

Ethno-cultural Vegetables in Ontario: Understanding the Value Chain

By

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**A Thesis
presented to
The University of Guelph**

**In partial fulfilment of requirements
for the degree of
Master of Science
in
Capacity Development and Extension**

Guelph, Ontario, Canada

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ABSTRACT

ETHNO-CULTURAL VEGETABLES IN ONTARIO: UNDERSTANDING THE VALUE CHAIN

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This thesis attempts to understand the value chain of ethno-cultural vegetables (ECV) in Ontario to develop recommendations to benefit farmers and other stakeholders. This research has used a mixed method approach. At present ECV demand is huge and much of it is imported which involves long food miles. Growing ECV locally has multiple benefits to the society and environment.

Two types of major value chains with many variations can be identified due to a range of socio-cultural, economic and physical factors. Small and large scale farmers were involved in local ECV production. The Ontario Food Terminal and other importers play a significant role in ECV supply. Supermarkets and ethnic grocery stores were important in ECV marketing. Local producers have the opportunity to supply fresh ECV which requires knowledge about production under local conditions, raising consumer awareness, educating all the stakeholders of the ECV value chain regarding benefits and market potentials.

ACKNOWLEDGEMENTS

Without the support and guidance of many people undertaking this MSc would not be a possible task. First and foremost, I would like to thank my supervisor Dr. Glen Filson for all the support, guidance and encouragement throughout this study. His support in developing of research proposal and obtaining research grant were major factors in achieving the success of this study.

Dr. Bamidele Adekunle, my committee member who helped me throughout my MSc was a great support behind my achievements. I am grateful for him for visiting with me in the field and giving all constructive feedback during every stage of this study. His advice during my work with the ECV Ontario research project and support in obtaining financial assistance is appreciated.

Dr. John Devlin, thank you for Chairing the committee for my thesis defence and for your valuable comments.

I would like to greatly appreciate the support I received from Dr. Ben Campbell at the Vineland Research and Innovation Centre for providing me financial assistance to carry out this study successfully.

My appreciation and big thank to Sridharan Sethuratnam at the Farm Start for assisting me in connecting with Mc Vean farmers for the interviews.

Dr. Helen Hambly and members from the SEDRED and members of the ECV Ontario team are acknowledged for their support, suggestions and encouragements. Also administrative staff of the Capacity Development Department for their numerous support throughout this study.

My appreciation and big thank to all the participants who participated in this study. I am thankful for you all for sharing with me your their valuable experiences and challenges you faced during your farming and business careers.

I would like to give a heart-full thank to my family members for boost my courage and confidence. Dear Amma and Appchchi, thanks very much for teaching me to face life challenges and hardships. Also Vipula, Ayya, Shani and Dhammika akka for your support in various ways during this study.

Finally, my love and thanks to Samanthika. As a wife and a friend you have been beyond to compare. Without your support, unending encouragement and patient I wouldn't have courage to complete this difficult task.

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CHAPTER ONE

INTRODUCTION

1.1 Background

This study examines the value chain of the ethno-cultural vegetables (ECV) market of Ontario. Ethno-cultural vegetables are non-traditional crops, which are new to the region and oriented to a niche market (Gunst et al., 2010). Recent changes in the immigrant population in the Greater Toronto Area (GTA) have created new markets for ethnic food and it is important to understand how the demand for ECV can be satisfied (Adekunle et al., 2011). Consumers value the product attributes like quality, taste and nutritional values and freshness in vegetables. These qualities could be improved by a better understanding of the value chain through an examination of the interactions, market linkages, opportunities and barriers in the industry. It is also important to gain an insight about the local food system and the changing markets in Ontario to understand the demand for ECV.

Canada is one of the most multicultural countries in the world and about two million immigrants have moved into Canada in the last decade. They belong to different ethnic backgrounds and the majority of them settle in metropolitan areas like Toronto, Vancouver and Montreal (Citizenship and Immigration Canada, 2007). At present the immigration and the diversity of the immigrants have increased significantly, with about 125,000 immigrants arriving in Ontario every year out of an average of about 250,000 for the whole of Canada. Furthermore Mitchel et al. (2007), indicate that 54% of Canada's recent immigrants of non-European descent live in the province of Ontario.

The changing demographics in Ontario, especially in Toronto have created significant changes in food markets, demand and opportunities for ethno-cultural foods (Agriculture and Agri food Canada, 2008). According to Donald (2009), this new emerging branch of the food economy is defined as the “creative food economy sub-sector” which includes ethnic /speciality, organic and local foods. During the past ten years, Ontario’s food economy has grown by about 2-3% where the “sub-sector” has an estimated growth of 15-25% per year creating demand for ethnic food. The importance of this niche market was also emphasised by Adekunle et al. (2011), where the estimated demand for ECV in the GTA is CAD \$61 million for the three major ethnic groups; Chinese, Afro-Caribbean and South Asians.

The above market survey estimates and demand analysis by Adekunle et al. further reveals that the demand for most of the ECV is not fully met, and also the choice and quality of ECV are poor. Quality for ethnic food encompass the characteristic of being tasty, fresh and locally produced, where local food is fresh and nutritious as it requires less processing (Donald, 2009).

The importance of local food production has become a key aspect of the Ontario food policy (Feagan, 2007). Toronto has become more dependent on food imports, and today about 60% of the fresh produce is imported from the United States and one third arrives during the growing season of Canada (Lister, 2007). An average Canadian food item travels about 2,811 miles, where a lot of energy is consumed emitting significant levels of greenhouse gases (Xureb, 2005 cited in Puduri & Govindasami, 2011). Apart from the environmental risks and declining local agricultural economy, there are health and social risks associated with neglecting local food production (Lister, 2007).

In the case of ECV, at present, much of the demand for ECV is met by importing them from foreign countries even though some of them can be grown in Canada. There is a high demand for locally produced-fresh ECV in the GTA and, most consumers believe that consumption of these vegetables is healthy. In addition, most consumers were willing to pay more for better quality, fresh and locally grown ECV (Adekunle et al., 2011).

The unmet demand for ECV has created opportunity for Ontario vegetable growers to produce high quality fresh ethnic vegetables for Ontario ethnic residents and other interested consumers (Farm Start, 2010). This is an untapped niche market for local growers as well as offering potential benefits to other stakeholders in the value chain.

1.2 Problem and the justification

The research problem of this study arises because not enough is known about the production and marketing of the ECV in Ontario. According to Adekunle et al. (2011), the demand for ECV is substantial and ethnic Canadians consume about 120 vegetables, and some of these ECV could be grown locally. But, there is a need for production research as well as research to develop market linkages between farmers and retailers (Adekunle et al., 2011). Further, according to Kelleher et al. (2009), there is no comprehensive information available relevant to ECV production, no one organization tracking research and development of new crops in Ontario and no co-operatives deal with ethnic produce specifically in the region (Kelleher et al., 2009).

From the farmers' point of view, profitability is a major concern when adding a new crop or crop diversification. In order to encourage local production of ethnic food in any region, farmers need to know information such as what is most demanded in what quantities, where are the markets and the cost of production (Keller et al., 2009). Beside

the untapped niche market opportunity for farmers in Ontario, cultivation of ECV locally has multiple benefits. Locally grown ECV help to reduce adverse environmental impacts and costs of transportation. Most importantly consumers have the opportunity to have a healthy diet by adding fresh and quality ECV. The ECV sector could be seen as a new employment opportunity for new immigrants with farming experience. Furthermore, ECV can be a profitable option to add by diversifying unprofitable crop enterprises for existing horticultural farms. Also, ECV is an alternative to tobacco cultivation which results in soil degradation issues (Lister, 2007) in addition to the fact that this would substitute healthy vegetables for unhealthy tobacco. This study contributes to building knowledge and awareness related to ECV production and understanding the total value chain in the Ontario.

1.3 Research Goal

The aim of this research is to understand the value chain of the ECV in Southern Ontario in order to prescribe policies that will benefit farmers and other stakeholders.

1.4 Research Objectives

In order to achieve this goal, the following are the research objectives.

1. To examine the key characteristics of ECV value chains, identify stakeholders, explore relationships and understand market linkages.
2. To identify the opportunities and challenges faced by the ECV farmers in Ontario, and their perceptions towards ECV production.
3. To develop a conceptual framework that will enhance our understanding of the ECV market.

4. To determine the wholesale price fluctuation and the availability for 10 highly demanded ECV for a period of six months (spring and summer 2011).
5. To study the difference between wholesale and retail prices of 10 highly-demanded ECV in the GTA.
6. To determine the factors that predict customers willingness to pay more for ECV.

1.5. Organization of the thesis

This thesis starts with an introduction giving a brief background to the study and followed by the research objectives. Chapter two looks at the overview of ethno-cultural value chain. It explains the trends in demographics and food markets in Ontario and challenges and opportunities for ECV. The next chapter, literature review, presents a conscious overview of what has been studied on ECV in Ontario and theories regarding ethnic and local food systems. Further it elaborates on the significance of the methodology and theory of value chain followed by the conceptual framework. Chapter four presents the research design undertaken in this study giving a detailed explanation of the methods and techniques used in data collection and analysis. The findings of the study are presented in detail in chapter five. Results are stated and discussed in two sections as qualitative and quantitative analysis. Chapter six presents the discussion of the results and finally, chapter seven presents the conclusions and recommendations of the study.

CHAPTER TWO

OVERVIEW OF THE ETHNO-CULTURAL VEGETABLE VALUE CHAIN

2.1. Introduction

The purpose of this chapter is to present an overview of the ECV value chain in Ontario. In the first part, an outline of the Ontario's food system is presented. Changing demographics and their effects to the food system, trends in food production, distribution and marketing are discussed. Further, recent trends of organic and local growing are also explained. Then the ECV sector is examined explaining its opportunities and challenges.

2.2. Overview of the Ontario's food system

2.2.1. Ontario's ethnic and cultural diversity

Canada is one of the most multicultural countries in the world. About two million immigrants have moved into Canada in the past decade. The immigrants belong to different ethnic backgrounds and the majority of them settle in metropolitan areas like Toronto, Vancouver and Montreal (Citizenship and Immigration Canada, 2007). At present immigration and the diversity of the immigrants have increased significantly, with about 125,000 immigrants arriving in Ontario every year, and most settling in Toronto (Lister, 2007). According to Mitchel et al. (2007), 54% of Canada's visible minority lives in the province of Ontario. Currently, the GTA is home for 800,000 South Asians, 600,000 Chinese and 400,000 Afro-Caribbean representing the largest ethnic groups (Lammers, 2010).

2.2.2. Changing demographics and food markets

The changing demographics in Ontario, especially in Toronto has created significant changes on food markets, demands and opportunities for ethno-cultural foods (Agriculture and Agri food Canada, 2008). Toronto has about 6,172 food service establishments where many of the restaurants, groceries and food retailers are ethno-specific (Lister, 2007). According to Donald (2009), during the past ten years, Ontario's food economy has grown by about 2-3% where the "creative food economy sub-sector" including ethnic foods, organic and local foods has grown by much faster than the main stream which is estimated between 15-20% per year. According to Adekunle et al. (2010), the estimated demand for ethno-cultural vegetables in the GTA is CAD \$ 61 million for the three major ethnic groups; Chinese, Afro-Caribbean and South Asians.

2.2.3. Trends in food production and distribution

Toronto has become more dependent on food imports in recent years. About 60% of the fresh produce is imported from the United States where in 1960 most of Toronto's food came from within 350 kilometres of the city (Lister, 2007). Today a Canadian food item travels an average of 2,811 miles producing 51,709 tons of greenhouse gases annually (Xureb, 2005 cited in Puduri & Govindasami, 2011).

There are many reasons behind the decline of local food production. Increasing forces of urbanization on farm lands have resulted in the loss of quality farmland in Ontario (Lister, 2007). Ontario has no specific legislation for protecting farm land where farmers sell land in urban areas to developers. Further, small scale local family farms have become smaller in size and numbers with expansion of large scale industrialized

agriculture. This trend is further increased by the low prices from corporate food processors and increasing dependency on food imports (Lister, 2007).

Rapid emergence of large supermarket chains in the past decades has gained the control of food distribution in many countries including Canada. The five largest food retailers in Canada accounted for about 60% of national grocery sales in the late 1990s, up from 50% a decade earlier, while the share of independent retailers decreased from 47% to 39% over the same period (Agriculture and Agri-Food Canada, 2011). Corporate retailer concentration in the food industry, development of logistics technology, and centralized procurement practices have helped to cut down distribution costs and increased efficiency in resulting low food prices to consumers (Reardon et al., 2003). In addition, it has become difficult for small suppliers to compete with large suppliers due to unfavourable financial ratios, and meeting value added services such as increased shelf life, country of origin labelling, bar coding, quality and safety aspects and year round availability (Epperson & Estes, 1999).

Retail consolidation plays a key role in determining power in the value chain in the food industry. Supermarkets are the most powerful segment that set the margin and grabs the major share of the profit. Other actors of the value chain share the profits depending on how well they are consolidated. Normally farmers / producers are the least consolidated segment and farming has the last priority (Parsons, 2008).

Beside the above reasons, Lister (2007) argues that if the society does not value its farmer and farmland, eventually farming becomes an unsustainable activity. Further, today consumers need cheap food throughout the year and they do not care where it comes from. These types of food have unseen threats to the economy, health, environment and ultimately, society will pay the cost. Apart from the declining local

agricultural economy and environmental risks, there are other problems associated with neglecting local production of food such as loss of basic farming skills, rural culture and health related issues. It is an important aspect to look at the benefits of consuming vegetables as a part of healthy diet in combating food related diseases like obesity, where at present 47% of Canadians are overweight or obese. There is lot of evidence that an unhealthy diet with higher levels of salt and fat causes obesity, diabetes and heart attacks (Donald, 2009).

The importance of promoting local food production and strengthening the regional economy has become a key aspect of Ontario food policy. According to DeWeerd (2009), local agriculture improves the overall income of the community and economic activity and, better profits for farmers. The place of food has become a central concept in most local food movements (Feagan, 2007). It is the right time to implement policies in promoting a local food economy to support diversified farming, to shorten the food chains and reduce the carbon footprint. It will enable more healthy and sustainable food options and slowly change the culture of fast-food. Some initiatives observed are farmers markets, farmer grown home delivery programs, community gardens and community-supported agriculture (Donald, 2009).

2.3. Ethno-cultural vegetable sector of Ontario

This section looks specifically into ECV sector in Ontario. The meaning of “ethnic or ethno-cultural food” is briefly discussed, and then, the reasons behind the demand are explained. Trends in production and marketing, opportunities and challenges are also discussed.

2.3.1. What are ethnic foods and ethno-cultural vegetables?

According to Padolsky (2005), food has been regarded as a useful and a central ethnic marker, particularly in terms of identity issues. From an ethnic perspective, it is assumed that your identity somehow is connected to, or induced from, the foods that have significance for you and your group, foods that reflect your ethnic language, culture, history, traditions, religion and so on. In an ethnically plural society such as Canada, food not only defines who we are, but it also defines where we are. It locates us physically or geographically, in particular bodies, buildings, neighbourhoods, communities, regions, nations, and the world as a whole.

Ethnic food refers to foods that have cultural uniqueness, connected to a particular nation, race, religion or tradition. Ethnic foods distinguish people culturally, socio-economically, religiously and regionally (Dwyer & Bermudez, 2003). Foods from various parts of the world change according to the climatic differences, and accordingly make special needs in the diet. Different food preparation methods are used in different regions and continued from centuries past to the present. The specific tastes and food traditions have a high affiliation to consumers where they stick to them even when they move to another region. Therefore ethnic foods symbolize traditions and cultures (Dwyer & Bermudez 2003). Migrant communities use their traditional food as a means of representing cultural identities (Pieroni et al., 2007).

ECV are non-traditional crops, which are new to the region and oriented to a niche market (Gunst et al., 2010). According to Kelleher et al. (2009: p5), ECV are defined as “crops that are not traditionally or historically grown in the Ontario and were not introduced by the European settlers”. Among ethnic food, ECV are special because most of them cannot be grown in Ontario as they will grow in their original countries.

2.3.2. ECV Demand

According to Dwyer and Bermudez (2003), different ethnic groups have different ways of classifying foods based on the nutrient facts, medical views, physiological and biochemical characteristics. Therefore the demand for ECV could be seen as an aggregation of all these factors in a highly multi-ethnic city like Toronto. Increasing numbers of ethnic immigrants in GTA can be seen as the major force behind the demand for ECV in the GTA. In addition, other driving forces behind the demand are the cultural attachment, tradition, taste and other unique characteristics of ECV.

Adekunle et al. (2010), report the findings on the preferences for ECV for three major ethnic consumer groups in the GTA. All three groups highly valued the health benefits of ECV consumption. Some of the health implications reported were prevention of chronic diseases, prevention of obesity, maintenance of good eyesight, reduction of constipation, provision of better immunity and increase in lifespan. In addition to health and medicinal aspects, they ranked nutrition, preference, tradition and taste as reasons for consuming vegetables. Most of the ECV consumer-respondents were willing to pay more if the ECV are of better quality. Another study by Pieroni et al. (2007) reports findings from a survey with South Asian migrants in the UK, that vegetables with bitter or aromatic tastes are often associated with stronger medicinal values, and consumption of traditional vegetables still plays a crucial role in the dietary habits of South-Asian migrants in the UK.

ECV play an important role in the diet of some ethnic consumers as vegetables are a major component in their diet. For instance, South Asians prefer more vegetables in their diet. According to Adekunle et al. (2011), about 45% of South Asians consume

vegetables because they are vegetarians. In addition, ethnic Canadians consume at least 120 different ECV creating a huge demand at the market throughout the year.

Vegetables are consumed in different ways such as fresh as salads but, most of the time they are prepared as curries in different ways by different cultures. Beside the demand from ethnic consumers, an increasing number of Canadians travelling abroad have developed the taste for exotic food. As well as accepting different cultures to the society Canadians also have expanded their diet and cooking styles integrating ethnic foods (Gunst et al., 2010). In addition, increasing numbers of restaurants in the GTA serving diversity of ethnic cuisines have given Canadians an opportunity to taste global foods. According to Lister (2007), Toronto is known as the “city of the menu of the world” where five million people have no shortage of food choice.

Increasing demand for ECV is mainly met through importing them to Canada as Canada’s agro-climatic conditions do not fully support growing all ECV varieties, but some of them could be grown successfully in Canada (Adekunle et al., 2011; Filson et al., 2011). The wholesalers working in the Ontario Food Terminal (OFT) are some of the main importers who supply fresh vegetables to Ontarians. The OFT is the largest wholesale produce distribution center in Canada and ranks in the top five in North America (Lister, 2009). Most of the supermarkets have realized the need for developing their departments / sections for ethnic / world food products (Donald, 2009).

