnish the name of the supplier as such. This limited the effort to reach vegetable suppliers in New York for oriental grocery stores in Michigan. Observation of labels on vegetable cartoons also confirms information provided by grocers and Fintrac (see annex pictures also) about the location of distributors and countries of origin of many of the vegetables. The distributors/importers in Florida and California supply vegetables grown in the US as well as vegetables imported from other countries. The countries of origin of

many vegetables are presented in Table 3.5 which is discussed in a later section. The supply chain for oriental grocery stores is presented in Figure 3.2.

Figure 3.2: Vegetable Marketing channel of Oriental grocers in Michigan



3.6.3. Supply chain of Asian restaurants in Michigan

The immediate suppliers of the Asian restaurants are mainly local food service companies and bigger food service companies, and local grocery stores occasionally.

This has already been presented in earlier in this chapter in section 3.4.2. Most restaurants owners/managers have no idea where their suppliers get vegetables.

From the two local food service companies interviewed, it was found that they supply both specific Asian varieties and other common varieties of vegetables to Asian

restaurants. One company in Grand Rapids area totally depended on local distributors for all its vegetable supplies while the other one in Lansing area sourced its supplies directly from distributors/growers (four to six) in California and Florida in addition to about 10% of its supplies coming from Georgia and local growers in the summer. The local growers the company used by the company in Lansing area are from western Michigan (such as Holland and Benton Harbor). The fresh produce varieties that are bought locally are tomatoes, potatoes, onions and lettuce.

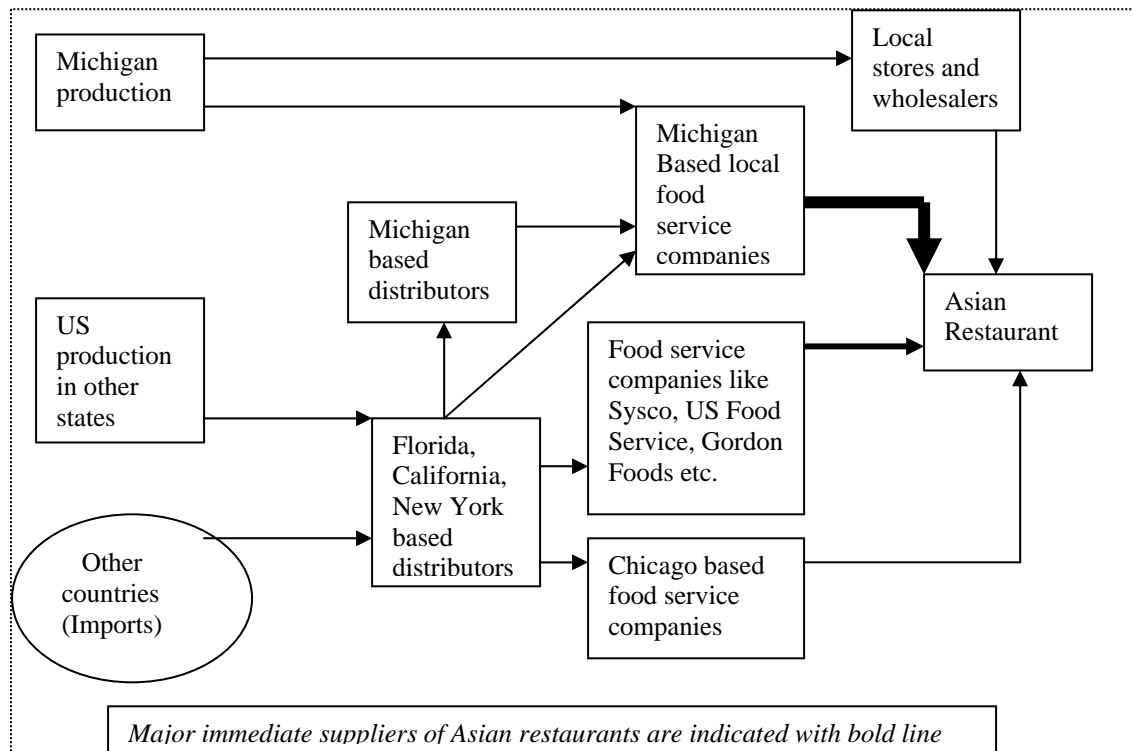
Of these two local companies, one supplied to as many as 200 Asian restaurants in Michigan (95% of total restaurants it serves) while the other one supplied produce to about 450 restaurants (8% of total restaurants it serves) were Asian. These companies supply to 16-20 towns/cities with the major cities being Kalamazoo, Lansing, Grand Rapids and Flint; however, their service concentrated more in area that are closer to the city in which they are located. These companies do not supply to Ann Arbor and Detroit because they expect more competition in these cities mainly from bigger suppliers such as Sysco, Gordon Foods and US Food Service Company and partly from a number of other local suppliers. Looking at the number of restaurants they supply to, the local companies remain the dominant suppliers for vegetables to Asian restaurants. The local food service companies have been supplying food needs to some of the Asian restaurants since the start of the restaurants as they are satisfied with their suppliers.