2.3.3. Place of purchase

Consumers mainly depend on ethnic stores and/or and supermarkets for their ECV needs, and very few grow their ECV in their backyards during the summer and spring months. According to Adekunle et al. (2010), 68% and 77 % of the three major ethnic

Canadian groups (Chinese, South Asians and Afro-Caribbean) use ethnic stores and supermarkets for their ECV needs. Farmers' markets and people's own gardens were used by 13% and 6.5% of the respondents. There are variations among the three ethnic groups in choosing the place of purchase based on various reasons (see Adekunle et al., 2011).

According to Goldman et al. (2002), ethnic consumers continue shopping at ethnic retailers even if they have access to supermarkets. This may be due to price differences or availability of the products. Further, there may be a deep association with the traditional shopkeepers who talk with them and may belong to the same ethnic group. But, when it comes to freshness, ethnicity does not matter even when the price is slightly expensive, but authenticity is important. Customers always prefer fresh vegetables and meat and the authenticity of handling them (especially in the case of meat for Muslim and Jewish communities) matters (Jamal, 2005). According to Adekunle et al. (2011), the most important reasons for the place of purchasing are availability, location and price.

2.3.4.. ECV Supply

Existing literature explains that there are a limited number of farmers, who have been involved in growing some of these vegetables, but no statistics on the number of farmers, crops or production data are available. Most of the new ECV are being developed in Ontario through a trial and error process on a small scale by some of the more entrepreneurial farmers. Organizations like Farm Start have initiated programs which provide support through training and providing farm land for new farmers to undertake trials of their ECV crops under local conditions. Farm Start has two incubator farming programs running in two locations in Guelph and Brampton McVean farm.

Farmers are given the opportunity to try innovative and alternative techniques and to share their knowledge and experience with fellow farmers in producing ECV (Kelleher et al., 2008).

According to Baker (2004), community gardens are one place where ECV are grown in the GTA and urban areas like Kitchener – Waterloo. People from all ethnicities can come together and grow their crops in these community gardens. The city of Toronto has more than 110 community gardens, which offer opportunity for immigrants to introduce new crops and to share their food culture and passion in growing these ECV. These immigrant gardeners bring their back home knowledge in cultivating ECV from all over the world and try to cultivate them under local conditions in Toronto. Baker (2004) further gives examples of commonly grown ECV in Toronto by the ethnic immigrants in community gardens. They include callaloo, greens and herbs, bock choy, sweet potato, spinach, squash and gourds, bitter melon, fuzzy melon, Jamaican pumpkin, long bean, okra, taro and white eggplant, etc.

Although there are no specific statistics available for ECV or speciality crop production, there is a trend of diversification of vegetable production acknowledging the need for locally producing of ECV (Adekunle et al., 2010). Some of the ECV are already grown in Ontario, and it was reported that 38 types of ECV crops were grown around the Toronto region in small farms of 5-100 ha for the local market (Gunst et al., 2010).

2.3.5. Opportunities in ECV sector

The existing and growing demand for ECV is a niche market opportunity for vegetable farmers. According to Adekunle et al. (2011), the estimated demand for ethno-cultural vegetables in the GTA is CAD \$61 million for the three major ethnic groups;

Chinese, Afro-Caribbean and South Asians. At present, much of the demand for ethnic vegetables is met by importing them from outside of the Canada, but some of them can be grown in Canada. Ontario vegetable growers should take the opportunity of producing high quality fresh ethnic vegetables for this niche market (Farm Start, 2010).

Apart from the local demand there is also a potential market from the United States where over 31% of the population is considered to be ethnic. According to Agriculture and Agri-food Canada (2007), although Canada imports most of the fresh vegetable requirement from abroad, its fresh vegetable exports to the US market has increased from 10% to 25% from 1990 to 2000.

Beside the economic gains to local farmers, it is a vital fact to look at the benefits of vegetable consumption as a part of healthy diet in combating food related diseases like obesity (Adekunle et al., 2010). Furthermore local supply networks of ECV benefit the environment by reducing product transportation requirements, and also protecting the product quality while supporting the local agricultural economy (Kelleher et al., 2008).

The ECV sector could be seen as a new employment opportunity for new immigrants with farming experience who can use their knowledge and skills. Further, ECV can be a profitable business to add by diversifying unprofitable crop enterprises in existing horticultural farms, and is an alternative to tobacco cultivation areas which is a product which is demanding for human health and result in soil degradation issues (Lister, 2007).

2.3.6. Challenges in ECV sector

Production of ECV in Ontario has not only physical challenges like the existence of short cultivation period and pests, but lack of knowledge of production methods and

poor understanding of the market (Gunst et al., 2010). Most of the ECV have arrived from other countries where the conditions are different, and often they may not be produced cost-effectively in Canada. Another important factor is the labour intensiveness in ECV production, and the cost of labour is high in Canada when compared with most developing countries where those crops have originally grown (Kelleher et al., 2008).

Lack of registered pesticides for ECV by the Pest Management Regulatory Agency (PMRA) in Ontario is another primary barrier to increase the ECV production (Kelleher et al., 2009). According to Wang and Cerkauskas (1999), there are pest and diseases for ECV which can cause significant losses for ECV. Expanding the usage of existing pesticides and registering a new pesticide is an expensive and long process involving extensive research. Due to small acreage and with the minor volume of speciality crops at present, most pesticide companies would not be motivated to consider these crops within their research agenda for developing pesticides (Gunst et al., 2010).

Another barrier to the ECV production faced by the farmers is the lack of availability of seeds. Since these crops are new and not considered in current policy as mainstream crops, there are issues with seed importation. Obtaining seeds from overseas is difficult due to strict regulations and legislation. Farmers sometimes tend to obtain them even through illegal means (Kelleher et al, 2008).

Among the other challenges, there are no specific government programs to engage new immigrant farmers in ECV production. In addition, there are challenges like language barriers and lack of extension services and more importantly inadequate cost of production data which are important for farmers to know before they move into the ECV sector.

Wang and Cerkauskas (1999), comment that some cultural barriers and language difficulties can be a challenge when communicating with ethnic ECV farmers and understand their issues.

2.4. ECV Value chain in Ontario

It is important to understand the specific environment of this new niche market in order to answer how the demand for ECV can be satisfied by producing quality produce locally (Adekunle et al., 2011). At present a limited number of farmers have engaged in ECV production in Ontario. They differ from each other depending on the crops and scale of operation. Most small scale farmers are new and their produce is sold mainly through CSA and at farmers markets. Large scale farmers have better market channels where they sell to ethnic and chain supermarkets and the OFT. Much of the ECV are imported to Canada from outside the OFT and many independent importers including retail chains and ethnic stores. At present consumers buy their ECV mainly from ethnic stores and supermarkets. They also obtain ECV from CSA, farmers markets, and from their own back yards in limited quantities in the summer.

Studying the ECV value chain by examining various economic and social variables affecting the market gives an opportunity for better understanding of those conditions. It will provide good understanding of the market linkages, opportunities and barriers from both the producer and consumer ends which will help to increase the margins of every actor in the chain. Integrating ECV into local agriculture and markets through proper understanding of all value chains is crucial and will help to identify future needs.

CHAPTER THREE

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

3.1. Introduction

This chapter reviews and presents a conscious overview of what has been studied on ECV in Ontario and theories regarding ethnic and local food systems. After a brief description of theories about local food economy and ethno-cultural foods, it discusses major past studies on ECV in Ontario. Then the significance of the methodology and theory of value chain is explained. Finally the conceptual framework is presented.

3.2. Global agro food systems

Chapter two of this thesis has already presented an overview of ECV value chain in Ontario. It also discussed the ECV demand, supply and some opportunities and challenges in ECV sector. This section begins with a brief explanation of the global food regimes and emergence of the new agro food system. Then it focuses on the Ontario food system, new trends and the role of ECV.

3.2.1. Food regimes

Agri-food systems have been shaped by governments, enterprises, markets, migrating populations, buying, selling, cultural aspects of farming and consuming. These complex relationships fall into relatively stable specific time periods followed by new possibilities and challenges that create food regimes (Otter, 2003). Food regime theory looks at the dynamics and actors of change of the capitalist food and farming systems. According to McMichael (2009), food regime analysis brings a structured perspective to

the understanding of agriculture and food's role in capital accumulation across time and space.

A series of relatively distinct food regimes could be identified from the early modern period of history. The period 1500-1750 was a mercantile food system, where most basic food stuff was produced within Europe and exotics were taken from the colonies. During the nineteenth century, this system was replaced with a settler colonial system. Settler colonies like North America, Argentina and Australia supplied basic and luxury foodstuffs to Europe, and purchased manufactured goods back from Europe (Otter 2003). After the two world wars with a great depression in between, a new productivist food regime emerged which was characterized by European and American agricultural protectionism with powerful food industries. This did not survive after the early 1970s due to a convergence of economic and climatic factors which created a food crisis. Other factors like the oil crisis and globalization trends also affected this. In the 1980s, a neoliberal food regime was developed and it was characterised by growing multinational corporate and institutional power (Friedmann, 1993).

3.2.2. New food regime and emergence of new food system

Roche (1995) thought that the new regime was based on 'clean and green' or fresh and natural aspects of food. Pritchard (1998) considered international coordination of flows of commodities and finance capital as main characteristics. Friedman (2005) reported on increasing power of the food retail sector and its ability to restructure agri-food supply chains, and observing a 'corporate environmental food regime'. McMichael (2005) argued it was a 'vector of the social reproduction of capital on a world scale', and

gave evidence that this neoliberal food regime increased the gap between the North and South.

The policies within the food regime have supported prices and surpluses, supported large farms, heavy machinery, mono-cultural practices and excessive use of chemicals. Farmers became technological and social dependents on corporate input suppliers and purchased contracts for specified crops. The focus has changed to the food-industry and services rather than to agriculture, changing the scale of production through standardization (Fridmann, 1993). Further, Friedmann (2009), points out that at present agri-food corporations attempt to regulate the conditions in organizing production and consumption which allow them to plan investment, the sourcing of agricultural raw materials and marketing.

According to Cook and Davis (2000), new procurement models have been introduced to the food system by mass merchandisers to streamline food distribution. It has created great competitive pressure on conventional food retailers. On the other hand, as a result of this competitive pressure, retail and wholesale consolidation has occurred to seek efficiency through mergers and acquisitions to strengthen their competitive positions. This has further expanded to a consolidation of shippers and ownership of strategic alliances through vertical integration to enhance the competitive status of the dominant corporations involved.

3.2.3. Supermarkets; the retail sector

This new food regime is dominated by the agri-food supply chains that are led by transnational corporations in the developed countries. This transformation has involved the shift in power from the production sector to the retail sector that is dominated by

global supermarket chains such as Wal-Mart, Carrefour and Tesco (Burch & Lawrence, 2009). This food system is characterized by international sourcing of a range of products with specified standards by retailers with concerns of choice, freshness, health and convenience. Further, these products include convenience and fast food which are sold under supermarkets' own brand names. They are known as private labels or own brands rather than food manufacturer labels (Burch & Lawrence, 2009). According to Friedmann (1993), consumers in the food regime have been constructed by agri-food corporations to desire high quality and exotic foods, from the globe.

Reardon et al. (2003); Coe and Hess (2005) describe five areas of restructuring ongoing dynamics with respect to the rapid internationalization of retail networks. These networks are centralized procurement, upgrading of logistics, introduction of new quasi-formal contracts, shortening of supply networks and the development of new private standards.

International retail supply chains can be viewed as power shifts between retailers and suppliers. The bargaining power of a retailer against a supplier depends on the relative size and position of the retailer, the amount of purchase, significance of the product in retailers product portfolio and the balance between own label and branded products in the retailers purchasing portfolio (Coe & Hess, 2005). According to Coe et al. (2005), use of power mainly by the retailers within supply networks can be identified in different forms. Pricing control is an important mechanism where large retailers can demand lower prices and/or quantity discounts. Normally retailers have more control over price determination in a supply chain network

3.3. Ontario food system and ECV

3.3.1. Ontario Food System

Most of the food production technologies and institutions existing today in Canada are the inheritance of the post-World War II (Toronto Public Health, 2010). Agriculture has become increasingly industrialized since then to compete in the global marketplace, where farmers continually looked for new efficiencies, whether in the form of economies of scale, new technology, or vertically-integrated operations. The end result of this was more efficient but fewer farms (OMAFRA, 2002). Canada has a net trade surplus of agricultural products and fish of about \$9 billion/year in 2007 (Statistics Canada 2011). Sparling and Laughland (2006), state that 83% of our producers produce only 20% of our gross farm sales so small operators don't produce much food. According to Secombe (2007), this trend is pronounced in Ontario, where many small farmers have lost their farms and large specialized farms sell mainly to food processing companies. Thus we produce more food than we consume. Food insecurity is mainly due to the unequal distribution which characterizes our capitalist economy.

According to Statistics Canada (2006) the number of farms in Canada has declined by more than 47,000 between 1996 and 2006. The population living in the farms have decreased to 2% today from 37% in 1931. Further, Statistics Canada (2011), states that the number of farms in Ontario has decreased 27.6% from 82,448 in 1981. Many farms were sold to land developers as net farm income decreased and the demand for land increased with urbanization. In three decades, from 1966 to 1996, Ontario lost over 1.5 million hectares of agricultural land to non-agricultural uses (Caldwell et al., 2007).

The modern food system is based on the mass production of cheap food, but the hidden cost of the cheap food is increasing (Seccombe, 2007). This trend was further strengthened by the rapid rise of national and international conglomerates in the food industry. Economies of scale have led to greater concentration of ownership everywhere in the world, but particularly in Canada's processing, distribution and retail sectors. By 2005, for example, just four grocery retailers controlled 78 percent of market share in Canada (Market Share Matrix Project, 2005).

Today Ontario has realized the consequences of declining local food production and increased reliance on food exports. This system has created many economic, social, environmental and health risks where cost eventually has to be paid by the society (Lister, 2007).

3.3.2. Food miles

According to Seccombe (2007), when farmers scale up production and become more specialized to maximize profits, the supply chains they sell into become longer and more complex. As the product moves through many parties, the costs rise as everyone takes their share. The process also demands longer transportation lines and more storage facilities which may lead to produce spoilage and contamination. There is also a need for more fuel, better packaging and refrigeration, and appropriate preservatives that increases the shelf-life of vegetables. All these require a lot of energy and add to the cost in the food chain.

More greenhouse gases result from the latest food regime tied to longer, more international supply chains and the way in which it is organized (Friedmann & McMichael, 2005). According to McMichael (2009), the new system has become

increasingly dependent on fossil fuels which raises the question of its ability to continue in the future. This issue is very applicable in the case of ECV in Ontario, as most of these vegetables are currently imported to Canada (Adekunle et al., 2011). As fresh vegetables travel long distances they lose quality and nutritional values due to longer time taken between harvesting and point of sale (Adekunle et at, 2011).

3.3.3. New trends: local, organic and ECV

The current dominant food system is a result of a complex set of activities and relationships developed over many decades. According to the Toronto Food Policy Council Ontario (2010), the term “food system” is commonly defined as the complex set of activities and relationships related to every aspect of the food cycle, including production, processing, distribution, marketing, retail, preparation, consumption and disposal. At present, there are some emerging issues associated with the current food system such as increased consumption of energy, health problems, economic, social and environmental issues which have to be addressed.

There is an increasing awareness among Ontarians today regarding quality, health benefits, and other social, environmental and economic benefits associated with food (Donald, 2009). According to Filson (2011), as the latest international food regime becomes increasingly globalized, standardized as well as homogenized, a counter consumer trend has emerged which includes a demand for local, quality, fresh, organic and ethnic food.

According to the Toronto Food Policy Council (2010), at least 10 percent of the Toronto immigrants’ household are unable to afford regular meals and a healthy diet. Newcomers are often more vulnerable to poverty, unemployment, underemployment and

social isolation. They also face challenges in adapting to new ways to access, prepare, and eat food in Canada, while trying to preserve their healthful food knowledge and practices. These factors together have contributed to a decline in the health of many immigrants over time.

According to Seccombe (2007), farms in and around the GTA have very little produce to offer the food of new Canadians, and there are no practical ways for the experienced growers among immigrants to access the land and grow more of the crops of their homelands here. But those vegetables are imported to the country every day from Mexico and California, Caribbean and Asia. At present about 60% of the fresh produce is imported from the United States (Lister, 2007). This trend has been further supported due to various challenges to grow them locally. Apart from the shorter cultivation season, NAFTA and WTO trade rules have enabled importing vegetables to Canada from outside (Donald, 2009). But, on the other hand it has been found that some of these vegetables can be grown in Canada successfully where local farmers have the opportunity to tap this niche market (Adekunle et al., 2010).

3.3.4. Role of ECV

Local production of ECV has multiple benefits including health, environmental and the economic advantages to local farmers. It could be a good opportunity for newcomers to Canada, who while meeting the need for access to culturally appropriate foods, could also contribute to the local economy (Adekunle et al., 2010; Lister, 2007). Further, ECV can be a profitable business to add by diversifying unprofitable crop enterprises in existing horticultural farms. For example, it is an alternative to tobacco cultivation which results soil degradation issues (Lister, 2007). By producing locally,

ECV can utilize local supply networks which can benefit the environment by reducing product transportation requirements while protecting the product quality (Kelleher et al., 2008). Even though ECV has an important role to play in the local food system, there are some issues to be addressed.

It is important to understand the specific environment of this new niche market in order to answer how the demand for ECV can be satisfied by producing them locally. It is doubtful that producers are fully aware of the nature of the demand and other characteristics of the product of the emerging ECV market in Ontario, and there is a need for research on the development of the market linkages between the farmers and the retailers of these ECV (Adekunle et al., 2011).

According to Kelleher et al. (2008), farmers need proof of a strong market before they will make a decision to switch into ECV production. Profitability is a major criterion for farmers to switch into ECV. Farmers need to know the approximate costs of production including profit that they can make by producing ECV. This information is, unfortunately, very hard to get because those already producing okra, bitter melon, smooth amaranth, bok choy, etc. are loath to share that information. Farmers also need to know what the most popular ethnic vegetables are that are being demanded, the best places to market them, the quantities of vegetables they can realistically produce and farm gate prices which will encourage local production of ECV (Kelleher et al., 2009).

Previous research has shown the demand for ECV but much of the other information required (above) are still unknown. One reason behind this lack of information is the novelty of ECV to most farmers and other stakeholders involved in the ECV sector. Hence there is a need for understanding the whole value chain of ECV in Ontario. According to Kelleher et al. (2009), consumers of ethnic food can be broadly

divided into three groups: ethnic communities, ethnic retailers and ethnic food processors. Therefore, it is important to collect information from all these groups in understanding the market.

3.4. Understanding value chain

Value chain analysis breaks down the stages that a product moves from its production to final sale with the objective to identify the areas of inefficiencies or ineffectiveness, and to identify where and how the value could be increased by improvements within the chain or through enhancing linkages between organisational activities (Rieple & Singh, 2010).

According to Huppert and Urban (1998), value chain analysis is the analysis of interactions and transactions between the actors in a particular industry to maximise profits through the chain operation. Further it involves analysing the interfaces in each stage of the value chain in order to understand the different transactions and interactions, and how demand is created between each actor. In addition, value chain analysis helps to discover key interventions in achieving win-win solutions for each and every actor.

3.4.1. Vegetable value chain & ECV

With the growing interest in healthier, higher quality and locally produced vegetables in Canada, ECV has a major role to play in the future of the Canadian food system. There is a rising trend which supports the local food movement in Canada over global commodity chains (Filson, 2011). According to DeWeerd (2009), local agriculture improves the overall income of the community and economic activity and provides better profits for farmers. Integrating ECV into local agriculture and markets

through proper understanding of all value chains is crucial and will help to identify future needs.

According to Steiner (2009), value chains have become of key importance within the fresh fruit and vegetable sector in accessing markets in developed countries.

Understanding the value chains is important for market access where strategic alliances and joint ventures allow small and medium-sized fresh fruit and vegetable firms to reach and expand to global markets and to source from more countries. In addition, due to the perishable nature of fresh fruits and vegetables, the value chains help to manage the risk through their contractual relationships. An efficient value chain for fresh vegetables is essential to achieve the shortest lead time to ensure that the product is made available to the final consumer at its best quality. In addition, well managed supply chains will help both the retailer and the supplier to remain profitable and competitive in the marketplace (Grimsdell, 1996).

According to Grimsdell (1996), the supply chains for fresh vegetables throughout the world are fragmented and co-ordination and communication between each actor (growers, agents, processors and retailers) are vital for success. Information technology has increasingly enabled value chains to make further efficiency gains through effective communication among producers and other actors along the chain (Steiner, 2009).

Accurate and timely flow of information between marketers, processing facilities and field managers is a crucial factor of success in fresh vegetable supply chains (Grimsdell, 1996).

Grimsdell (1996) explains five fundamental requirements for an efficient fresh vegetable supply chain between growers and retailers drawing his experience from British Fresh Produce Limited (BFP), UK, one of the largest fresh produce suppliers.

These key requirements are: scale of operation, strategic alliances, production flexibility, continuity of supply and quality control.

The scale of operation helps to ensure supply throughout the year at required volumes. Strategic alliances within the food supply chains have become more and more integrated with leading market chains, where no primary producers market directly to retail customers (Steiner, 2009). This stresses the point that giant retailers are in the middle between producers and consumers in handling the produce. There are formal contacts and agreements between producers and supermarkets, but strong relationships and understanding are key requirements (Grimsdell, 1996).

According to Grimsdell (1996), the third major requirement is production flexibility. It depends on the number of processing contacts of a grower (supplier) possesses. It helps to supply different varieties and a diversity of grades and thereby helps to manage the risk by avoiding dependence on a single buyer.

Continuity of supply is linked to marketing programs, it also improves production management, and also helps for careful planning of crop planting. Quality control is one of the most important areas where product specifications, due diligence and accurate record keeping are essential. Careful checking and maintaining quality aspects throughout the production process guarantees the traceability of the product back to the producer (Grimsdell, 1996).

Epperson and Estes (2006), suggest that in the US, traditional ways of producing and handling fruits and vegetables are changing rapidly with growing concerns of quality and value added characteristics. Consumers have broadened the definition of quality during the last decade for fresh fruit and vegetables such as nutrition content, genetic composition, and brand label and pesticide residues. The traditional criteria like price,

appearance, taste and availability of substitutes remain the same. These new value added and quality concerns have influenced buying patterns and the whole value chain is undergoing changes. This could be directly related to ECV consumer requirements, because the nutritional value, organic and authenticity are some of the key attributes for ECV purchasing decisions.

The pressure of value chain management of the vegetable industry has reached to the producer level today, and success depends on the understanding of the complex relationships at each inter-phase (Epperson & Estes, 2006). Efficiency of information flow and regular communication between the growers and retailers is an important process where product standards, quality and safety requirements, and consumer preferences are understood by both ends (Grimsdell, 1996).

According to Steiner (2009), North American small-scale producers and wholesalers in fruit and vegetable chains are facing greater challenges than their larger scale counterparts. They are experiencing new types of taxes imposed by retailers in the form of service fees (for food safety certification) and slotting fees (to access the shelf space). Further, these vegetable value chain actors have to adjust to the procurement practices of larger retailers which are likely to be more difficult for small-scale value chains due to higher transaction costs than are paid by those in large-scale value chains.

3.4.2. Value chain and supply chain

The terms value chain and supply chain are used to describe the total process of delivering a product from the producer to final consumer. According to Parsons (2009), “A value chain is a chain of activities. Products pass through all activities of the chain in order and at each activity the product gain some value. The chain of activities gives the

products more added value than the sum of added values of all activities” (Parsons 2009 in Porter 1985, p 19)

Parsons (2009) describes a value chain as a type of supply chain, where supply chain is a more generic form and value chain is a more superior concept. Traditionally a supply chain consists of many components, from producer to final consumer, and each of these chain partners are linked through sharing of information and a relationship. The chain is fairly long and complex where some components operate largely in isolation from the rest of the chain partners especially when the chain is too long (Feller et al., 2006). There is little motivation to share information and, innovation is focussed at the individual component level, but not the whole chain level. Each partner attempts to buy low and sell high to maximise their margin. This can lead to internal competition rather than achieving efficiency across the whole chain and can be a dysfunctional structure when it comes to supply chains which are totally customer focussed. This is relevant with food supply chains where customer requirements, price signals, etc. need to be understood quickly and communicated throughout the chain to deliver maximum value back to the customer (Parsons, 2009).

Furthermore, according to Parsons (2008), when compared to the traditional supply chain, the value chain has fewer components and these few chain partners look at the same information. These few partners normally are the key actors of the chain. It has all the other chain partners which could be seen in a generic supply chain, but they have been considered as service providers. Service providers do not take the ownership of the product, but gain a service fee for their contribution. This type of value chain is also known as a collaborative value chain. It is a comparatively short chain where information is shared internally for new innovations to solve product or logistical problems.

Competition is seen as healthy and collaborative value chain members do not compete internally, but compete against other chains. These chains can be local or international. Value chains are totally consumer focussed and demand driven to deliver a product to the customer in a very efficient manner. According to Grimsdell (1996), with better understanding of each other's need in the value chain, participants can invest with confidence in the people and technology needed to maintain and improve the competitive advantage of the chain.

Feller, Shunk and Callarman (2006) explain that the concepts of supply chain and value chain have been used in explaining the dynamics of business in optimizing performances. According to Feller et al. (2006), supply chain is more focused on the production requirements and then delivering the product to the customer in a timely profitable manner. On the other hand, the value chain, as the name implies, is primarily focused on the benefits that accrue to customers and the value of the product perceived by the customer when it is delivered. Further Feller et al. (2006) comment that for supply chains to generate maximum value in this dynamic environment, they must synchronize the flows of supply with the flows of value from customers in the form of rapidly shifting tastes, preferences, and demand. Thus, the primary difference between a supply chain and a value chain is a fundamental shift in focus from the supply base to the customer. Supply chains focus upstream on integrating supplier and producer processes, improving efficiency and reducing waste, while value chains focus downstream, on creating value in the eyes of the customer (Feller et al., 2006).

3.5. Wholesale and retail prices and willingness to pay for ECV

Understanding the trends in wholesale and retail price fluctuation of ECV helps to understand the ECV market better in order to plan the local supply of ECV. There is no comprehensive information available regarding ECV production. According to Kelleher et al. (2009), beside the availability guides for ECV in Ontario which provide limited information for a few Chinese vegetables, there are no comprehensive records available for ECV in Southern Ontario. A similar situation exists with the marketing data for ECV. There is no detailed information available on prices and volumes of ECV produced locally or imported to Canada. Beyond analysing and identifying the different activities on a business, value chain analysis is also a quantitative tool used to evaluate which activities add value or not (Dolan & Humphery, 2004). Therefore it is important to know the prices, both at retailers and wholesaler and producer prices to analyse the ECV sector at different levels to understand the risks and opportunities. In addition Kelleher et al. (2009) stress the importance of understanding the willingness to pay for locally grown ECV. Puduri and Govindasamy (2011), also report on a similar study done in the United States in understanding the willingness to pay more for locally grown ethnic produce. According to them the results of the study can be useful to policy makers, local farmers and marketers who target ethnic consumers.

3.6. Conceptual framework

Understanding the relationship among the variables, institutions and stakeholders in the ECV value chains and the broader market needs close examination of various actors and direct and indirect influences they have on chain performance. Figure 3.1

provides the framework to understand the different stakeholders, activities, and the variations of ECV value chains in Ontario.

ECV demand in Ontario market is met through a range of different channels. Primarily, two types of ECV chains can be plotted as local and international value chains. But there are many more sub-chains associated to those “local-shorter” and “international-longer” chains.

Long and global ECV value chains have been set up in a way that produce from various countries are sourced and distributed to the Canadian market. In this view, ECV value chains could be seen as an embedded part of the existing dominant fruit and vegetable (FV) supply chains. But it has its own characteristics that differentiate it from mainstream FV chains. Development of long and more internationally driven supply chains in the agri-food sector is a prominent result of the new food regime (Friedmann, 2005 & McMichael, 2009). According Burch and Lawrence (2009), these agri-food supply chains are led by transnational corporations in the North with a power transformation from production sector to the retail sector that is dominated by global supermarket chains.

On the other hand the shorter chains originate from the local producers in Ontario. These farmers can be categorised into two groups based on their scale of operation. The small-scale producers are new and less experienced relative to large scale producers. Small scale farmers do their production during summer months, produce organics and use diverse methods of marketing to reach their customers. Farmers markets, community shared agriculture (CSA) arrangements and direct sales are some of the commonly used methods. This could be viewed as a part of the trend against the dominant food system

reflecting the counter consumer demand for local, quality, fresh, organic and ethnic food (Filson, 2011).

Some of the large scale farmers have more organized marketing arrangements where they supply their ECV to large ethnic supermarkets and to the OFT farmers' market. In addition to summer cultivation, some large farmers have overseas production arrangements in countries like Mexico to keep supplying the produce year round (personal communication with Dr. Mary Ruth McDonald on May 2011).

The second main chain involved the importing of ECV to Canada from overseas. The main intermediaries here are the OFT and the independent importers. The OFT consists of a set of large scale importers and wholesalers who import vegetables including ECV from different countries. The OFT is the largest wholesale market in Canada where wholesalers, retailers and supermarket chains source their fresh fruits and vegetables. A very large amount of ECV is moved through the OFT to retailers throughout the year. The OFT provides all logistics and other facilities for a smooth operation in vegetable distribution.

These large scale suppliers/importers and retail supermarket chains source vegetables from different countries to reduce risk and maintain consistency in supply. Many of these giants have their own production arrangements outside Canada; in the US and many developing countries in South America, Latin America and Caribbean countries.

Within the new food system, both retailers and manufacturers can have ownership of a supply network by vertically integrating or diversifying into other segments (Reardon et al., 2003). This has been further supported by the trade liberalization policies such as the North American Free Trade Agreement (NAFTA) and by the World Trade

Organization (WTO) and improved logistics within the agro-food system. Reardon et al. (2008) describe two stages of in transformation of agro food system over the last 50 years as; pre liberalization/pre globalization, before the 1980s, and the second stage is liberalization/globalization started in early 1980s to date. The pre-liberalization stage was characterized by government attempts to transform and modernise the agro-food system to formalize and expand the scale of operation while the liberalization stage mainly involved trade liberalization and logistics developments in the agro-food industry.

In addition to that, when competition between retailers in the developed economies rises, powerful retailers have expanded their operations to seek opportunities in developing countries through foreign direct investment (FDI) (Chen et al., 2005). In sum, at present retailers have become powerful players in the food system. Coe et al. (2005) explains the use of different forms of power by the retailers within supply networks. They are pricing control, inventory control, just in time delivery, consignment shipments (where ownership of the goods remains with the supplier until they are sold), and demands for customised packing.

Apart from the large scale players, another important channel of ECV supply is through independent importers and distributors. The numbers of these independent agents are high for ECV in the GTA. This may be due to the diversity and variation of ECV sector in terms of supply and marketing. According to Hughes (1999), large supermarket chains purchase many products in bulk and have more bargaining power over other actors. But, producers with strong brands, small firms producing high valued unique products, or firms with a unique geographical advantage also have a relatively strong position.

These independent importers distribute their ECV to ethnic stores where they have good business and social and cultural relationships. Hughes (1999) further explains that power relationships between retailer and supplier are characterised by their mutual dependency on each other. In addition, power relations between retailer and manufacturer vary with the social and special contexts. The context of ECV marketing has a relevance to the above factors due to the variability of the produce and the actors involved in the value chain. All these major activities occur with the support of many other related supporting activities.

Product movement from producer to consumer is supported by a range of supporting and logistics activities despite their origin. These services broadly include input supply, research and extension, transportation, storage, processing and marketing.

Supporting activities of the value chain could be seen differently depending on the industry or the way it needs to be analysed. According to Porter (2002), all the activities in the value chain are divided as primary activities and support activities. Primary activities directly deal with creation or delivery of a product, and are grouped into five main areas: inbound logistics, operations, outbound logistics, marketing and sales and service. The primary activities of the ECV value chain are the production, various activities done by the suppliers including production arrangements, logistics involved in shipping and storage and marketing of the produce. Supporting activities falls into four key areas as procurement, technology development (including R&D), human resource management, and infrastructure. The role of the supporting activities is to support the primary activities to help to improve their effectiveness and efficiency.

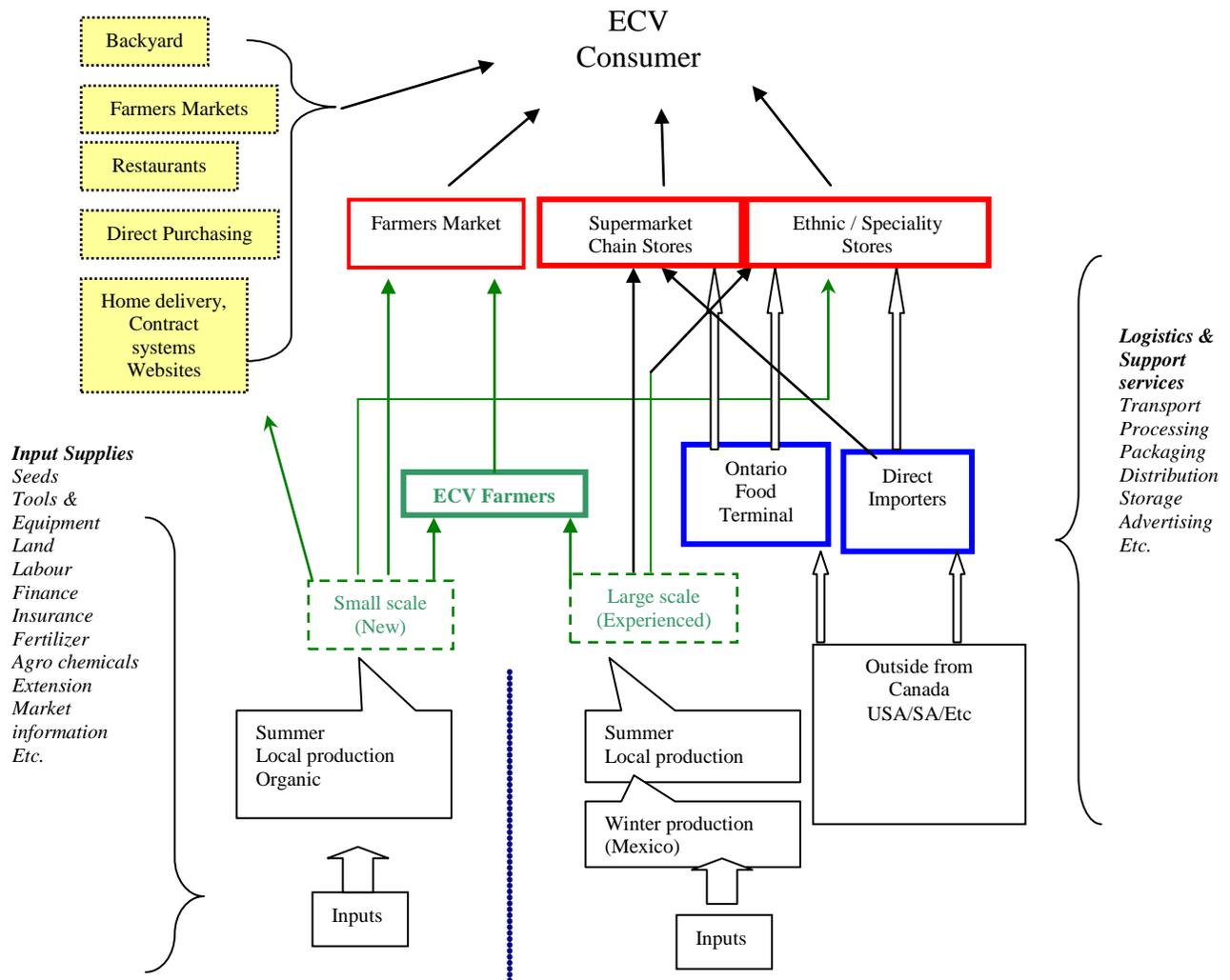


Figure 3.1 Conceptual Framework

3.7 Summary

Food regime theory helps to understand the changes and various power dynamics over the period of time when transforming the food systems. This new food regime is characterized by the dominant transnational corporations with long driven food chains which have centralized procurement and product standardization. Supermarkets have secured a strong position in the system that have the power to control producer, intermediate and also the consumer choice to a greater control. At present the negative consequences of the long and energy consuming food chains are alarming with respect to the Ontario's food system.

In the case of ECV, most of the produce is imported into the country from other countries. There is strong evidence that some of these ECV can be grown under local conditions successfully if gaps in knowledge and other supports are addressed. Understanding the value chain of ECV is critical to the development of appropriate policy interventions that serve as a pre-requisite for promoting the cultivation of ECV in Ontario. The existing ECV value chain is a web of chains that falls within short-local and long-international value chains.

CHAPTER FOUR

RESEARCH METHODS

4.1. Introduction

The purpose of this chapter is to present the research design undertaken in this study. It provides a detailed explanation of the methods and techniques used in data collection and analysis. A detailed account of selection of study setting, selection of participants and the conduct of interviews are provided. Then the methods of data analysis are discussed.

4.2. Research Design

This research adopts an exploratory and descriptive research design. By looking at the aims and objectives, a combination of both qualitative and quantitative research methodology was adopted to achieve the best possible goals.