It was observed that local food service companies kept multiple suppliers (four to six) and some were for specific produce while others were for most of the produce they

deal with. For big companies such as Sysco, US Food Service Company, sources could not be traced out in the survey. Asian restaurants need both Asian varieties of vegetables and other common vegetables. It was not clear what vegetables these big companies supply to restaurants. If their supply also includes Asian varieties of vegetables they would require them in large quantities. Based on their dominant presence in the US and their demand for produce, it is reasonable to assume their sourcing of these vegetable varieties comes from multiple big shippers/importers/distributors. Again, big importers/distributors of Asian vegetables, according to Fintrac (2000), are located in Florida, California or New York.

The supply chain of Asian restaurants in Michigan is presented in Figure 3.3.

Figure 3.3: Vegetable Supply Chain of Asian restaurants in Michigan:



3.6.4. Countries of origin of vegetables

It is understood from this study and the literature review that major domestic production is in states such as California and Florida while major imports come from Central American countries mainly from Mexico and Honduras. There are other countries such as China and Canada that are exporting a few of the produce varieties to the US. The supply chain thus moves back to foreign countries where there are distributors/exporters collecting vegetables from growers to export to the US.

Some imported/domestically grown Asian vegetables sold or used in Michigan Asian groceries or restaurants are presented in Table 3.5. Only two varieties of semi perishable vegetables, onion bulbs and ginger roots, are imported from China. Central American countries are growing the Asian vegetables as “new crops or specialty crops including Asian vegetables.” These crops are new to these countries for two reasons: (1) they were neither grown nor consumed traditionally, and (2) these vegetables were not part of the North American diet. Based on the survey and substantiated by secondary sources of information, many varieties of Asian vegetables are grown in the US. Florida and California are the major producing states. Table 3.5 is not an exhaustive list of the vegetables that are sold in the Asian stores in Michigan but it captures the vast majority of vegetable use. There are other vegetables in Asian vegetable retailers supply chain whose country of origin could not be obtained.

Table 3.5: Countries of origin of some of the Asian vegetables in Michigan:*

| Country | Produces |
|---|---|
| Mexico | Baby Mustard Green, Baby Bok Choy Mieu, Baby Bok Choy Sum, Baby Bok Choy, Green Amaratnth, Red Amaranth, Chinese Celery, Snow Pea Tips, Spinach, Thon-o, Taiwan Bok Choy, Shanghai, Shanghai Sum, Shanghai Mieu, A-Cho, Yu-Choy, Yu- Choy Mieu, Chives, Gailan, Gailan Mieu, Bok Choy Sum, Bok Choy Mieu, Bell Shaped Pepper, leek etc. |
| Honduras | Chinese Bitter Melon, Indian Bitter Melon, Indian egg plant, snake guard, Chive flowers, Thai okra, Chinese Egg Plant, Thai egg plant, Chinese okra, Long squash, Fuzzy squash, Japanese egg plant, Long beans, different kinds of brinjal etc. |
| Peru | Asparagus |
| Dominican Rep | Tindora, Guvar Bean, Green long bean, White long bean. |
| China | Garlic bulbs and ginger |
| Canada | Cabbage, seedless cucumber |
| Costa Rica | Ginger |
| Domestic production of Asian vegetables | |
| USA | California: Baby carrot, cauliflower, celery, fresh peeled garlic, cilantro, tomato, lettuce etc. and many Asian vegetables as well). Michigan: Mushroom, spinach, lettuce, potato, onions, cucumber etc. Florida: watercress, cucumber, peppers, yellow squash, green squash, lettuce, tomato, tindora , many other cucurbits and legumes etc. and many Asian vegetables as well), tomato, lettuce etc. |
| * This table is not an exhaustive listing of the vegetables. It presents only those that were found during the survey and review of prior works. | |

3.7. Growing Potential

The analysis shifts from tracing the supply chain to gaining some insight into how Michigan vegetable producers might become participants in the chain. One critical question is whether such vegetables can be grown in Michigan.

According to Ohio State University, about 13 varieties of Asian vegetables are found to perform well in research trials in Ohio (Ohio Vegetable Guide, 2003). They are as

presented in Table 3.6 (common name of those vegetables may vary depending on the Asian language used).

Table 3.6: Vegetables that performed well in Ohio research trials

| | |
|--|-----------------|
| Thick Petiole White Chinese Leaf Cabbage | Mustard Spinach |
| Thin Petiole White Chinese Leaf Cabbage | Daikon Radish |
| Asparagus(Yard Long) Bean | Napa Cabbage |
| Red or green Mustard (Mizuna) | Bitter Melon |
| Edible Luffa Gourd | Winter Melon |
| Japanese Greens | Chinese Cabbage |
| Oriental egg plant | |

Similar research on the growing and marketing of Chinese vegetables found that some of the vegetables could be grown in Central Kentucky. With these research results on Asian vegetables in neighboring states such as Ohio and Kentucky, it can be assumed that growing some if not all of these varieties that performed well in those states could be grown successfully in Michigan as well.

During the survey three Asian immigrant families were found growing and direct marketing seven varieties of Asian vegetables in Lansing. The varieties that were grown are listed in Table 3.7. They have rented a small piece of land and grow these vegetables in summer months only. What they produce is both for their own consumption and for sale to one of the oriental stores.

Table 3.7: Asian vegetables grown by the Asian immigrant in Lansing

| |
|--------------------------------|
| Common Name |
| Bok Choy |
| Chinese Broccoli |
| Leek |
| Yu Choy |
| Cala loo |
| Mustard Green |
| Cilantro (only once in while) |

A local food service company in Lansing was found buying some vegetables such as onion, cucumber, lettuce, and potato in western Michigan. There are other crops such as onion, potato and cucumber that are not specifically Asian but produced in Michigan that could and do enter the supply chain for Asian restaurants.

Cash receipts from vegetables in Michigan were \$361,150 thousand in 2003 of which \$310,390 thousand came from fourteen vegetable crops only (NASS, 2004). Most of these fourteen vegetable crops such as carrot, cucumber, onion, peppers, potato, squash and tomato are a component of one or more menu items of Asian restaurants and some of these vegetables are also available in Asian grocery stores such as onion, tomato, peppers and squash. This indicates that there are some common vegetables that are grown in Michigan that are items used in Asian vegetable retailers. The food service companies or their Michigan based distributors were found to buy some of these common vegetables but in limited quantities. This indicates that limited common vegetables produced in Michigan already have access to the Asian vegetable retailers supply chain.

3.8. Differences in the Asian supply chain and the general supply chain

This section will show the distinction between the supply chain of Asian grocery stores and broad-line grocery stores. This understanding of the distinction will help potential producers and other participants to access the chain and will also help the existing participants to devise their business strategies. For comparing general retail chains and Asian grocers in Michigan, the information about the general grocers was adopted mainly from Perosio et al. (2001) and partly from some other related reports cited in chapter two.

3.8.1. Differences in the general characteristics

Asian grocery stores are far smaller in size than broad-line supermarkets. The average floor space of the supermarkets was 31,500 square feet in 2000 while it ranged from 1,000-2,000 square feet and from 2,000-10,000 square feet in Indian stores and Oriental stores respectively. Asian grocery stores and the supermarkets did not differ much in the percentage of area allotted to produce. Floor space for vegetables in these ethnic stores was 7%-10% in Indian stores and 5%-10% for oriental stores as compared to the about 13% in supermarkets in 2001. Similarly, produce departments in supermarkets was found to contribute 10.4% to total store sales in 2001, and this survey found the percentage of vegetable sales to total sales of Indian grocery stores to be 10%-15% and that of Oriental stores to be 10%-25%.

The average number of items in produce departments of supermarkets was 330 in 2001, while the number of such items is far lower than at these ethnic grocers. The Indian stores had 20-30 varieties of vegetables, one or two seasonal fruits and some frozen

vegetable items. Oriental stores had 30-50 varieties of vegetables and some varieties of fruits and prepared meals as well. Unlike supermarkets, the overwhelming majority of customers were Asian in the Asian stores, and ethnic roots (similar language, nationality, and religion) had an important place in the businesses.

3.8.2. Suppliers and buying process

Oriental stores in Michigan contrary to the broad-line grocery stores in the US depend primarily on wholesalers for their produce supplies. Literature reviewed for chapter two indicated that use of wholesalers for sourcing their produce needs is decreasing for retail chains. This survey found that Indian grocery stores in Michigan were dependent primarily on a single wholesaler, and the oriental stores were dependent on two to a maximum of ten wholesalers for their produce supplies. Direct shipping from the production area is the dominant channel of produce supply for retail grocery chains whereas for these ethnic stores direct shipping from production areas to Asian stores in Michigan was not reported except for three small producers in Lansing.