Production and marketing of the ECV in Ontario is an emerging area and its importance within the local food systems is being increasingly recognized. During the proposal development stage, it was clear that lack of understanding about the context and the complexity of the ECV market would be major anticipated challenges. Looking into the first three objectives, understanding the value chain, interactions, challenges and opportunities and developing a conceptual framework required exploratory research using a qualitative research approach. On the other hand, quantitative methods are appropriate for analysing price and numerical data. Therefore a mixed method approach is employed.

In a mixed-methodological design study the researcher collects both qualitative and quantitative data, and both themes and statistical analysis are presented (Creswell,

1994). The main idea of mixed methods is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone (Creswell & Clark, 2007).

4.3 Study Area and Sampling procedure

The study was carried in the South Western Ontario including the GTA. The field activities were conducted during the period of March 2011 to August 2011. Key informants were identified using a snowball sampling strategy due to the lack of information available about the respondents. Purposive snowball sampling is a non-probability sampling method where samples are selected on the basis of the researcher's judgement, and are appropriate when participants are difficult to locate in a special population (Babbie, 2010).

4.4 Data Collection Methods

Multiple data collection methods were used in this study. Qualitative research utilizes a number of methods to generate data, where interviews, observation, focus group discussions, case studies and content analysis are widely used (Pope & Mays, 1995).

4.4.1. In-depth Interviews:

Interviewing is a widely used method of collecting data where interviewers orally ask questions and record respondents answers (Babbie 2010). The respondents have the opportunity to express their experience and knowledge while the interviewer has the advantage to question and clarify things from the participant (Mason, 2002). In this research, interviewees were selected from the different stages of the ECV value chain

representing every function of the ECV value chain (See table 3.2). A detailed interview guide was used (see appendix A), and were recorded using a voice recorder. The first part of an interview was focused on the background information and then, the involvement in the ECV market was explored in detail.

Eight farmers were interviewed representing small-scale ECV producers, large-scale ECV producers, and non-ECV producers. Small scale farmers were located at McVean farm in Brampton while large scale farmers were found from Markham and Niagara areas. Four researchers were interviewed from the University of Guelph, Vineland and Simcoe research stations, and at Holland Marsh. Two large scale importers were interviewed at the Ontario Food Terminal representing wholesalers. In addition to wholesale operations, they also represented logistics / support services. Furthermore, two senior personnel from OFT were interviewed for logistics about food marketing at the OFT. Two senior marketing managers from two leading chain stores were interviewed representing the retail sector. Five ECV consumers were also interviewed.

Table 4.1. In-depth interview participants' summary.

Stakeholder	Related Value Chain Activity	Institution	Location	
Small scale Farmer	Supply	Community farm /self employed	Brampton	
Small scale Farmer				
Small scale Farmer				
Small scale Farmer				
Large scale Farmer		Private business operators	Niagara	
Large scale			Markham	
Large scale			Markham	
Non Ecv farmer			(Producer non ECV)	
Researcher	Support activities	Research Stations	Holland Marsh	
Researcher			Guelph	
Researcher		University	Vineland	
Researcher			Simcoe	
Extension / coordination		Support / Input supply	NGO	Guelph /Brampton
Wholesaler /importer		Purchasing /processing / distributing /operations	OFT	Toronto
Wholesaler				Toronto
Retailer		Purchasing / Marketing & sales	Chain Store	Cambridge
Retailer			Scarborough	
Operations Manager	Support activities /logistics	OFT	Toronto	
CEO			Toronto	
Consumers (5)	Demand		Guelph	
Total number of interviews 20				

4.4.2. Observation

Observation is one of the oldest forms of qualitative data collection method where the researcher is mainly recording his or her own observations in a selected setting.

Generally observation is accompanied with other forms of data collection methods such as interviews or focus group discussions (Mays & Pope, 1995). Most of the interviews in this study were conducted in the field (e.g. farms, research stations, stores, food terminal, etc.), thereby providing an opportunity for better understanding of the situation and opportunity for clarifications. Four visits were made to McVean farm to observe the different production and marketing activities undertaken by the ECV farmers.

Furthermore, five visits to the OFT gave an opportunity to see the different vegetables

including ECV availability at both importers as well as at the farmers market. Ethnic grocery stores in the GTA were visited three times. In addition, I participated in two conferences at Vineland and Simcoe research stations to gain an understanding of the ECV production research trials.

4.4.3. Focus Group:

I participated in a focus group discussion (one day workshop) organised by the Farm Start with the involvement of about 25 ECV farmers. Focus groups are forms of interviews which usually comprise a group of people with similar experiences. Focus groups are popular among researchers as a rather easy, quick method of data collection from a group of people simultaneously (Kitzinger, 1995).

4.4.4. Price Data

Wholesale prices of 15 highly demanded vegetables were collected from the OFT on a weekly basis. In addition, bi-weekly retail prices from eight stores (six different ethnic stores and two mainstream chain supermarkets) were collected from the ongoing ECV Ontario research project. These data were collected for the period of March 2011 to August 2011.

4.4.5. Survey data

Data for determining willingness to pay for ECV were used from a previous study. Primary data were collected during a market research (Preferences for Ethno-Cultural Foods in the Greater Toronto Area: A Market Research) by Adekunle, Filson and Sethuratnam, in 2009. A total of 750 main grocery buyers from households were

interviewed using a semi structured questionnaire. The questionnaire was designed to obtain information on vegetable expenditure, consumption of ECV, acculturation, background information and personal characteristics. Some of the questions were Likert-type questions. The other questions were structured categorical or open ended.

4.5. Data Analysis

This section describes the analytical procedure carried out in this study. Qualitative data were processed using coding and analysed using thematic analysis (and using some concepts of grounded theory), while quantitative data were analysed using descriptive statistics.

4.5.1. Coding and Thematic Analysis

Interview data was transcribed carefully from the voice recorder and re-read the scripts together with any field notes made during the data collection. It is essentially important that the researcher is extremely familiar with their data if the analysis is to be insightful in coding thematic analysis (Patton, 2002). The next step was the coding which helps to identify patterns and themes. An initial idea of themes was developed during the time of proposal development and literature review.

Coding is the starting point of the qualitative data analysis which helps to discover patterns in the data. Here, brief verbal descriptions were applied to chunks of data, and the codes were defined in order to do a meaningful analysis. According to Patton (2002), the researcher reads and re-reads data several times until he/she captures a thematic code and it is an ongoing process where earlier codes may adjust in the light of the full picture of the data.

Babbie and Benaquisto (2010), explain further the procedure for creating codes by open coding, axial coding and selective coding. During open coding, mutually exclusive categories are developed. Data are broken down into discrete parts, closely examined, and compared for similarities and differences. The result of open coding is the identification of numerous concepts relevant to the subject under study. These abstract concepts are termed categories. According to Corbin and Strauss (1998), there are variations of doing open coding as line by line analysis, sentence or paragraph analysis or peruse the entire document.

Few themes and codes were identified after thorough examination of the data. Coding was started with small scale farmer interview transcripts, and then moved to large scale farmers and intermediaries of the value chain. The connections between code categories, similarities, patterns and differences were identified. Some of the key themes identified were ECV demand, production, supply, markets, marketing linkages, supporting organizations and supporting activities and extension of knowledge.

4.5.2. Analysis of Quantitative data

Quantitative data were processed and analysed using EXCEL and SPSS software packages. Descriptive statistics were used to explain the wholesale and retail price data. A logistical regression model was used to determine the factors behind the willingness to pay more for ECV.

4.5.2.1. Logistics regression

Willingness to pay for ECV was determined using data from the previous marketing survey with 750 main grocery buyers from households belong to three largest ethnic groups in the GTA. Each group consisted of 250 respondents. The instrument used

for the study was a semi-structured questionnaire. Binary logistics regression was used in this study as all the dependent variables were not numerical values. Instead, the response of some variables is simply a designation of one of two possible outcomes; a binary response.

In this study, various factors that may possibly affect the willingness to pay for ECV were selected from the survey data set. One of the questions the respondents were asked was whether they were willing to pay more for ECV. The response was obtained using only two answers (yes or no) and served as the dependent variable. The independent variables were combination of categorical and continuous variables. Detail description of variables used is presented in the table 4.1. Re-coding was done for a few independent variables to make them categorical enabling to run a binary logistics regression. Pearson partial correlation was use to examine the linear relationship between variables. Willingness to pay for ECV was further analysed among the three ethnic groups to understand how different factors affect the decision in each group and to compare between them

The Binary Logistic Regression Model:

$$WTP = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \dots + \beta_{18} X_{18}$$

Dependent variable (WTP) = Willingness to pay

Table 4.2. Description of Explanatory variables

<i>S. No</i>	<i>Variable</i>	Description	Measurement
1	X1	Importance of store availability	(Important=1, Otherwise=0)
2	X2	Importance of the selection	(Important=1, Otherwise=0)
3	X3	Importance of the freshness	(Important=1, Otherwise=0)
4	X4	Importance of the price	(Important=1, Otherwise=0)
5	X5	Importance of the packaging	(Important=1, Otherwise=0)
6	X6	Importance of place of origin	(Important=1, Otherwise=0)
7	X7	Importance of taste	(Important=1, Otherwise=0)
8	X8	Importance whether grown in ON	(Important=1, Otherwise=0)
9	X9	Importance of medicinal value	(Important=1, Otherwise=0)
10	X16	Highest educational attainment	(university level=1, other=0)
11	X11	Monthly spending on ECV	(in \$)
12	X17	Total household monthly Income	(in \$)
13	X18	Household size	(number of people)
14	X15	Gender of the respondent	(male=0, female=1)
15	X14	Age of the respondent	(in years)
16	X10	Role of advertisement on ECV purchase	(If play a role=1, Otherwise=0)
17	X12	Whether respondent is a vegetarian	(Vegetarian=1, Otherwise=0)
18	X13	Does acculturation effect?	(If yes=1,Otherwise=0)

4.5.3. Summary

This research adopts an exploratory and descriptive research design. A mixed method approach is employed to achieve the best possible goals. Multiple data collection methods were used in this study including in-depth interviews, observation and focus group discussions. Quantitative analysis used some secondary data from a previous consumption survey. Qualitative data were processed using coding and analysed using thematic analysis, while quantitative data were analysed using descriptive statistics.

CHAPTER FIVE

RESULTS

5.1. Introduction

This chapter presents the results of the study. Findings are stated and discussed in two sections. The Findings of the field interviews and other various qualitative data sources are presented in the first part. The next section presents the quantitative analysis. Figure 5.1 summarises the structure of chapter five.

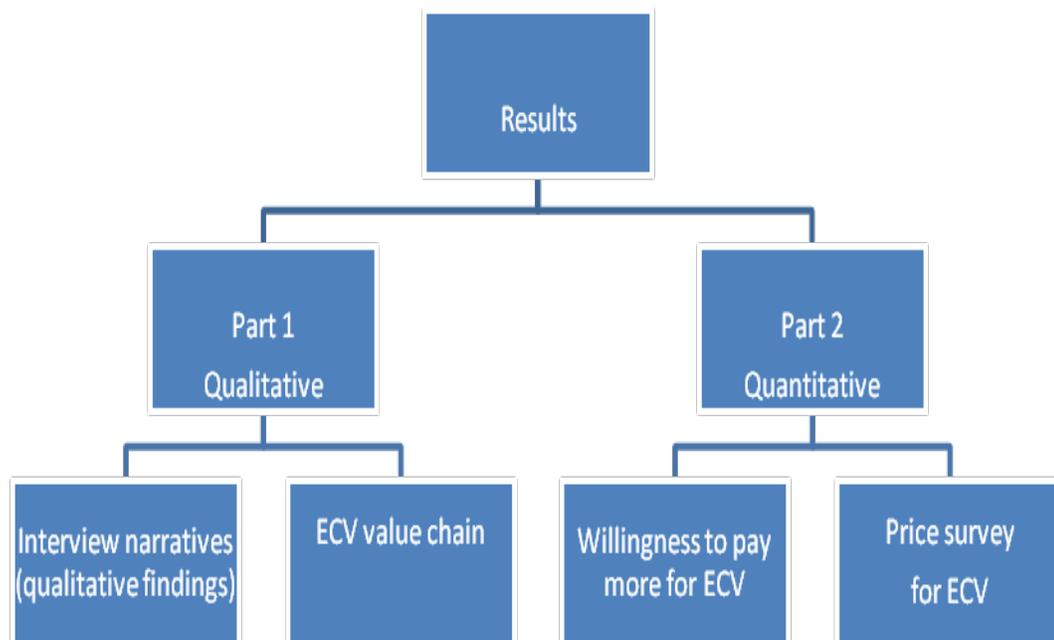


Figure 5.1 Overview of the results

Part 1

5. 2. Qualitative data analysis and findings

The qualitative data analysis was conducted to achieve the objective of understanding the ECV value chain. Several key themes emerged as a result of the coding of interview narratives. The themes include ECV supply, marketing and distribution of ECV, socio-cultural aspects, knowledge and extension, challenges and policy barriers and the demand. A summary overview of the themes is given in the figure 5.2.

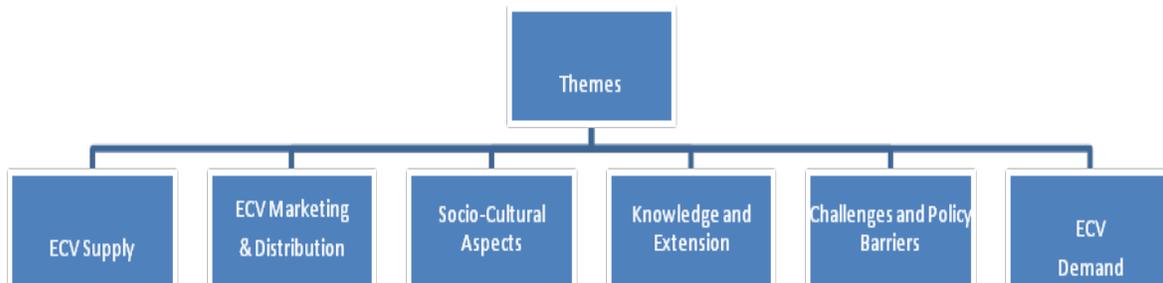


Figure 5.2. Overview of the themes

Findings are presented under each major theme and sub topics are added wherever required. A few of the interview narratives were cited as appropriate for better explanation of the findings. In-depth interviews were the major tool used in this research apart from observation, focus group discussions and secondary data. A summary description of the interview participants is given in the table 5.1. Participants were given an identification number (ID) to keep them anonymous.

Table 5.1. Description of interview participants

ID	Participant	Related Value Chain Activity	Activity / Institution
ID 1	Small scale Farmer	Supply	Self employed McVean Brampton
ID 2	Small scale Farmer	Supply	Self employed McVean Brampton
ID 3	Small scale Farmer	Supply	Self employed McVean Brampton
ID 4	Small scale Farmer	Supply	Self employed McVean Brampton
ID 5	Small scale Farmer	Supply	Self employed McVean Brampton
ID 6	Large scale Farmer	Supply	Self employed Markham
ID 7	Large scale Farmer	Supply	Self employed Niagara
ID 8	Non Ecv farmer	Supply	Self employed Niagara
ID 9	Researcher	Support activities	Holland Marsh New Market
ID 10	Researcher	Support activities	University of Guelph
ID 11	Researcher	Support activities	Vineland Research Centre
ID 12	Researcher	Support activities	Simcoe Research Centre
ID 13	Extension / support	Support activity	NGO Guelph
ID 14	Wholesaler /importer	Marketing / Logistics	OFT Toronto
ID 15	Wholesaler	Marketing / Logistics	OFT Toronto
ID 16	Retailer	Marketing & sales	Main Retail Chain
ID 17	Retailer	Marketing & sales	Main Retail Chain
ID 18	Operations Manager	Support /logistics	OFT Toronto
ID 19	CEO	Support /logistics	OFT Toronto

5.2.1. ECV Supply and marketing

The existing and rising demand for ECV today in Ontario is mainly fulfilled through importing these vegetables to Canada from outside (Adekunle et al., 2011). Even though some of the ECV are produced in Canada during the summer months, there are few statistics available on producers, farm sizes, crops or quantities produced (Gunst et al., 2009) and what exists is largely out of date (e.g. Wang and Cerkauskas, 1999). Therefore, in attempting to understand the value chain for ECV in Ontario, two major types of value chains can be identified. One of them originates locally while the other is international (see figure 3.1; conceptual framework) though these two value chains form a continuum with some variants in between.

The farmers who grow ECV locally can be categorised into two main groups as small scale and large scale depending on their scale of operation. This section presents the finding relating to the production and marketing of ECV by both small scale and large scale farmers locally.

5.2.1.1. Production by Small scale ECV farmers

The small scale new ECV farmer segment is scattered mostly in the GTA. The engagement of most of these new farmers with the ECV production ranges from one to five years. The five small scale farmers interviewed were immigrants with a background of farming from their original countries. Majority of them were male and only two female farmers were observed. Table 5.2 summarises their key demographic information. These farmers have obtained their lands through Farm Start at McVean incubator farm in Brampton. Farm Start is a not-for-profit organization that supports new generation farmers to develop economically viable, locally based and ecological agricultural enterprises (Farm Start 2011).

Table 5.2. Demographic information of small scale ECV farmers

ID ^a	Ethnic Origin	Sex	Years with ECV	Education & farming experience
ID 1	South Asian	M	2	MSc (Crop science in Canada), and from a farming community in Punjab.
ID 2	South Asian	M	4.5	MSc in IT and farming experience from Pakistan
ID 3	Caribbean	M	3	University education and farming background from Dominican Republic.
ID 4	Latin American	M	2	University education in Agriculture and over 25 years of experience in farming and agribusiness from Mexico.
ID 5	Latin American	M	2	High School and experience in vegetable cultivation from Colombia.

^aIdentification for participants

They have engaged in producing ECV crops due to a number of reasons such as meeting the market demand, own consumption, cultural and health benefits (see table 5.5). The average farm sizes varied from 0.25 acres to 5 acres depending on their stage of farming at McVean incubator farm, Brampton. All of them have started with 0.25 acre in the first year on a trial basis, and expanded in later years. This also complies with the land leasing policy of Farm Start with farmers. All the farmers reported that good farming land is one of the critical factors in expanding their cultivation.

The first year trial period was considered as a very good learning experience by the farmers. All of them had a mix of mainstream and ECV combination with an increasing trend towards ECV in later years. The average ratio between ECV to mainstream vegetables for ID 1, 4 & 5 was 2:8 in their first year. ID 2 and ID 3 had more ECV varieties in their crop portfolios as they have added new ECV in their later years of cultivation. All the farmers interviewed have started with 10-15 crop varieties including both mainstream and ECV.

Table 5.3. Most common crops grown by small scale ECV farmers at McVean farm

Mainstream crops	ECV
Carrot, pepper, beet, tomato, cucumber, garlic, potatoes, kale, collard greens, lettuce, Cabbage,	Okra, coriander, spinach, sweet potato, hot peppers, pimento peppers, kallaloo, eggplant, basil, bitter melon, mustard greens, bush beans, Smooth amaranth, yard long beans.

Farmers reported on their current practices, experiences and future plans regarding ECV production. Some of the common practices were crop rotation, succession planting,

increasing the range of ECV crops, continuing to cultivate mainstream crops and specialize on a few ECV crops.

ID 1 and ID 4 explained their experience in ECV production. Both of them have increased the number of ECV crops and practiced successive planting to have harvest over a period of time.

ID 1: Last year I had 15 crops both mainstream and ethnic. This time I have more than 25 crops and more than 20 varieties of Garlic varieties. Most of the crops were harvested, but I have some more to come in coming weeks.

ID 4: Last year was successful, but I was a bit late. I planned better this year. I will have crop rotation and succession planting. By doing so I would not have bulk, but harvest of a variety of vegetables fresh for my customers. I introduced different kinds of spinaches, potato and sweet potato. Sweet potato is one of the key produce I need to specialize in.

All of the farmers interviewed produced their crops organically. There was no use of any kind of fertilizers beside compost manure and no use of pesticides. Weed control was done by hand weeding which was a time consuming and labour intensive operation. They reported that obtaining inputs for organic farmers is not a problem except for seeds. One farmer reported even inputs like organic pesticides are available but none of them have been used.

Seeds were obtained mainly from local seed companies and ethnic grocery shops. But some of the ECV seeds were not available locally, so they got them from their home countries. Many farmers secure a part of the seeds for the next season. ID 1 reported that he found bitter melon and okra seeds in a recent catalogue, but all of them were Chinese varieties.

ID 1 and 2 have moved their cultivation to greenhouses this year to extend the season and to cultivate ECV better. ID 1 commented on his experience with his greenhouse:

Last time I planted bitter melon and okra both Indian varieties. But the yield wasn't good as what we got in India. Because they need lot of heat; 30-40C to perform well. Now we are putting up these house; they are like greenhouse but unheated and, covered with a plastic cover. It retains heat day and night. I got a used one for \$3000 which is 1200 square feet. A new one of 2000-3000 square feet will cost about \$5000-7000.

It was observed that there are about 25 farmers cultivating vegetables in McVean farm belonging to different ethnicities. They shared farm machinery for land preparation which belongs to the farm according a pre-agreed arrangement with the farm. Farmers were given the full freedom in their farming activities such as selection of crops or method of cultivation. The farm management basically provided the logistics and support.

5.2.1.2. Marketing by Small scale ECV farmers:

Marketing strategies adopted to sell ECV by the two farmer groups (small and large scale) had some differences. These differences existed due to many reasons such as the scale of operation, experience, accumulated knowledge about the industry, range of crops produced and the networks and relationships with the value chain. Marketing remains a challenge for many new small scale ECV farmers. The most popular ways of selling their fresh produce were farmers markets, community shared agriculture (CSAs) arrangements such as delivery of fresh vegetables in agreed time periods in summer months, buying directly at the farm or pick your own programs, and a few farmers sold their produce to ethnic stores and restaurants.

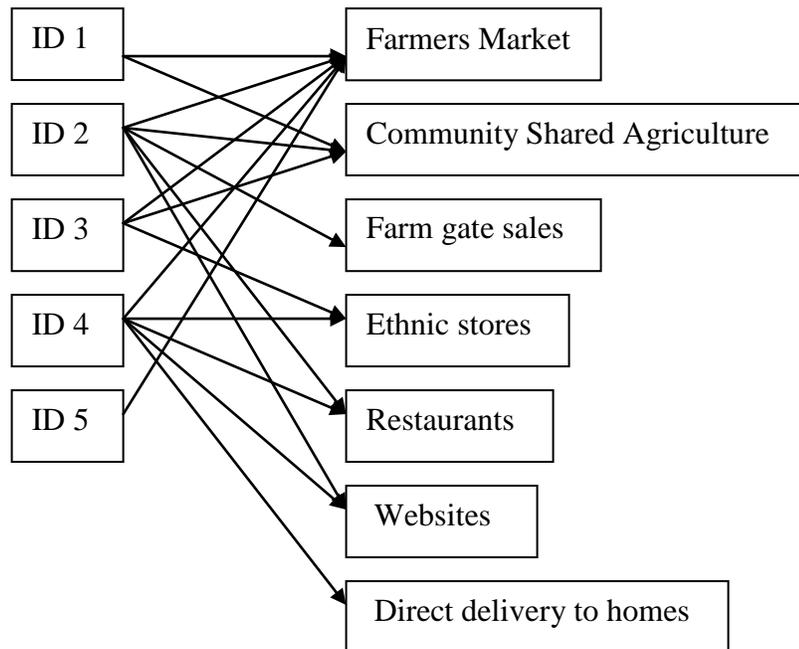


Figure 5.3. Marketing strategies adopted by small scale ECV farmers

The farmers market was the most common method for the farmers interviewed where all the farmers used to sell their produce. Farmers markets were located in different locations around the GTA, and they operate on different days of the week. Most farmers attended the farmers market in Toronto downtown and Brampton downtown. They also had a farmers’ market on the McVean farm site on every Saturday in summer months.

It was reported that having a blend of vegetables including ECV and more mainstream vegetables helped them at farmers’ markets as more mainstream customers shop there. Further it helped them to cater to consumers with their total vegetable requirement. ID 2 gave his views on farmers markets:

“Consumers who buy directly from the farmers are well educated about what they eat. They are willing to pay more for fresh and organic produce. There is also a trend to introduce new ECV to mainstream consumers”.

Beside the mainstream, there are customers from different ethnicities that visit both Toronto and Brampton downtown farmers markets to buy these speciality vegetables. ID 1 and ID 4 have found a few regular ethnic customers who buy particular ECV in bulk from them. They also reported that farmers market is a valuable place to learn about consumer interests and requirements.

Community Shared Agriculture (CSA) is another popular method. It is a pre-paid agreement for delivering a fresh vegetable box on a weekly basis throughout the summer. ID 1 explained his CSA arrangements:

I am building a small CSA. This benefits the community around you and sustainable agriculture. They pay around \$ 500 at the beginning of the season. In each week we provide a bunch of vegetables to them; 10-12 different varieties depending on the availability. The farmers are supported and clients are getting fresh vegetables directly from the farm.

A farm gate sale is another method practiced by ID 2. He is an experienced farmer who has 4.5 years of experience and five acres of land cultivated. According to him, there should be sufficient crops, area, and relatively high number of customer base to succeed with farm-gate sales. Here, customers have the opportunity to see and harvest the produce they need. This is a very good method to understand your consumer requirements and promote your business.

Selling to ethnic stores was practiced by ID 3 and 4 which was generally considered as a difficult method. These two farmers supplied vegetables to a few grocery stores in Brampton area which belonged to their own ethnic groups. Their friend and

family networks have helped them to create this market. ID 1 explained his experience with trying to sell his ECV to a retailer:

I tried with the ethnic stores where I buy my grocery. But the problem is the price, they are always on demand. They are not willing to pay us a good price. They buy from the food terminal for cheap but old veggies.

Most ethnic stores get their ECV from independent importers, wholesalers and/or distributors, directly from OFT. Some ethnic stores have their own ECV sourcing mechanisms such as direct imports from another country.

Apart from the ethnic stores, ID 2 and 4 supplied their produce to restaurants in the Toronto area. According to them, in the case of supplying to ethnic stores and restaurants, quality, timing and consistency of the supply were important. In addition, they reported that having a greater acreage of cultivation was a mandatory.

The same two farmers, ID 2 and 4 had websites for their businesses giving the details of produce available, nutritional data and recipes. Since many of the ECV are new and had different names, they believed that websites can provide additional information for customers. ID 1 and 3 also stressed the importance of giving more information such as recipes and nutritional and health benefits as consumers wish to know how to prepare them. ID 4 explained about his website and direct delivery method:

I have my website and customers' e mail me for their orders. I update it weekly. I need to be more business oriented and sustainable as I see the opportunity. The more you reach the customers and understand their needs you will succeed. I will give different ideas to cook these vegetables. I use my business card to promote my business and website. When I get orders I deliver them directly to customer from farm. Marketing skills are key.

All farmers grew their ECV and mainstream purely organically. Further it was unique that every respondent wanted to promote their produce under “organic and local” when they sell their ECV.

5.2.2.3. Production by large scale farmers

The large scale, more mature ECV farmers cultivated ECV varieties which were proven to be grown successfully in Ontario. Most of these vegetables were categorised as “Chinese Greens” such as Bok Choy, Baby bok choy, Napa cabbage, Chinese broccoli and Chinese lettuce. According to a researcher (ID 9)¹ at Holland Marsh, many Chinese greens varieties were introduced to Canada in 40-50 years earlier and, are grown successfully today. These farmers have large farms in the Holland Marsh and Bradford areas, and have been in the business for many years in Ontario. Some farmers have greenhouses to extend the cultivation season. It was reported that a few of these farmers have their own farm operations in Mexico where they manage to continue to supply these ECV during the winter months in Ontario by importing them to Canada.

ID 7 was one of the farmers who had cultivated South Asian vegetables in large scale in 2002. He is traditionally a mainstream farmer and grows year round in a large scale. He cultivated five acres of bitter melon both openly outside in the summer and inside in a greenhouse as well. According to him yields were average and his main problem was the lack of knowledge about the cultivation and handling pests. In addition, based on field observations it was reported that a few medium scale farmers grow South Asian and other ECV successfully in southern Ontario. ID 6 is a medium scale farmer

¹ Dr. Mary Ruth McDonald, Professor/ Research Trial Coordinator, Muck Crops Research Station, Holland Marsh.

who had a farm of about 12-15 acre size in Markham area. The main vegetables found there were South Asian and South East Asian.

5.2.2.4. Marketing by large scale farmers

The main methods of selling ECV by the large farmers were supplying to large ethnic supermarkets (mainly for Chinese consumers), selling at OFT farmers market and supplying to large chain supermarkets. These farmers have contracts or agreements with the large retailers specifying the conditions and requirements which had to be fulfilled by both parties. These conditions included quality, food safety, prices, volumes and consistency of supply. According to ID 17 (a senior procurement manager of a chain supermarket), they have imposed strict conditions in the last two years on farmers who supply them fresh vegetables. Some of the growers have insurance coverage for these orders.

A unique method of selling was observed in a medium scale farmer (ID 6), who produced ECV targeting mainly south and South-East Asian ethnic consumers. It was a family business where ECV like okra, bitter melon, green chillies, pepper, long yard beans, pumpkins, eggplant, kan kung and tomato were cultivated. The only method of sale was “pick your own vegetables at the farm”. According to the farmer they do not leave any vegetables to sell at ethnic stores or farmers’ market. The crops are determined based on the previous years’ experience on customer demand. They mainly focus on Filipino, South Asian and Caribbean communities.

5.2.3. ECV imports and distribution

This section examines the longer value chain which involves ECV imports to Ontario from outside the country.

5.2.3.1. Ontario Food Terminal (OFT)

Most of the fresh vegetables and fruits arrive in Canada through the Ontario Food Terminal (OFT) which is the largest facility in Canada providing all logistics for importing fresh fruits and vegetables. The OFT is the home for many large scale fruit and vegetable importers. There are about 21 large scale warehouse tenants and 50 office tenants who are engaged in importing of fresh vegetables and fruits. The average daily volume of fresh produce traded in this facility is about 5.1 million pounds per day. The average imported produce in the OFT vary from 65-75% where 25-35% is local produce. Therefore, buyers have the opportunity to see, compare both local and imported vegetables and fruits and make their purchase decision. Figure 5.4 Presents the basic structure of the OFT.

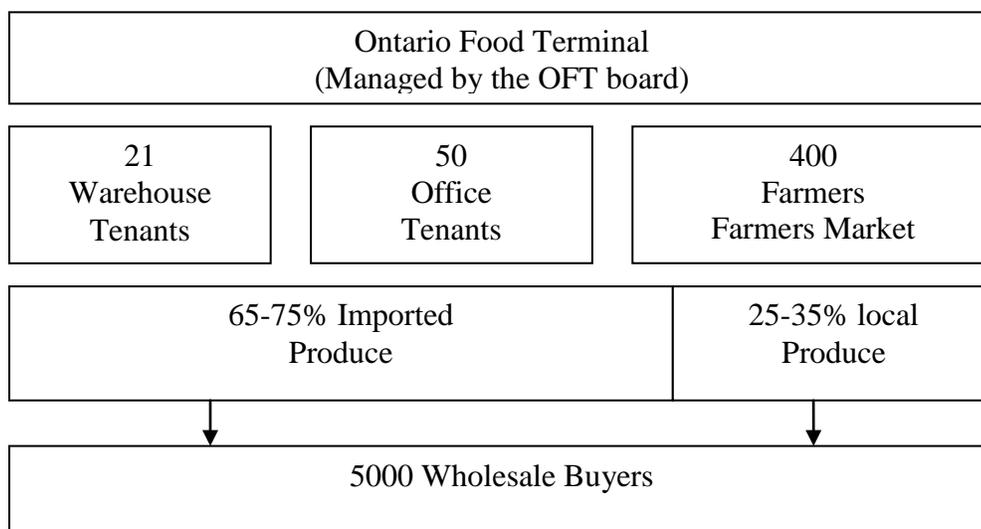


Figure 5.4 Ontario Food Terminal (source: General Manager, OFT Board)

There are more than 5000 registered local buyers at the OFT including supermarket chains and ethnic stores all over Canada. The OFT is open for 24 hours to those registered buyers only for wholesale business. The OFT is not open to the general public.

Most of the ECV imported to Canada arrive from the United States and South America. Countries such as Mexico, Dominican Republic, Peru, Guatemala and Colombia, contribute the bulk of Latin America’s produce. There are also products from Europe, (eg. Holland) and Asia (eg. China, Korea, India) and even as far as New Zealand. Table 5.4 presents some of the common ECV found at the OFT and their countries of origin.

Table 5.4. Some ECV imported through OFT and their country of origin

ECV variety	Country of origin
Bok Choy, Baby Bok Choy,	US, Canada
Napa cabbage	US, Canada
Chinese Broccoli	US, Canada
Okra	US, Mexico
Eggplant	US, India, Mexico
Coriander	US
Onion	US, Canada
Spinach	US
Bitter gourds	Dominican republic
Pumpkin	Jamaica
Plantains	Ecuador
Cassava	Costa Rica
Sweet potato	US

It also has a vibrant farmers' market strictly to market Canadian produce. There are about 400 farmers registered at the OFT farmers' market. The local production is mainly from Ontario and Quebec that generally arrives in the summer months. Ontario farmers have the opportunity to sell their produce in a facility where more than 5000 registered wholesale buyers buy their produce. The number of buyers shopping at OFT in a day can vary from 1000 to 3000 depending on the season and the demand.

OFT farmers market has more mainstream vegetables as compared to ECV. But, there are some large scale ECV farmers, that sell their produce at the OFT farmers market. According to the General Manager of OFT, there is a special section called "Chinese row" at the OFT farmers market where many Asian farmers from Bradford and Holland Marsh area sell mainly Chinese vegetables. They have been in the farmers market for many years. All the farmers have the opportunity to sell and on the other hand they have to compete with the imported produce in terms of price and quality. Farmers have to display and package the product to compete with international competition. Ontario

growers have the advantage of proximity to supply their produce in a fresher form than imported vegetables.

According to ID 14 (a large scale importer) there is an increasing trend of ECV movement in the OFT over the past two decades. For an example, at present Chinese supermarkets in the GTA buy a lot of ECV on a daily basis. According to a senior officer (ID 19), the demographic composition of the buyers has also changed over the years reflecting the GTA's ethno-cultural diversity. The buyers during the early years were mainly Italian and then Chinese, Korean, Iraqis, and South Asian appeared as buyers in the OFT in later years. At present, buyers from a mix of ethnicities and cultures source their speciality vegetables at OFT.

5.2.3.2. ECV wholesalers and distributors

The ECV purchasing process of importers depends on several factors such as market demand, availability of produce and quantities, cost, consistency of the supply and the quality. Most importers have a mix of suppliers from many countries to maintain a consistent supply year round. This is a well-organized operation between producers, suppliers and buyers where trust and mutual understanding plays a vital role equally important as contracts. Most of these business partners have a long history in partnerships.

Some of the wholesalers have integrated backward and forward in the supply chain and have diversified their businesses. For instance some have their own storage, processing and packing facilities and transportation logistics. ID 14 (large scale wholesaler cum importer of vegetables) in the OFT sources their produce both from locally and overseas. This company has been in the vegetable trading business since the

1940s and started its OFT facility in the late 1990s. Today the business is managed by the fourth generation of the owners. The general manager explained their operations:

We produce 90% of our produce by ourselves. This includes our own farms and arrangements with farmers. The relationship with farmers is very strong. It runs back to many years where they understand our expectations and requirements like what we need and quality. Most of our growers are in Canada. Once we run out with local stuff we get from US. We started to grow in US where we have a 2000 acre farm in California. 10-15% the produce comes to Canada. This helps us to maintain a year round supply under the same label.

While ID 14 explained their backward integration in the industry another wholesaler ID 15 described their operations as vertically and horizontally integrated .

We have suppliers from many countries and we do have suppliers from Canada. Our operation is more than wholesale and importing, but we have operations outside the OFT. We have our own processing centers to cater for customised orders like fresh tomato or cucumber slices for restaurants. Also we do packaging and transporting.

They import most of the ECV from the US due to the lack of availability in Canada except for the Chinese vegetables. Another is the growth of the herbs market where for example the demand for coriander has increased 5-6 times compared to 10 years ago. On the other hand, demand for parsley has decreased and to some extent been replaced by cilantro (coriander). Further, the demand for products like okra is rising and it has been always imported from US or Mexico twice a week.

The demand for ECV has been growing since the Point System was introduced in the Immigration Act of 1967 especially from Chinese /Oriental and East/West Indians (Immigration Acts, 1866-2001). The demand for other ECV produce is also increasing and the main issues are lack of availability and increasing transport costs.

ID 14, a warehouse tenet (importer and wholesaler) explains about his buyers:

Our main clients are the chain stores, small independent wholesalers, ethnic grocery stores, and intermediaries who supply fresh produce for retailers and restaurants. Chinese supermarkets are a big customer of us who developed very well in last 10-15 years.

In addition to OFT, there are many other independent importers operating in Ontario who import ECV to Canada from other countries. They are diverse in many ways such as in scale of operation, range of products handled, geographical specialization of produce, services offered and level of integration to the industry. They supply ECV to ethnic stores, ethnic supermarkets and to supermarket chains.

5.2.3.3. ECV marketing: retail sector

Most of the supermarkets have realized the need of developing their area for ECV. This could be seen as an important development within their ethnic / world food category over the last two decades in Ontario.