The numbers of suppliers for grocery retail chains are found to be far greater than the Asian grocers in Michigan. Indian stores had 1-3 suppliers and Oriental stores had 2-10 suppliers for produce. The number of suppliers of produce for supermarkets, though varied with size, was in the hundreds (367 in 2001). Use of technology in the Asian stores was found to be very basic to what is seen in the supermarkets for produce procurement through to the final sale. Though telephone is the basic means of communication for both types of the Asian stores, the use of technologies like EDI, internet and email, case coding, B2B e-commerce, returnable containers, pallet bar coding, vendor managed

inventory (VMI), and automated purchase orders are increasingly in use for the large grocers. Some Asian stores do not even have scanners.

Supermarket chains maintain cold chain from the production area through to the sale of produce while these Asian stores are mostly found not maintaining the cold chain for the produce they sell. The smaller Asian stores would rather sell at certain specific days of the week and would order or purchase just the amount that would be sold in a day or two rather than keeping them refrigerated for longer periods.

Unlike supermarkets, the Asian grocery retailers predominantly use the spot market for the purchase of produce even though they also have some preferred suppliers with a long term business as well as personal relationship. None of the Asian groceries and restaurants that were surveyed was found to have any type of contract with their suppliers. Unlike, the supermarket produce department, these Asian ethnic grocers have ethnic presence in the supply chain especially for the oriental stores.

These distinctive characteristics of Asian grocery stores indicate that the producers have easier access to this chain due to the spot market type of procurement, small quantity of demand of the retailers. The focus strategy of Asian grocery retailers that focus on small segment of the customers that use vegetable Asian varieties, however, limits the access of Michigan producers.

3.9. Conclusion

The repeated survey findings were based on the interviews conducted with Asian grocery retailers in three cities (Lansing, Grand Rapids and Ann Arbor) in addition to information obtained from suppliers/wholesalers traced back through the supply chain. Some key informants, Asian vegetable growers, and distributors were also contacted during the survey. Information from prior works in Asian vegetables supplemented missing links in the chain that were not traced by the survey alone. Some major findings are presented here.

The number of Asian restaurants is more than Asian grocery stores. Again, the number of oriental stores and oriental restaurants are more than their Indian counterparts. Oriental grocery stores varied more widely in different variables that indicate the size of business than Indian ones. Asian grocery stores and restaurants conduct their business with their suppliers on a spot market basis. Some of the Asian vegetables are currently grown in Michigan but most of the vegetables that enter the supply chain of the Asian vegetable retailers come from domestic production in states such as Florida and California as well as imports mainly from Central American countries.

Oriental stores sell greater varieties of Asian vegetables than Indian stores, and they also have more sources of supplies than Indian stores. The customers in Asian stores are predominantly Asian and for Asian restaurants non-Asian customers are predominant. Asian vegetable retailers are satisfied with their suppliers. All Asian groceries and restaurants were owned by people of Asian origin but ethnic connections in the grocery business; especially in oriental retailers were deep.

Suppliers of restaurants deliver the produce to restaurants while grocery stores have to manage the transportation of their produce on their own. The two types of Asian grocers differ in their supply chain, while the two types of Asian restaurants do not differ much in their supply chain of vegetables. The Asian grocery supply chain differed considerably with the chain of general grocery retailers. The three distinct supply chains were depicted in figures 3.1, 3.2. and 3.3.

Michigan is currently growing many common vegetables, and limited varieties of Asian vegetables. Apart from these currently grown vegetables, Michigan has the potential to grow some additional Asian vegetables.

CHAPTER FOUR

SUMMARY AND CONCLUSION

4.1. Summary

This study was conducted with the objective to identify the varieties of vegetables sold or used in Asian grocery stores in Michigan and to trace the supply chain of these vegetables in Michigan. Another objective was to make an initial analysis of the potential in Michigan for growing Asian vegetables most common to Asian groceries and restaurants. A survey of Asian grocery stores and restaurants in three selected cities was conducted and information from 11 restaurants and 11 grocery stores was collected. Three cities (Lansing, Ann Arbor and Grand Rapids) were selected based on the location and the Asian population of the city. Information from some wholesalers and suppliers, Asian vegetable growers and some key informants was also collected in addition to information from prior studies in the area of fresh produce marketing in the US.

There are approximately 30-50 vegetables sold in Oriental grocery stores and 20-30 vegetables sold in Indian grocery stores in Michigan that are predominantly Asian ethnic vegetables. All Asian grocery stores and restaurants surveyed were owned and operated by people of Asian origin. Asian grocery stores were selling to an overwhelming percentage of customers that are Asians and use of ethnic language was a common feature of these businesses. The vegetables that are sold at the oriental stores differ greatly from the varieties sold at the Indian stores. Some similar vegetables also differ in their characteristics. For example, the bitter melons at the oriental stores are longer, light green and, less bitter whereas the Indian stores carry bitter melons that are smaller, ridged

and bitterer. The varieties in Indian stores are mostly suited to tropical climate and are mostly non-leafy vegetables whereas those sold at Oriental stores are mostly leafy vegetables.

Asian restaurants as well as grocery stores consider vegetables to be critical to their business. Oriental restaurants use as many as 30-40 varieties of vegetables whereas Indian restaurants use up to 20 -30 varieties of vegetables. Some specific Asian vegetables are essential for many of their menu items in these restaurants while a number of varieties used in these restaurants are not specifically Asian.

Indian grocery stores in Michigan primarily depend on a single wholesaler for their vegetable supplies. Oriental stores in general have two to ten suppliers for their vegetables. The oriental stores in Michigan get produce supplied mainly from four cities, Detroit, Windsor-Canada, Chicago and New York. However, Chicago is the major city of supply where several vegetable suppliers for Oriental stores are located.

Asian restaurants use multiple sources for their vegetable supplies including limited and occasional local purchases. All restaurants surveyed used at least one and as many as five food service companies as suppliers. Michigan based food service companies dominate other big food service companies in terms of their supplies to Asian restaurants. Some restaurants in the Detroit area purchased vegetables from a wholesaler directly to supplement vegetable deliveries they received from other suppliers. All restaurants surveyed get at least one delivery and a maximum of four deliveries in a week

including vegetables. All restaurants received supplies other than vegetables from their vegetable suppliers.

Asian vegetables in Michigan come from domestic production in states such as California and Florida and from Central American countries. Limited vegetables are imported from China and Canada, and small Michigan producers also enter the Asian vegetable retailer's supply chain. These produce are then distributed by wholesalers and food service companies both in Michigan and Chicago to Asian grocery retailers in Michigan. Some of the vegetables sold in the oriental groceries were found currently grown in small scale in Lansing and marketed directly to an Oriental store in Lansing.

None of the Asian restaurants nor the grocery stores and their suppliers had any kind of contract between them. All the restaurant owners/managers and grocery stores were either satisfied or very satisfied with their current suppliers. However, the restaurants were always trying to find new suppliers and to compare the prices and services of different food service companies. Most restaurants and grocery stores had long term relationships with one or two of their suppliers.

4.2. Conclusions and recommendations

From the literature reviewed and the findings of this study, the following can be concluded about the supply chain of the vegetables sold at the Asian groceries and restaurants.

4.2.1. Asian vegetables in Michigan are a niche market

These Asian ethnic grocers are enjoying a niche market due to (1) the non-availability of most of the vegetables sold at Asian ethnic grocery stores in the broad-line grocery stores, (2) consumption of these vegetables by a certain small segment of the population, and (3) their exotic nature with very limited production in Michigan. However, once these ethnic varieties become popular they appear in the supermarkets as well and the Asian ethnic stores cannot enjoy the niche exclusively. For instance, Meijer in Michigan carries some of the Asian vegetables such as Bok Choy, egg plant and Okra which are the more popularly known Asian vegetables. The ethnic product mixes that are offered by the Asian groceries are not offered by the general grocers. For example the ethnic movies and music, spices and snacks that complement the sale of vegetables are not offered by the broad-line grocery stores which give these ethnic groceries a competitive advantage.

Asian grocery stores in Michigan are adopting the focus strategy of customer specialization targeting the product needs of the Asian population. Asian restaurants are using general vegetables found in the general grocery stores as well as some specific varieties of Asian vegetables for some of their menu items. The Asian restaurants are totally focusing on Asian cuisines, and the way they prepare their cuisines is also important apart from the varieties of vegetables they use. The Asian restaurants are thus adopting focus strategies where they focus on product specialization for an ethnic niche while their non-Asian partners deal with broad-line American cuisines.

The oriental and the Indian grocery stores have limited competition among themselves as the varieties of vegetables sold at these two categories of outlets target different segments of customers within the Asian population with different product mix. Some oriental stores are also specialized to meet the demand of certain ethnic groups such as Chinese or Korean, while some (especially the bigger ones) are trying to sell items that are suitable for the broader Asian customer base including oriental and Indian customers apart from some percentage of non-Asian customers. The oriental stores and the Indian grocery stores carry some vegetables of the same species but different varieties with differentiated characteristics such as size, taste, color and shape. This shows the specific preferences of oriental and Indian customers for vegetables.

The research findings support the first research proposition (see section 1.3 in chapter one) that Asian vegetable retailers cater to a niche market. However, only the Asian grocery stores were found to rely heavily on ethnic consumers while Asian restaurants were relying heavily on non-Asian customers (particularly Americans). The Asian retailers particularly the grocery stores exhibit distinctive demands for vegetables that come through their supply chains.

4.2.2. Asian supply chain is distinctive

The supply chain of the Asian groceries and restaurants in Michigan is distinctive from broad-line grocers because of the (1) ethnic presence in the supply chain, (2) the importance of wholesalers as a major source of supply, (3) the spot market nature of transactions based on individual owner/managers, (4) the limited number of suppliers, and (5) the limited use of technology in the supply chain.