However, ethnic stores and chain supermarkets serve as the main source for ECV demand at present. These stores and supermarket mainly source the produce through production arrangements, from OFT and intermediary wholesalers or importers. These production arrangements are done outside of Canada mainly in the regions of Central and South America and the US. These production arrangements are done with farmers and supply agents in those countries. The selection of the country or location depends on a number of factors such as availability and nature of ECV, season, quantity, price and time taken for transportation. Apart from ECV imports, they are also supplied by local growers during the summer season, mainly Asian greens but in low volumes.

One of the leading chain supermarket's produce managers ID 16 explained their ECV sourcing process:

We have production arrangements with growers. Most of the eastern Canada is served by the countries like Dominican Republic, Honduras, and Nicaragua. Western Canada is mostly served by Mexico and California. We still use Mexico and California in east. For products like Asian Greens we use Florida and also from Canadian farms. So there are some farmers who now grow Asian vegetables.

Apart from the production arrangements they have wholesalers and importers for ECV supply. The Canadian Food Inspection Agency (CFIA) examines certain standards in importing fresh vegetables and there are no additional requirements for ECVs.

The large chain supermarkets have centralized distribution centres where all the procured fresh produce are collected and then distributed to each store. This is a global standard which has to follow certain quality and food safety requirements. This is one of the main differences between independent importers/wholesalers and chain supermarkets in vegetable marketing. This makes a clear demarcation in ECV sourcing, as still the ECV supply is not as organised as the mainstream vegetables.

Large supermarket chains primarily promote the quality and freshness of their vegetables. They mainly look for the physical parameters in purchasing of fruits and vegetables to ensure customers get fresh produce. As the customer expectations have increased over years, supermarkets try to deliver value for money. They believe that ECV also fulfil the same requirements and the customer pays for quality, variety and service.

Customers pay a premium for the quality of ECV regardless of whether they are locally produced or imported. Although large chain supermarkets have designated sections for organic produce there is no organic section for ECV. It was found that large supermarkets are very keen to know about the demand trends for ECV and the geographical areas where the demand for ethnic produce is high.

5.2.4. Socio-cultural aspects of ECV

Most of the small scale farmers were immigrants to Canada with a farming background from their countries of origin and had an interest in agriculture. Involvement in ECV production by farmers had multifaceted reasons apart from just farming. Farmers fulfil some social and cultural needs by getting involved in ECV production in addition to economic gains. Table 5.5 presents key reasons to get involved in the ECV production.

Table 5.5. Small scale farmers' reasons to get involved in the ECV farming

Reasons for involving in the ECV sector
Health benefits
Own consumption
Meeting market demand / income
Utilize own experience in producing ECV
Fulfil the need to be with in farming/to own a farm
Hobby and passion
Get in touch with the own community
Help the own community /educate on healthy food

All the farmers interviewed wanted to utilize their accumulated knowledge and experience in agriculture from their original countries and utilize it in Canada in a productive way. They all believed strongly in it. Apart from profits by selling ECV, all of them valued the opportunity to consume their own produce. Health and nutritional benefits of vegetables consumption were also considered as important factors. For most of them ECV was a major component of their diet.

ID 4 believes that by engaging in ECV business he has the opportunity to get in touch more with his own community. In return he gains a benefit by creating a secured market for his produce.

Most ethnic people get lot of food related health problems like diabetes. So they need to eat properly. I have the opportunity to teach them and provide them healthy vegetable they like. So my community has benefitted. Profit is very important, but I have the satisfaction from supporting my community too.

Elaborating more on family and community involvement, ID 1, 2 and 5 felt that farming has given them an opportunity to spend their time more with the family in the field and get their support in the field. In addition, they have generated a few part time employment opportunities for their friends in their farm too. On the other hand, socio-cultural aspects play a role in ECV marketing too. ID 17, a senior merchandizing manager of a large retail chain expressed his view about the importance of the language in their business. This supermarket chain mainly targets a specific ethnic consumer segment and they preferred to employ workers from the own ethnicity at all levels.

Language is important in ethnic food business. All our employees speak their own language so they know how to understand the ethnic consumers need better. They can answer the questions from customers and explain about products better. Also employees know very well about these ethnic produce which helps to handle the products easily in the store. Also we have used English and our local language all name boards too.

Social networks within ethnic societies also have a role in ECV business. For example a few retailers who belonged to the same ethnic group have formed a group who got together in purchasing ECV in bulk to get a better wholesale price. In another instance, an ethnic grocery owner imported ECV from India from his extended family farm. Even though they have the opportunity to buy them at OFT or from another importer, but he wished to continue to import from his extended family to support them back where he came from.

Another large scale Asian farmer at OFT farmers market stated that he has sold produce from his own family farm for the last ten tears. Now he collects and sells

vegetables from his extended family at the OFT too. This networking has helped him to meet bulk orders for Chinese veggies, and the community also benefited by getting access to OFT.

ID 5, a small scale farmer also explained about his social networks in obtaining inputs for marketing his produce.

In the first year I mainly sold my produce at a farmers' market in downtown Toronto. Then, I came to know that my fellow farmers sell their produce at some other farmer markets in other locations too. Now we go to different farmer markets as small groups on different days. It helped me to expand my market and high sales.

In addition to finding markets, having a local farmer network has helped them to share the knowledge and learn from each other's experience in ECV cultivation. ID 1, 2, 4 have used their extended family network in the countries they came from to obtain seeds and advice for cultivation.

5.2.5. Knowledge and extension

Producers in both small and large scale, wholesalers, importers and retailers commented about the gap of knowledge regarding the ECV.

5.2.5.1. Production of ECV

All the small scale farmers stated that they immigrated to Canada some time ago and there was no opportunity to do farming in Ontario, until they found FarmStart. In addition they like the idea of the "experimenting stage" in the first year especially for ECV which was useful for them to understand many aspects of cultivation and marketing.

Based on the interviews and observation it was understood that farmers have added new crops or extended the cultivation based on the lessons learned in the previous years.

Four small scale farmers reported that they frequently contact their family and friends in their countries of origin in seeking information regarding ECV. They also believed that more experienced ECV farmers are resource persons for advice. Most of the farmers did not have a clear source of information regarding ECV other than consulting Farm Start. Farm Start has supported them in fulfilling their knowledge gaps in ECV production through various training, workshops, and resource persons. Information on technical and business matters of farming was provided. In addition, Farm Start has supported them to have access to land through the McVean farm.

Based on the farmer focus group and interviews, it was understood that there is a big need for technical information on cultivating ECV locally. Information regarding cost of production, suitable varieties, green houses and coop houses, training opportunities and support services are also needed.

Another example is ID 7, who is a large scale farmer. He was traditionally a mainstream vegetable farmer and started ECV cultivation with an agrochemical company who provided basic knowledge and inputs. He did a basic market survey and understood that the product (bitter melon) has a good demand. But the agro-chemical company was unable to provide further extension required by the farmer during the middle stage of the crop. He had some problems with a pest attack and low yields. The farmer has tried to find information from OMARFA and a few other research stations, but without success. He cultivated both within the green house and outside under natural condition. He was able to sell whatever he harvested at the OFT at a good price. He still has the need for

information on production and is interested to know what other ECV have a good demand.

5.2.5.2. Marketing of ECV

All the farmers interviewed and outcomes of the focus group emphasized the need to understand the market. There is a lack of information available on ECV demand, needs of ethnic consumers and their specific preferences on ECV. Also, there is lack of information available on ECV demand in specific geographical locations within the GTA. ID 4, a small scale farmer explained about the need for knowing the market:

Like any other business we have to understand the customer. You have to see it in a cultural point of view. Need to know of the requirements of different cultural groups, what they are eating and how they cook. There may be festivals they may need specific vegetables. You have to do your marketing homework before entering the cultivation. Since this is a growing specific market, it has the potential for growth. The one who understand the market will success [succeed]?

Lack of information about ECV market remains as a critical problem to large scale retail chains too. One of the main issues faced by the retail chains regarding ECV is the lack of knowledge about the supplier base and the related procurement data. This includes data such as which produce is available, what quantities, quality, when, where and how much. In addition, generally there is a lack of information regarding how to handle ECV along the distribution channels to maintain the products in good quality. Further, ID 16 a senior manager of a leading retail chain noted that there is no information on ECV for demand forecasting, trends, and geographical demand details. Also, there is a lack of information about cross cultural demands of ECV and other cultural needs associated with ECV.

5.2.6. Challenges and policy barriers

5.2.6.1. Challenges in production

All the farmers interviewed mentioned the physical challenges like climate and the short Canadian growing season. As explained in the previous section, it is combined with the lack of knowledge on how to cultivate ECV under local conditions.

ID 9, a researcher at Muck Station (Holland Marsh), stated that research on production information regarding Chinese vegetables are more available compared to other ECV varieties. The reason was that most Chinese vegetables started growing in Canada 30 to 40 years ago, while many South Asian and African vegetables are new. Generally, crop protection, insect control and weed control are big challenges for ECV. In addition most ECV cultivation requires labour for weeding and harvesting. According to ID 11 and 12, two researchers from Vineland Research and Innovation Centre and Simcoe Research Station, production trials have started for crops like bitter melon, okra and eggplant recently, and information is not fully available yet.

Further, ID 12 emphasized the unavailability of pesticides for ECV which is another big challenge face by the producers.

All farmers interviewed mentioned their concern about getting land for farming. All of them wanted to expand their cultivation and ID 1, 2, 3 and 4 already started to put up green houses to extend the cultivation in winter. ID 4 further commented about the need for facilities for community gardening in the GTA which is a good strategy for increasing the involvement of ethnic community ECV cultivation.

Lack of good farm land is the biggest barrier. If you engage more youth and new comers in ECV community gardening, that will be a good method to popular ECV among the community. I have a plan to talk to schools and invite kids to make field trips to our farm to see how and what we grow.

One of the major points raised in the farmers' focus group was the issue of lack of awareness of ECV. There is very low awareness of benefits of consuming ECV among the general public. Therefore, they are still unwilling to pay more for ECV that are grown locally. Generally, the farmers in the focus group agreed that ethnic consumers are more reluctant to pay more for locally grown ECV.

Another issue identified by them was the lack of government support for small scale farmers to expand local ECV production. All farmers reported that there is no financial support or help to access farming land for local-organic growers. In addition there is lack of opportunity for new immigrants to engage in farming.

5.2.6.2. Challenges in marketing

Small farmers face difficulties in entering the ethnic stores and large grocery stores. They normally offered a low price and shop owners do not value fresh, local produce and organic vegetables. There is high competition from imported ECV. In addition ethnic grocery stores do not differentiate their vegetables according to place of origin or whether they are organic. Also, most of the small ethnic stores do not have the required facilities such as a controlled environment to store and display the ECV on shelves.

According to ID 10, a researcher from the University of Guelph, most ECV are tropical vegetables which are sensitive to chilling. The right temperature and humidity control are essential factors to protect the quality of most ECV.

A number of factors hinder the penetration of locally produced ECV to supermarket chains. Farmers have to fulfil the various requirements such as quality,

quantity, consistency in supply, safety, storage facilities, tracking systems, history of farming to eligible to become an “approved vendor” for retail chains. Therefore existing value chains are hard to break into for small scale producers.

On the other hand, most small ethnic stores also face high competition from supermarkets. But, according to a large chain retailer, some ethnic stores and independent importers have significant cost advantages in ECV business over retail chains.

The large scale supermarket retailers also face certain challenges with ECV marketing. According to ID 16, a senior procurement specialist,

Our main problem with ECV is lack of organised supply base. The supply base is very fragmented and disorganized. ECV supply chains are not organised as mainstreams. There are not big growers or enterprises. But there are a lot of independent small scale operators or importers. Also, there are not many growers who can really understand the quality. There may be a few quality growers but they don't have enough supply.

Another problem with ECV is the lack of expertise to handle them within the store. Whether these ECV are being imported or locally produced, they are new to Canada. There are problems in merchandising and handling the ECV along the supply chain. Further, the shelf life is shorter with most ECV than mainstream vegetables. According to ID 10 (a researcher), the chance of deteriorating ECV during the process of transportation, storage and handling is high.

Customer complaints are another challenge faced by the retail chain sector. Since most ethnic customers are used to the same taste profiles they have experienced from their previous country, they have issues with the produce. They always compare these two taste profiles.

5.2.7. ECV demand

All the farmers interviewed both small and large scale expressed the view that the demand for ECV is growing in the Ontario. Small scale farmers stated several important reasons behind their involvement in ECV (see table 5.5). ID 1 and 2 gave their views:

ID1: We want to eat what we ate back home, and there is a shortage of vegetables available for us in the market. People of other ethnicities also feel the same way.

ID 2: We know that many South Asian immigrants lose their health after immigrating to Canada due to changes in food consumption. These ethnic vegetables have many health benefits; they prevent cancer and increase your immunity. For example, bitter melon prevents diabetics, Okra and bush bean good for reducing blood pressure and eating herbs helps to have a healthy skin.

All small scale farmers agreed on the fact that ECV is a niche opportunity for them. The demand for locally produced, fresh and organic ECV is growing but slowly. These farmers were specifically focused on “local and organic” ECV, and strongly believed that the market is expanding.

ID 4 explained his idea about ECV demand stressing the fact that when they are produced organic and local:

Demand for organic locally produce fresh ECV is growing slowly. Consumers are getting aware of the benefits, taste and nutritional value in organic and locally produced. I want to look at this business in a sustainable point of view, and I see the potential for that in the GTA. The difference between my produce and what you get in the supermarket is that mine are organic. I have seen in California they put lots of pesticides and fertilizers on veggies. I have to explain the people about the health benefits.

ID 1 shared his experience about the benefits of locally grown ECV and consumer demand for organic produce:

I sell my produce in different farmers markets. Consumers at farmers market like to pay more for fresh produce as they know that produce directly come from farms. I find lot of mainstream customers come to farmers market, and are willing to pay more. In the case of ethnic customers, they are still unaware of the benefits of these organic ECV, and also neglecting the health aspects. May be new immigrants like us are struggling to save money and don't want to spend on good food. But the potential is there for organic as people are getting aware slowly and slowly.

There are differences in demand for the same product by different ethnicities. Also, there are specific demands from specific ethnic groups. In addition, demand pockets are there to explore in the GTA. Four out of five farmers have expanded their farmer markets from one to three within a year, from downtown Toronto to other townships.

ID 4 provided his views on ECV demand and his strategy for marketing:

We have to learn a lot about ethnic customer needs. I have grown a few ethnic specific crops to specific customers. I specifically target Kallaloo for Caribbean; they love that stuff. I have hot pepper and sweet potato for South Americans and Okra for South Asians. These foods are staples to them.

According to ID 1 there are changes occurring in the ECV demand, and it is important to observe those changes. He described the trends:

I cultivated a few herbs last year including parsley and coriander. I gave promoted coriander and this time I have a large area for coriander. Now coriander is becoming a known among all consumers. The real Indian coriander has a unique taste and smell over the cilantro or other similar herbs, and it is getting popular.

Large retail chains (ID 16 and 17) also stressed the point that ECV is growing. They have undergone changes like restructuring the store layout and increasing space giving priority for ECV. In addition strategic changes at corporate sector like merging and acquiring has occurred within the retail sector in order to penetrate ethnic markets.

Part 2

5. 3. Quantitative data analysis and findings

5.3.1. Willingness to pay more for ECV

One of the objectives of this study was to determine the factors that predict customers' willingness to pay more for ECV. The data set for this analysis was obtained from a previous market research study². A total of 750 main grocery buyers from households (South Asian, Chinese and Afro-Caribbean Canadians) were randomly interviewed (+/-6.2 sampling error) using a semi structured questionnaire. Table 5.6 presents the impact of 18 different independent variables on willingness to pay more for ECV. These independent variables included a range of attitudinal, awareness and demographic variables. Pearson partial correlation was use to examine the linear relationship between variables. It was found that there was no significant correlation among the variables included in the model.

² Preferences for Ethno-Cultural Foods in the Greater Toronto Area: A Market Research: by Bamidele Adekunle, Glen Filson and Shridharan Sethuratnam, in 2009.

Table 5.6 Description of explanatory variables

<i>S. No</i>	<i>Variable</i>	Description	Measurement
1	X1	Importance of store availability	(Important=1, Otherwise=0)
2	X2	Importance of the selection	(Important=1, Otherwise=0)
3	X3	Importance of the freshness	(Important=1, Otherwise=0)
4	X4	Importance of the price	(Important=1, Otherwise=0)
5	X5	Importance of the packaging	(Important=1, Otherwise=0)
6	X6	Importance of place of origin	(Important=1, Otherwise=0)
7	X7	Importance of taste	(Important=1, Otherwise=0)
8	X8	Importance whether grown in ON	(Important=1, Otherwise=0)
9	X9	Importance of medicinal value	(Important=1, Otherwise=0)
10	X16	Highest educational attainment	(university level=1, other=0)
11	X11	Monthly spending on ECV	(in \$)
12	X17	Total household monthly Income	(in \$)
13	X18	Household size	(number of people)
14	X15	Gender of the respondent	(male=0, female=1)
15	X14	Age of the respondent	(in years)
16	X10	Role of advertisement on ECV purchase	(If play a role=1, Otherwise=0)
17	X12	Whether respondent is a vegetarian	(Vegetarian=1, Otherwise=0)
18	X13	Does acculturation effect?	(If yes=1,Otherwise=0)

Binary logistics regression was used to determine the factors that affect the willingness to pay more (WTP) for ECV. The regression was performed in two stages.

In the first stage, all the 750 respondents were included in the analysis. In the next stage, the cases were divided into three major categories based on their ethnicity. Then logistic regression was done separately for each group (Chinese, South Asian and Afro Caribbean) to determine the factors affecting the WTP for ECV.

Table 5.7 presents the regression results for the whole group (750 respondents)

Table 5.7. Regression analysis for all respondents.

Variables in the equation					
Variable	B	S.E	df	Sig.	Exp(B)
Store Availability	-.408	.654	1	.532	.665
Selection	-.382	.632	1	.545	.682
Freshness	-20.532	40193.08	1	1.000	.000
Importance of price	-1.571	.802	1	.050	.208
Packaging	.304	.267	1	.255	1.356
Place of Origin	.519	.276	1	.060	1.681
Taste	.864	1.056	1	.413	2.373
Grown in ON	-.081	.274	1	.767	.922
Medicinal Ability	.349	.433	1	.420	1.417
Highest Education	.880	.741	1	.235	2.410
Monthly expenditure on ECV	.004	.001	1	.007	1.004
Total monthly Income	.000	.000	1	.027	1.000
Household size	-.048	.083	1	.569	.954
Gender of the respondent	.063	.236	1	.790	1.065
Age of the respondent	.029	.010	1	.004	1.030
Role of Advertisement	-.269	.232	1	.246	.764
Whether respondent is a vegetarian	.829	.386	1	.032	2.291
Acculturation	.038	.035	1	.267	1.039
Constant	17.863	40193.08	1	1.000	57255730.0

Table 5.7 indicates that the following independent variables significantly predict WTP for ECV:

- Importance of the ECV price
- Monthly spending on ECV
- Total monthly household income
- Age of the respondent
- Whether respondent is a vegetarian.

In the case of vegetarianism, where Exp(B) was 2.291 means that odds of WTP more for ECV for vegetarian was 2.291 times the WTP for a person who is not a vegetarian.

The $\text{Exp}(B)$ value associated with age is 1.030. Hence when age increases by a unit (year) the odds ratio is 1.030 times as large and therefore older people are 1.030 times likely to pay more for ECV. The negative sign for the importance of price on ECV purchase indicates that the higher the price the less odds of WTP for ECV by 1.571 times.

5.3.1.1. WTP more for ECV by different ethnic consumers

This section presents the results for the three major ethnic groups separately. Each group consisted of 250 respondents. Table 5.8 presents the results of the regression analysis for the Chinese respondents. The logistic regression analysis for South Asian ECV consumer group indicated that none of the variables was significant in predicting WTP more for ECV. In the case of Afro-Caribbean consumers, the variable “being a vegetarian” was significant in predicting WTP for ECV.

Table 5.8 Regression analysis for the Chinese ECV consumer group

Variables in the Equation						
Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Store availability	-2.095	1.204	3.031	1	.082	.123
Selection	-.348	1.056	.108	1	.742	.706
Freshness	-20.07	40192.87	.000	1	1.000	.000
Importance of price	-1.119	.856	1.708	1	.191	.327
Packaging	1.009	.448	5.071	1	.024	2.742
Place of origin	.848	.430	3.901	1	.048	2.336
Taste	.283	1.291	.048	1	.826	1.328
Grown in Ontario	-.677	.492	1.892	1	.169	.508
Medicinal ability	.195	.653	.089	1	.765	1.216
Highest education level	21.43	27614.40	.000	1	.999	2.044
How much spend on ECV	.005	.003	3.358	1	.067	1.005
Total monthly income	.000	.000	10.439	1	.001	1.000
Household size	-.013	.147	.008	1	.928	.987
Sex	.680	.428	2.516	1	.113	1.973
Age	.026	.018	1.936	1	.164	1.026
Role of advertisement	-1.071	.443	5.835	1	.016	.343
Vegetarian	20.629	18575.40	.000	1	.999	9.105
Acculturation	.071	.066	1.168	1	.280	1.074
Constant	-3.002	48764.95	.000	1	1.000	.050

Table 5.8 indicates that the following independent variables significantly predict

WTP for ECV for the Chinese ECV consumers:

- Packaging
- Origin
- Total monthly household income
- Role of advertisement

In the case of packaging, EXP(B) of 2.742 indicates that odds of WTP more for ECV for better packaging was 2.742 times the WTP for unsatisfactory packaging for ECV. EXP(B) for importance for origin is 2.336 means that odds of WTP more for ECV with known place of origin was 2.336 times that the WTP for ECV without knowing the place of origin. The negative sign for the role of advertisement is that the higher the role of advertisement the less the odds of WTP for ECV by 0.343 times.

5.3.2. Price survey for ECV

The objective of the wholesale and retail price survey was to determine the wholesale price fluctuation and the availability, and to study the difference between wholesale and retail prices for a few highly-demanded ECV in the GTA. The wholesale prices were collected from the OFT on a weekly basis. Retail prices were collected on a bi-weekly basis from eight retail stores in the GTA area. The retail stores were comprised of two Chinese, two South Asian, two Afro Caribbean and two chain supermarkets. The data were collected for the period of March 2011 to August 2011.

5.3.2.1. Wholesale prices:

In the case of wholesale prices, it was observed that not every ECV was available in the OFT in every week during the time of data collection. According to ID 14 (importer and wholesaler), the availability of particular ECV depend on many factors. Demand, local availability of the ECV, availability of the ECV with suppliers, price, and quantity are some factors which determine the imports. In addition they change the supplier, country, pack size and variety based on the above described market forces.

(A) Wholesale prices of ECV and mainstream

Figure 5.6 presents the wholesale price trends for a few highly demanded ECV and two mainstream vegetables. The wholesale prices were collected from a large scale importer and a wholesaler (ID 14) located in the OFT.

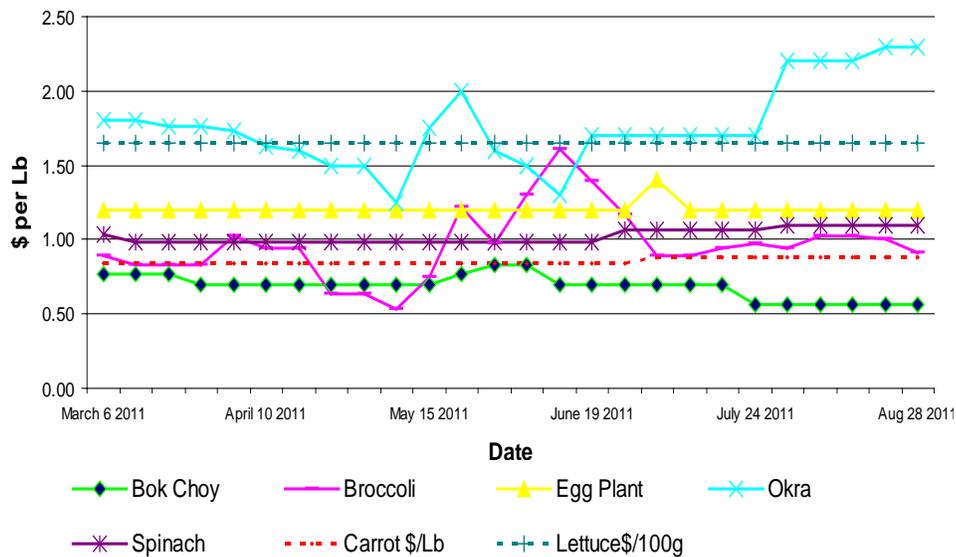


Figure 5.6 Wholesale prices of ECV and mainstream vegetables

The two mainstream vegetables (carrot and lettuce) had steady wholesale prices over the period from early March to late August 2011. Both of these produce were grown and sourced from Ontario. The importer/wholesaler (ID 14), sold 17 different varieties of carrot which were sourced from Ontario and US. The lettuce also came from the same origins but 90% arrived from the US. There were 26 different varieties available.

Five highly demanded ECV (bok choy, broccoli, eggplant, okra and spinach) were selected to observe wholesale price trends. Spinach had a steady price compared to other varieties. There were five different Spinach varieties available and all of them were sourced from the US. The bok choy price was stable for the first three months and increased in early May. Then a decreasing trend was observed. Bok choy was obtained both from the US and locally. US produce came until the first week of June and then there was a switch to Ontario produce.

The broccoli price also fluctuated over the time showing low prices in early May and was increasing until early June. After mid-June a decreasing trend was observed until mid-July and then remained steady. Broccoli was imported from US and Mexico by ID 14. Eggplant had a steady price until mid-May and then prices were increased gradually until mid-July. Then prices fell and remained steady from late July. There were seven different eggplant varieties imported by this importer and all of them came from the US. Okra wholesale prices were fluctuating more over the period of study when compared to other ECV studied. It had a decreasing trend from March until early May. Then a sudden increase was noted in mid-May followed by a drop in early June. After that a steady price was observed until end of July. Then a gradual growth was observed. Okra was imported from Mexico until early May, and then switched to US. ID 14 imports okra from Mexico, Honduras and US, but limited to one variety. Bok choy and the Chinese broccoli were the two ECV which were sourced locally by this importer (see table 5.4 for more details of countries of origin for ECV).

(B) Wholesale and retail prices of ECV

Figure 5.7 presents the wholesale and retail price trends for Okra for three different retailers. The wholesale price of Okra (imported from Mexico) was fairly steady during the period of mid-March to mid-July 2011 at OFT. The mainstream supermarket had the lowest and steady retail price with compared to other two retailers. The Afro-Caribbean retailer had the highest price in March and April, then with a declining trend where it drop in early June and remains low until July. The South Asian retailer had an average retail price and it was consistent over the time.

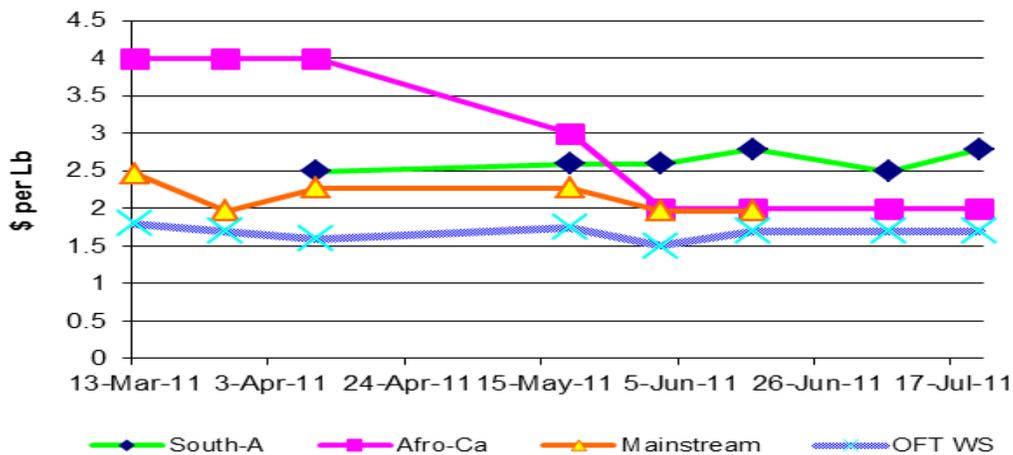


Figure 5.7 Wholesale and retail price for Okra for three different stores and the OFT

Figure 5.8 shows the wholesale and retail price difference and trend for Baby bok choy in Chinese retailers. There was a trend of sudden prices rise after mid-May and it decreased after early-June. This trend was observed for both retail and wholesale prices.

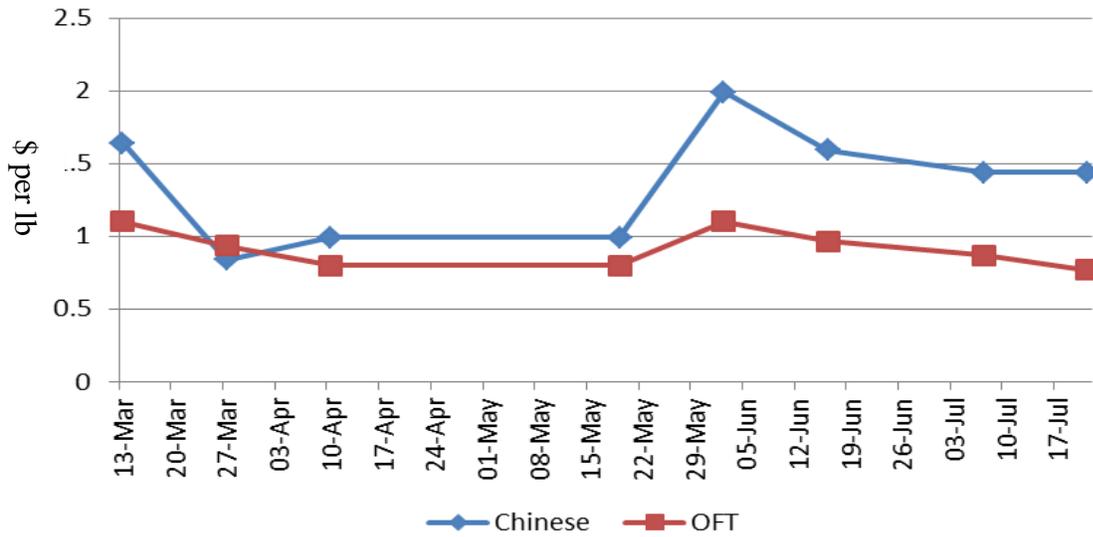


Figure 5.8 Wholesale and retail prices for Baby Bok Choy in Chinese retailers

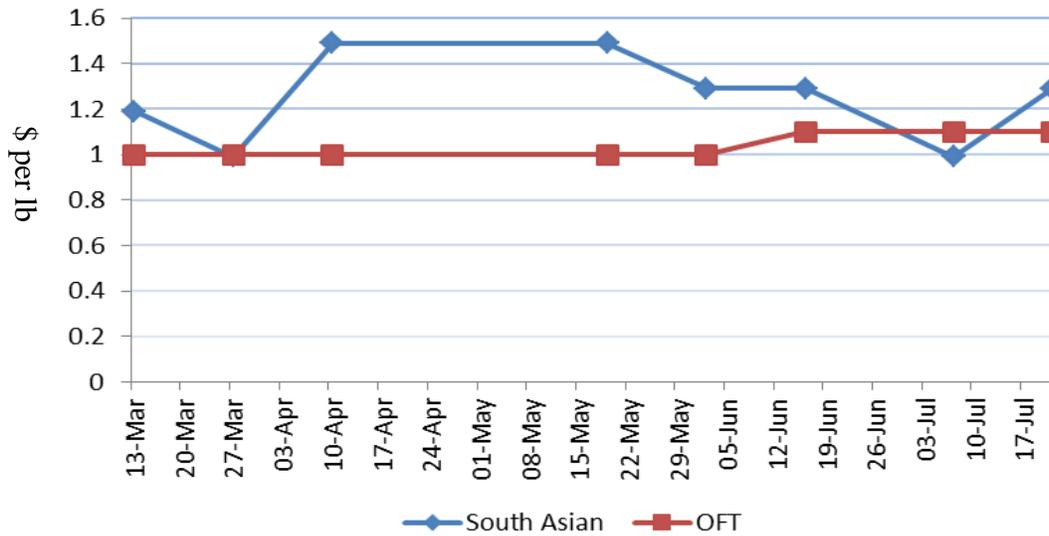


Figure 5.9 Wholesale and retail price for Spinach in South Asian retailers

Figure 5.9 shows the wholesale and retail price difference and trend for Spinach in OFT and South Asian retailers. The OFT wholesale price remained steady over the period while retail price had some fluctuations. There was a sudden drop in late March

followed by a price increase which remained until May. After that the retail price had a decreasing trend until early July.

5.4. Summary

The value chain for ECV in Ontario consists of two major types of chains. One of them originates locally while the other is international which forms a continuum with some variants in between. There were two groups of ECV farmers based on their scale of operation. The small scale new immigrant farmers expressed multiple reasons for their engagement in producing ECV other than profits. They have proven the possibility of cultivating a number of South Asian and Afro Caribbean ECV under local conditions successfully. Most of the large scale ECV growers were engaged in producing Chinese vegetables with better market access when compared to small scale new ECV farmers. The small scale farmers interviewed supplied their fresh organic produce to a limited market which included farmers markets, CSAs and direct sales. Only a few have approached the ethnic stores and restaurants, and they felt marketing was a big challenge for ECV. Small farmers found that breaking into existing value chains was hard for them.

ECV is imported to Canada by OFT and many other independent importers. The OFT is the Canada's main facility which plays an important role in distributing fresh produce including some ECV. It also has a large farmers market. At present locally produced Chinese greens are sold at the OFT representing the ECV sector. ECV are mainly imported to Canada from the US and a few Central and South American countries due to availability and cost. This is a well-organized operation between producers, suppliers and buyers where trust and mutual understanding plays a vital role equally important as contracts.

Most of the supermarkets have realized the need of developing their area for ECV and are very keen to know about the demand trends for ECV. They have their production arrangements in Canada and other countries. The local purchases are mainly limited to Chinese greens during the summer months. Ethnic grocery stores were an important segment of the ECV value chain that used different ways to obtain their ECV. Some of them imported ECV directly and others sourced from intermediaries or bought from the OFT. There were many independent ECV importers in the market due to the diversity and lack of organization when compared to the mainstream sector.

Analysis to understand the willingness to pay more for ECV indicated that certain factors can influence consumers' decision. Importance of the ECV price, monthly spending on ECV, total monthly household income, age of the respondent and whether respondent is a vegetarian were significant variables in the model.

The wholesale prices of a few highly demanded ECV fluctuated more when compared to a few popular mainstream vegetables. Wholesale price of Chinese ECV were less variable than the other varieties. ECV such as eggplant and okra prices changed with their availability and the countries of origin also changed over time. In the case of retail prices, mainstream stores had low prices and, price fluctuation was also less for certain ECV when compared to small ethnic groceries.

CHAPTER SIX

DISCUSSION

6.1 Introduction

This chapter discusses the findings in detail which were presented in the chapter five. The first section presents the production and marketing of the ECV giving the diversity and variations of the value chains in the market. The second section discusses the results of the quantitative analysis.

6.2. ECV Production and marketing in Ontario

6.2.1. Large scale Farmers: production and marketing

Existing local producers of ECV could be divided into small or large depending on their scale of operation. It was observed that most of the large scale ECV growers were engaged in producing Chinese vegetables and did well in their businesses. Wang and Cerkauskas (1999), report that the production of oriental vegetables in Ontario increased and the number of farms produced these ECV doubled in Canada during the previous ten years. Most of these farmers are Chinese, Korean and Vietnamese immigrants (Wang & Cerkauskas, 1999). Their success could be understood both from production and marketing perspectives. As Chinese greens (popular Chinese vegetables) have been growing in Ontario for a few decades, these farmers have the appropriate local varieties suitable for local agro-climatic conditions of Ontario. According to Wang and Cerkauskas (1999), some research activities related to Chinese cabbage were conducted by the researchers at the University of Guelph in the 1980s and a few more trials were conducted at different research stations in Canada. At present the technical know-how is

available to them for better yields. Most of these farmers owned large farms to get the advantage of economies of scale. There is a well-established market for Chinese greens which has developed over many years.

According to Friedmann and McNair (2008), one of the distinctive features of North American agriculture is that it is based entirely on crops that have been introduced by immigrants from Europe over 200 years. With continuing immigration, new crops from other parts of the world have also been introduced in recent years. The large scale Chinese vegetable farms at present can be viewed as a result of this trend. Another factor behind the success for Chinese ECV is a market structure which includes the well-developed Chinese supermarkets, existence of a large number of grocery stores (Asian and Oriental), space in the Ontario Food Terminal (OFT) and strong marketing linkages. This has enabled Chinese ECV to merge with the existing dominant food system in achieving its share within the ECV market. Further, some larger growers have expanded their production arrangements even outside of Canada to secure increased market share.

When compared to Chinese vegetable production the other ECV crops are in a developing stage but are expanding in Ontario. Several factors could be identified that hinder the production of these South Asian and Afro Caribbean ECV. But the demand for these ECV is huge as indicated by Adekunle et al., (2010): \$31 million per month and \$7 million per month for South Asian and Afro Caribbean ECV in a month in the GTA.