Other characteristics that also make the supply chain of the Asian groceries unique vs. the supply chain of general grocers include (1) the fragmented nature of the Asian grocery stores as compared to the consolidated general grocery retail chains, (2) varieties of vegetables carried in stores, (3) predominant Asian customers, (4) limited or no buying power for Asian groceries, and (5) little value addition in the supply chain of Asian grocers.

The Indian groceries and all surveyed Asian restaurants are all owned by people of Asian origin. Moving backward in the chain to their vegetable supplier shows the dominance of non-Asian businesses. However, oriental groceries in Michigan not only are owned by Asian people but they have a dominant presence when moving backward to their vegetable suppliers. Ethnic languages are very important for the Asian grocery stores while ethnic language was not important for restaurant business as there was dominance of non-Asians in the supply chain, both backward (suppliers) and forward (customers).

These research findings support the second research proposition made in Chapter one (section 1.3) that supply chains for Asian vegetables are distinct from the supply chains used by more broad-line retailers. However, only the supply chains of Asian vegetable grocers particularly the oriental have Asian ethnic ties moving backward in the chain from the retailers.

4.2.3. Michigan growers can have limited access in the supply chain

Some vegetables in Asian vegetable retailer's supply chain can be grown in Michigan conditions in summer because (1) some Asian vegetables have performed well in the neighboring state of Ohio, (2) some Asian vegetables sold in oriental stores are currently produced in small scale in Michigan, and (3) some produce grown by Michigan growers is already in the supply chain of Asian restaurants.

Small scale Michigan producers can have access to this supply chain because (1) some growers are currently marketing directly to oriental grocery stores which are interested in purchasing locally if available and (2) local food service companies were also sourcing some of their supplies in Michigan. However, such access is limited because (1) retailers and wholesalers are currently satisfied with their suppliers, and (2) the ability to supply vegetables is restricted in two ways (a) climate allows these vegetables to be grown only in summer and (b) the limited number of varieties that can be grown even in summer. For these reasons, the retailers will continue buying the majority of their needs from their current suppliers.

The survey work found freshness and timely delivery of vegetable varieties as keys for the Asian retailers. Michigan producers may have competitive advantage to produce and market some vegetables in summer because vegetables are perishable in nature and are currently transported from long distances. Due to the existing long supply chain, vegetables take multiple days to reach from one end of the supply chain to the other compromising freshness. If Michigan producers can maintain assured delivery to

the retailers or the suppliers of the retailers, then they can benefit from the limited opportunity for them in the supply chain.

These findings support the third research proposition (see Chapter one section 1.3) that as a large vegetable growing area, Michigan has the potential to produce vegetables that are used in the Asian retail supply chain. However, their potential to produce and market is limited by the specific needs for produce that are not widely grown in Michigan.

4.3. Contributions, limitations, and needs for further research

There is a clear literature gap on the characteristics of Asian vegetable retailers and their supply chain in the US and in Michigan in particular. This research work has laid out the supply chain of Asian vegetable retailers in Michigan and has provided baseline information for further work in this area. The study has presented how the Asian vegetable supply chain is different from that of broad-line grocery retailers and has pointed out the requirements for Michigan producers to have access to the supply chain.

The contributions of this research work have been limited by limited survey response; however, given consistency in the results obtained with limited number of participants, it is fair to say that the findings can be generalized beyond this sample.

The ethnic foundations of the Asian supply chains must be taken into account by any future researcher. In particular, the suspicious nature of respondents especially the

respondents from oriental stores limited the number of interviews from this category. Future researchers are also likely to encounter these issues of suspicion and disinterest to respond. They will have to approach potential participants in a way that will increase their credibility and effective rapport with these business owners before conducting research in this area. Because of ethnic roots in the oriental grocery supply chain, proficiency in Chinese/Korean languages will be an advantage to conduct research.

Michigan may not represent the whole country and so future research should consider surveying a wider geographical area and even reach to the countries that are exporting these vegetables to the US to have a more complete understanding of the supply chain for the US. Production research trials to see the potential of growing Asian vegetables in Michigan is also important future research to figure out how much potential actually exists for Michigan specialty vegetable producers.

APPENDIX

A. Information from Retail Asian grocery stores

Part 1: Information to be collected by observation:

1.1. Location of the store:

1.2. Type of store: Indian type grocery store Oriental type grocery store

1.3. Total floor space in the store:

1.4. Floor space allocated to vegetables:

1.5. Number of cash registers in the store:

1.6. Display (packaging, labeling etc) of the vegetables in the store:

1.7. Broad categories of items sold in the store:

a.

b.

c.

d.

e.

1.8 Other observations:

Part 2: General Information about the vegetables to be obtained by interviewing:

- 2.1. How long have you been in this business?
- 2.2. How important are vegetables to your business? (Prompt: Do your customers expect you to carry these produces? Are these items critical to serving your customers well?).
- 2.3. What do your consumers look for when they buy vegetables? (Prompt: freshness, quality, consistency, variety, price etc.?).
- 2.4. How many different sources of supply do you use for vegetables? (Prompt: direct purchase at wholesale market, purchase from distributor/wholesaler/broker who delivers, direct from producers of the vegetable, etc.).
- 2.5. What do you look for in a supplier of your vegetable produce? (Prompt: quality, price, consistency, and ease of purchase, variety and credit terms?).
- 2.6. What specific market, broker, etc. (by name) do you use?
- 2.7. Do you have multiple sources for any single vegetable?
- 2.8. In how many forms do you get these vegetables? (Prompt: bulk, bundle or bunch, dressed and packed, other?)
- 2.9. Do you get any one kind of vegetable in more than one form?
- 2.10. Which form do you prefer the most? Why?
- 2.11. How often do you purchase vegetables or get deliveries?
- 2.12. How many options do you have for getting your vegetable supplies? (Prompt: Not many, varies with vegetable, varies with season?).
- 2.13. How satisfied are you with your current suppliers? (Prompt: very satisfied, satisfied, just acceptable, unsatisfied, very unsatisfied; this may vary by supplier).
- 2.14. How long have you been using your current suppliers? How often do you change suppliers?
- 2.15. What works well and what doesn't work well with your suppliers?

What works well ?

- 1.
- 2.
- 3.

What does not work well ?

- 1.
- 2.
- 3.

- 2.16. Do you get other supplies apart from vegetable from your suppliers of these vegetables?
- 2.17. Do you know where your suppliers get their vegetable supply? (Prompt: domestic or global; specifically, U.S., Canada, India, etc.).
- 2.18. What are average total sales of the store per week? (Prompt: may think more naturally in units of months or annually).
- 2.19. What is the average % of vegetable sales to the total sales of the store?
- 2.20. What are the activities that you do to the supplied vegetables before displaying for sale?
- 2.21. How seasonal are the demand and supply of your vegetables? (Prompt: everything is seasonal, considerable variation in what is and isn't seasonal, etc.)
- 2.22. Are you able to get all types of vegetables that your customers demand? (All demanded vegetables, quantity demanded, are there any time of the year when your supply is sort of customers demand?)
- 2.23. What percent of the vegetables you sell are Asian ethnic?
- 2.24. Do you have different supplier for Asian vegetables than for other general vegetables?

B. Information from Asian restaurants

Part 1: General Information:

Location and type of the restaurant:

- 1.1. How long have you been in this business?
- 1.2. How important are vegetables to your business? (Prompt: Are these items critical to serving your customers well?)
- 1.3. What do your consumers look for in when they order cuisines with vegetables? (Prompt: freshness, quality, consistency, variety and price?)
- 1.4. How many different sources of supply do you use for vegetables? (Prompt: direct purchase at wholesale market, purchase from distributor/wholesaler/broker who delivers, direct from producers of the vegetable, etc.)
- 1.5. What do you look for in a supplier of your vegetable produce? (Prompt: quality, price, consistency, and ease of purchase, variety and credit terms?)
- 1.6. What specific market, broker, etc. (by name) do you use?
- 1.7. Do you have multiple sources for any single vegetable?
- 1.8. In how many forms do you get these vegetables? (Prompt: bulk, bundle or bunch, dressed and packed, other?)
- 1.9. Do you get any one kind of vegetable in more than one form?
- 1.10. Which form do you prefer the most? Why?
- 1.11. How often do you purchase vegetables or get deliveries?
- 1.12. How many options do you have for getting your vegetable supplies? (Prompt: Not many, varies with vegetable, varies with season?).
- 1.13. How satisfied are you with your current suppliers? (Prompt: very satisfied, satisfied, just acceptable, unsatisfied, very unsatisfied; this may vary by supplier).
- 1.14. How long have you been using your current suppliers? How often do you change suppliers?

1.15. What works well and what doesn't work well with your suppliers?

What works well ?

What does not work well ?

- 1.
- 2.
- 3.

- 1.
- 2.
- 3.

1.16. Do you get other supplies apart from vegetable from your suppliers of these vegetables?

1.17. Do you know where your suppliers get their vegetable supply? (Prompt: domestic or global; specifically, U.S., Canada, India, etc.).

1.18. What are average total sales of your restaurant per week? (Prompt: may think more naturally in units of months or annually).

1.19. What percentage of your menu items need vegetables?

1.20. What are the activities that you do to the supplied vegetables before using them in cuisines?

1.21. How seasonal is your demand and supply of vegetables you need? (Prompt: nothing / everything is seasonal, considerable variation in what is and isn't seasonal, etc.)

1.22. Are you able to get all varieties of vegetables to meet your customers demand for various cuisines? (All demanded vegetables, quantity demanded, are there any time of the year when your supply is sort of demand?)

1.23. What percent of items in your menu are Asian ethnic cuisines?

1.24. Do you have different supplier for Asian vegetables than for other general vegetables?

1.27. What is the average cost share of vegetables to your total input cost? (Prompt: to the total vegetables and total material inputs of the restaurant?)

1.29. What percent of your cuisines specifically require Asian Vegetables?

1.30. Are the Asian vegetables that you need substitutable by other types of vegetables? (Do you specifically look for the Asian vegetables or buy what ever is available, cheap etc.)

C. Questionnaire for the Wholesalers

Part 1: Information to be collected by observation:

1.1 Location:

1.2. Trading practices:

a.

b.

c.

d.

e.

f.

g.

h.

i.

Part 2: General Information to be collected by interviewing:

Location and type of the Wholesaler/ Supplier:

- 1.1. How long have you been in this business?
- 1.2. How important are vegetables to your business? (Prompt: Are these items critical to serving your customers well?)
- 1.3. What do your consumers look for when they buy vegetables? (Prompt: freshness, quality, consistency, variety and price?)
- 1.4. How many different sources of supply do you use for vegetables? (Prompt: direct purchase at wholesale market, purchase from distributor/wholesaler/broker who delivers, direct from producers of the vegetable, etc.)
- 1.5. What do you look for in a supplier of your vegetable produce? (Prompt: quality, price, consistency, and ease of purchase, variety and credit terms?)
- 1.6. What specific market, broker, etc. (by name) do you use?
- 1.7. Do you have multiple sources for any single vegetable?
- 1.8. In how many forms do you get these vegetables? (Prompt: bulk, bundle or bunch, dressed and packed, other?)
- 1.9. Do you get any one kind of vegetable in more than one form?
- 1.10. Which form do you prefer the most? Why?
- 1.11. How often do you purchase vegetables or get deliveries?
- 1.12. How many options do you have for getting your vegetable supplies? (Prompt: Not many, varies with vegetable, varies with season?).
- 1.13. How satisfied are you with your current suppliers? (Prompt: very satisfied, satisfied, just acceptable, unsatisfied, very unsatisfied; this may vary by supplier).
- 1.14. How long have you been using your current suppliers? How often do you change suppliers?

1.15. What works well and what doesn't work well with your suppliers?

What works well ?

What does not work well ?

- | | |
|----|----|
| 1. | 1. |
| 2. | 2. |
| 3. | 3. |

1.16. Do you get other supplies apart from vegetable from your suppliers of these vegetables?

1.17. Do you know where your suppliers get their vegetable supply? (Prompt: domestic or global; specifically, U.S., Canada, India, etc.).

1.18. What are average total sales of your business per week? (Prompt: may think more naturally in units of months or annually).

1.19. What is the average % of sales of vegetable to the total sales of the store?

1.20. What are the activities that you do to the supplied vegetables before selling them to your customers?

1.21. How seasonal is your demand and supply of vegetables you need? (Prompt: nothing / everything is seasonal, considerable variation in what is and isn't seasonal, etc.)

1.22. Are you able to get all varieties of vegetables to meet your customers demand? (Prompt: All demanded vegetables, quantity demanded, are there any time of the year when your supply is sort of demand?)

1.23. What percent of vegetables that you deal with are Asian?

1.24. Do you have different supplier for Asian vegetables than for other general vegetables?

1.25. Do you have special customers for Asian vegetables?

1.26. Are the Asian vegetables that you need substitutable by other types of vegetables? (Do you specifically look for the Asian vegetables or buy what ever is available, cheap etc.)

1.27. What % of your vegetables supplies goes to different categories of customers? (Prompt: % to retail Asian grocers, general grocers, wholesale, consumers, restaurants and other etc.)

1.28. What are the states and cities that you supply vegetables to?

1.29. Does the nature of demand differ according to cities or type of the customer?

Part D: Detailed information about specific vegetable to be collected by interviewing retailer and wholesalers:

Please give the following information of the vegetables you use in most quantities.

| Vegetable | Frequency of purchase or supply | Qty. purchased or delivered at a time (lb) | Wholesale or Retail price (\$/ lb) | Form of purchase or supply (bulk, bundled, dressed etc) | Type of the supplier (Global or domestic) | Name, country and city of the supplier | Seasonality of the vegetable | Additional information |
|-----------|---------------------------------|---|-------------------------------------|---|--|--|------------------------------|------------------------|
| | | | | | | | | |

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