6.2.2. Small scale farmers: production and marketing

The new small scale ECV farmers have proven the possibility of cultivating a number of ECV under local conditions. Most of these farmers are recent immigrants and their involvement and enthusiasm indicate the importance of ECV to their community in

terms of multiple benefits. Their accumulated knowledge and experience towards ECV production from their countries of origin have been a great asset to them. But still these immigrant farmers had to learn a lot in their initial stage about cultivating their known crops in a new environment. Apart from the new immigrant farmers, there is little evidence of production of South Asian ECV by large scale traditional farmers in Ontario. The major problem found was the lack of information regarding crop production and suitable ways of accessing such information. Based on the observations existence and growth of medium scale ECV farms demonstrate the potential for expansion of ECV (especially South Asian and Afro Caribbean ECV) farming in Southern Ontario if necessary support is provided.

The small scale McVean farmers cultivated a mix of ECV and mainstream vegetables in their last few years. This shows their risk management at production and marketing. It helps them to succeed in a case of crop failure with new ECV crops in the field. Also, it is a good strategy as new farmers have a very limited knowledge about the prices of ECV and the market.

Their cropping calendar and planning was basically done based on their knowledge of crops and experience gained from their marketing in the past. Over the years they added new ECV crops and expanded the number of varieties. All of them increased the acreage and a few of them invested in greenhouses to increase the number of crops and yields. Greenhouses facilitate additional heat requirement and extended time needed by some of the ECV. The decisions on increasing ECV crops, land expansion and investing on greenhouses by new farmers indicate the potential for ECV cultivation locally.

Another observation made with a few experienced McVean farmers was the ability to specialize in growing a few ECV with more varieties. An example of one of the crops being grown is garlic, but 25 different garlic varieties belong to different flavours preferred by people from different countries of origin. This may be a good strategy where they can gain a competitive edge over a particular crop. Similar potential crops suggested by the new farmers were Indian okra, bitter melon varieties and sweet potato.

All new farmers interviewed were focussed on organic cultivation and all of the field practices were done accordingly. Moreover, their marketing and sales promotions were also concentrated around the idea of “organic and local” ECV. They also believed that consumers lack knowledge about ECV and their benefits. Hence, farmers were involved in educating consumers about ECV benefits by providing recipes and other related information. This has another advantage since some of the ECV had cross-cultural demand where the same ECV have different names that may confuse consumers. According to Wang and Cerkauskas (1999), most oriental vegetables have more than one name, and it is important to recognize the correct vegetable by the right name when purchasing.

6.3. Marketing and distribution of ECV in Ontario

6.3.1. Small scale farmers and ECV marketing

Small scale McVean farmers supplied their fresh produce to a limited market which was made with farmers markets, CSA and direct sales. According to Friedmann and McNair (2008), this could be seen as a part of the recent development in the developed countries farming, where small farmers have cooperated with a range of direct

marketing strategies. Farmers' markets were one of the popular distribution methods identified by McVean farmers. Some farmers believed that consumers who shop at farmers' market can be seen as a distinct consumer group who had special food choices and valued local farm-fresh produce. On the other hand it was observed that there was no need for greater processing or packaging required to sell at farmers markets. Apart from the farmers' markets, these small scale farmers tried to capitalise on the immediate market around them. It mostly consisted of members of their own ethnicities who required these ECV. Community shared agriculture (CSA) and pick-your-own systems are common examples observed in exploiting this opportunity. According to Friedmann and McNair (2008), even though these strategies are developing among local farmers, their market share is very small.

Only a few McVean farmers have approached the ethnic stores and restaurants because this is generally considered a difficult task. Unlike the case of large scale ECV farmers, marketing was a big challenge for small scale farmers for many reasons. The success of marketing was dependent on the scale of operation, experience, knowledge about the market, range of crops produced, networks and relationships with the value chain. These small scale new producers were producing small quantities where they were offered low prices from ethnic groceries. Although the farmers tried to market their produce as "organic and local", retailers were often not willing to offer a better price. There was no evidence found for having a special shelf space for local or organic vegetables in ethnic grocery stores.

According to Friedmann and McNair (2008), the new transnational agri-food supply chain has disregarded the farmers who sell locally by creating competition with the produce that arrives through transnational food chains from across the world. Many

farmers have become marginalized and have had to leave farming due to the incorporation of a few powerful farmers, processors, distributors and retailers. Although chain retailers have become a powerful actor in the food supply chain, ethnic grocery stores play a significant role in marketing ECV in the GTA.

6.3.2. Ethnic stores

Most of the ethnic stores get their ECV from independent importers/wholesalers, distributors or from the OFT. Some ethnic stores have their own ECV sourcing mechanisms such as direct imports from another country. Since the ECV sector is not organized as mainstream, these intermediaries (independent importers / wholesalers / distributors) play a big role in ECV supply. These independent importers have a unique competitive advantage over large firms in similar operations due to the diversity of the ECV market. ECV originating from different countries need special requirements in transport, handling and storage.

Hughes (1999), suggests that the power between the supermarkets and other firms in the value chain depends on the product they handle. Large supermarket chains purchase products in bulk and have more bargaining power over others. Similarly, producers having strong brands or small firms producing unique high-valued products, or firms with a unique geographical advantage also have a strong position.

Looking at the ECV value chain these independent importers (including ethnic stores) have some advantage over others including their knowledge of the product and connections with the producers or suppliers in other countries. This is further strengthened by the fact that ECV are originated from different regions of the world and the lack of organized supply bases. Supermarkets have an organized supply network for

their fresh produce to maintain consistent supply. When compared to chain retailers these independent agents have different operating models which give them a cost advantage. For example, supermarkets follow certain quality and safety standards throughout the purchasing and distribution process where independent agents may not.

Beside the logistics and product attributes of ECV, these grocery owners belong to different ethnicities and have various cultural and business relationships. Some of them obtain their ECV from their known sources from their countries of origin. Others have organised retailer groups within the same ethnic groups for purchasing ECV. Hughes (1999) further explains that power relationships between retailer and supplier are characterised by their mutual dependency and on the social context. It was also discovered that large scale supermarkets depend on independent agents in sourcing certain ECV. This clearly indicates the unique position of independent importers in the ECV value chain.

6.3.3. OFT and intermediaries

The Ontario Food Terminal (OFT) is Canada's main facility which plays an important role in distributing fresh vegetables and fruits all over Canada. The volume of ECV moving through the OFT has increased over the last two decades. At present the vendors and buyers at the OFT belong to different ethnic groups representing the ethnic and food diversity in the GTA. The OFT is a special hub in Ontario's fresh produce marketing as it provides a unique opportunity for buyers to buy their produce at the OFT by avoiding too many intermediaries. This explains part of the reason why there are low prices for certain ECV at chain super markets or large scale ethnic supermarkets over small scale ethnic retailers. According to the OFT board, the number of Chinese

supermarkets and retail chains have increased their purchasing at the OFT in recent years. On the other hand local producers who sell their produce at the OFT farmers market or to wholesalers have to compete directly with imported produce. The unique advantage for Ontario producers is that they have the opportunity to supply produce to the OFT within a shorter period of time, guaranteeing the freshness of the produce over imported produce. It was noted that most Asian vegetable (Chinese vegetables) growers have capitalized on this opportunity.

It was observed that most of the ECV are not available at the OFT throughout the year. Further, importers change the countries of supply over time for ECV, and this is due mainly to the availability cost of ECV in those countries. Many importers faced the problem of a lack of an organized supply base for ECV when compared to other fresh produce.

6.3.4. Vertical integration and consolidation

The OFT importers are in a strong position regarding the fresh vegetable sector as they are well integrated in to the system. Most of their businesses are old and it was observed that the fact that their relationships and partnerships have developed over time with the suppliers and intermediaries are big assets. This process also has been facilitated by the recent technological and logistical development in food chains. According to Reardon et al. (2003), involvement of third party between retailers and suppliers has increased with the logistical development such as transport or distribution. These supporting agencies could be local firms, retailers' subsidiaries or another multinational company (Reardon et al., 2003).

Moving beyond that, some of the intermediaries in the OFT have diversified their business and have integrated their operations vertically. This has given them more control over the food chain by owning processing units or farms locally or overseas. This was observed in the retail sector where large supermarket chains have their own production arrangements.

According to Friedmann (2005), the trend of concentration of power within the food supply chain is a dominant outcome of the new food regime. The increasing power of the retailers have given them the control to restructure the agri-food chains globally (Friedmann, 2005; Burch & Lawrence, 2009). According to Steiner (2009), strategic alliances within the food supply chains have become more and more integrated with leading market chains enabling supermarkets to have consistency in supply throughout the year. According to the interviews with two large supermarkets chains, they continuously search for better suppliers to become competitive in the industry.

6.3.5. ECV international value chain

Importers in the OFT and chain retailers mainly obtain ECV from the US and a few Central and South American countries. This was mainly due to the advantage of transportation cost apart from the favourable climate and low cost of production in the region. These importers and chain supermarkets had either organized suppliers in those countries or owned their own farms. According to Burch and Lawrence (2009), the present food system is controlled by a neoliberal regulation which is characterized by international sourcing, a range of products with specified standards by retailers with concerns about choice, freshness, health and convenience.

However, according to DeWeerd (2009), the freshness and nutritious qualities are often in doubt because of the time between the harvest of the vegetable and its arrival to the consumer is high. On the other hand the profits are taken far more by the processors and suppliers than by the farmers even though the range of foods available in all seasons for consumers (DeWeerd, 2009).

Most of the South American and Caribbean countries like US, Mexico and Dominican Republic are endowed with better agro-climatic conditions for growing these tropical ECV production like bitter melon, okra, eggplant, smooth amaranth and hot peppers, etc. Together with the favourable agro-climatic advantages for crop production, most of these tropical countries enjoy the benefit of cheap labour and low cost inputs over Canada (Adekunle et al, 2010). Further, it was reported that they have the advantage being able to use pesticides and chemical fertilizers which are permitted in those countries for ECV but are not legalized in Canada. Together with these benefits, most ECV have the advantage being capable of being imported to Canada with no trouble under WTO and NAFTA trade agreements (Donald, 2009).

6.3.6. Retailer Chains

Supermarkets are a major actor in the food value chain as they have the major market share in retail market in Canada (Boothman, 2009). According to Adekunle et al. (2010), ethnic stores and supermarkets serve as the main sources to meet customer demand of ECV in the GTA.

It was understood that large chains are becoming more and more interested in ECV within their fresh produce sector. This is due to the existing and growing demand for ECV in Canada. This can be further observed by the fact that ECV are being made

available in most chain supermarkets and giving priority for ECV is being given in their shelf spaces. This varies based on the location depending on the number of ethnic customers and their requirements. Since ECV is a niche market at present it has a great potential for expansion in the future. This demand has created a competition in Canadian market for ethnic food sector. It is clearly evident by the acquisition and merging a leading ethnic food retailer (T & T) by a leading retailer chain in Canada (Loblaws). Macgregor (2011) of the Gazette newspaper on September 2 and October 27 reports the details of acquiring the two ethnic supermarkets Adoni's and T and T by the retailer giant Loblaw's. According to Cook and Davis (2000), retail and wholesale consolidation takes place as a result of the competition to seek efficiency through mergers and acquisitions to strengthen their competitive positions.

Maintaining product standards, quality and offering the best value for customers is a big part of supermarket marketing philosophy. They have global purchasing and centralized distribution centres to follow their quality, freshness and food safety requirements (Reardon et al., 2003). Another significant aspect is the development of private standards, certification and own brand labels. They believe that the customer expectations have increased over years and it is the same for the ECV too. Customers need fresh quality ECV with a greater choice, better packaging, better environment for shopping and more information about the produce. In the case of ECV, it was noted that when defining quality, the "locally produced" or "organic" were not recognized as important factors by supermarkets. In addition there is no organic section for ECV. But on the other hand large chain supermarkets have a special section for organic vegetables and fruits (and other food items) where they charge a premium from customers.

Supermarkets are interested on the demand patterns for ECV especially about what products are demanded by which ethnic groups and how it changes over time and geographically.

6.5. ECV Value Chain: types, variations and diversity

Based on the findings, the ECV value chain of Ontario consists of a number of sub-chains. These chains are made up of short and local chains, dominant global chains, and certain ethnic and relational chains. As an emerging segment of the existing food system, the ECV value chain is connected to various social, cultural, economic, health and environmental aspects of the food system. These characteristics indicate that the ECV value chains are multi various.

The local ECV value chains are shorter compared to the existing dominant long chains. It is clear that the more ethnic farmers are involved in shorter ECV chains, especially at the producer end. Looking more at these shorter chains, the involvement of recent immigrants, and their networks play a role in securing marketing and obtaining information. These networks have the potential to make the ECV supply chains shorter. The interactions between different actors are not only dependent on the economic margin but on many other factors. For instance farmers cultivate ECV not only to gain income but to provide healthy food to their ethnic group. Therefore understanding ECV has to be done within this complex socio-cultural context.

ECV lies within the existing dominant food system. According to Donald (2009), it is an important part of the growing food sub sector which has a fast growth within the Ontario food economy. The demand for ECV is huge (Adekunle et al., 2010), and according to retailers, ECV are demanded throughout the year. Therefor the existing long

supply chains have a greater advantage in supplying ECV to the Canadian market. This could be changed through sourcing them locally. On the other hand, according to the retail chains, ECV is not organized as an industry. There are many reasons behind this which includes the complexity of understanding the demand and difficulty in obtaining produce. That justifies the existence of many short and long ECV chains in the market. The services they provide and the knowledge they possess have helped them to gain their share over large importers or food chains.

6.5. Willingness to pay for ECV

Willingness to pay (WTP) more for ECV is an important area to understand the consumer perspectives about ECV. In determining the factors which predict the WTP more for ECV, the importance of the price of the ECV was one of the variables in the model which was significant. It indicates that “importance of price” when making the purchasing decision of ECV was significant. It shows that the higher the price the lower is the WTP for ECV.

The other significant variables in the model were the monthly spending on ECV, total monthly household income, age of the respondent and whether the respondent was a vegetarian. Monthly spending on ECV and total household income had positive relationships. The age of the respondent may be important for ethnic consumers where they wish to eat more healthy vegetables as they are getting older. Being vegetarian was important as ECV are a compulsory portion of the diet for some ethnic groups where they do not have other alternatives.

It was observed that Chinese ECV consumers found “packaging”, “origin of the ECV” and the “role of advertisements in purchasing ECV” were significant for them in WTP more for ECV. This can be understood together with the more choice they have for ECV in the market. When compared to South Asian and Afro Caribbean ethnic stores, Chinese grocery stores and supermarkets provide better variety of ECV and environment. Therefore Chinese consumers have more choice in buying their ECV and consider packaging and the origin of the produce whether it is local or imported. In addition, with the increasing competition, consumers refer more to advertisements to find better choices.

6.6. Wholesale and retail prices of ECV

The most common ECV found at OFT are the Chinese greens. They are imported throughout the year but during the summer imported volumes are less. This is mainly due to the arrival of the Ontario and Quebec produce to the market. Chinese greens are mainly imported from the US due to shorter distance for transport. The wholesale prices of Chinese greens fluctuated less relative to other ECV. Bok Choy prices remained constant until mid-May and there was a slight increase until early June. This was the time where local production enters the market and importers change their suppliers. After June the prices were low and steady until July and again dropped. According to Wang and Cerkauskas (1999), most oriental vegetables are harvested in the summer due to the cold climate in the Canada. Some of the large growers have greenhouses which help them to control the supply by delaying the harvest for few more weeks (Wang & Cerkauskas, 1999).

The ECV has a wide range based on the variety, size, quality, and country of origin, pack size, grades and various other parameters like organic, frozen or local. This product differentiation is a result of the diversity of ECV itself and the diverse demand from different ethnic consumers. Okra prices have changed overtime; the supplier and pack sizes have changed. This is due to the changes in location of sourcing and demand. The prices of certain ECV depends on demand in US market. Also the importers decide to reduce the volume imported to Canada and increase the price. They sell certain ECV like okra in the US depending on the market demand and prices in the two countries. Another reason for fluctuations in ECV wholesale prices is because the importer has to stick to a supplier to fulfil the contract agreements. But, the importer gets good margins from other mainstream produce from the same supplier. Some of the ECV had a continuous supply (for example, Chinese greens and spinach) at the OFT. Others do not due to the lack of availability of the produce, required volumes or higher prices. Importers change the country mainly based on the availability and the cost. Importers have to fulfil the requirements of retailers in order remain in the market. The main cost components are the cost of production and the transportation.

Price gaps between wholesale and retail of ECV occur for different reasons. The retail price of ECV for a retailer depends on many factors such as wholesale price, other costs associated with transportation or processing, location of the store, facilities available in the shop for storage and display for ECV and the frequency of ECV supply. In addition it depends on how they source their ECV. Retailers can directly purchase ECV from the OFT avoiding other intermediaries, but the profitability depends on the volume they sell and the distance from the OFT. It was found wholesale prices at the OFT drop with the time as vegetables are perishable commodities. This is more relevant

to ECV hence most of them are tropical crops which can lose quality when transported in cooler trucks. But, if retailers buy old stocks of ECV from the OFT (or from any other importer) at a lower price, they are going to be poor quality and their shelf life is very low. In this case the retailer has to sell at a very lower price to move the product without wasting. But it was observed that still low quality ECV are sold at higher prices in some ethnic stores. This is due to consumer's lack of option to buy such ECV in the market. This was more relevant to most of the Afro-Caribbean ECV and some South Asian ECV. Further, there was a lack of information for the consumers about the ECV in terms of their place of origin other than the price and variety at most ethnic stores.

6.7. Challenges

Various challenges can be identified for ECV production. According to Kelleher et al., (2008); Gunst et al., (2010), they include the relatively short cultivation season, lack of inputs, inaccessibility to suitable farming lands and absence of information on crop production under local conditions. Lack of approved pesticides is another challenge as there are pest and diseases for ECV which can cause significant losses (Wang & Cerkauskas, 1999). There were other problems like poor understanding of the market (Adekunle et al., 2010), lack of consumer awareness and lack of institutional support (Kelleher et al., 2008). Beside those issues, it was understood that farmers experienced the continuous competition between locally grown and imported ECV. These ECV are imported to Canada from different of countries (Gunst et al., 2010).

Lack of information is one of the key challenges for ECV growers. It was clearly observed that small scale farmers depend on organizations like Farm Start to obtain information and various other requirements for growing these vegetables. Apart from

Farm Start, various agencies are involved in ECV production but farmers' requirement is not fully met at present. Most of the farmers interviewed were unaware of the information sources and had a very low level of understanding about the ECV markets. In addition according to Kelleher et al. (2008) the coordination between different institutions that work on ECV at present is lacking.

Another observation made was that most ECV producers were reluctant to disclose information regarding production and marketing. It was remarkably high with the large scale farmers. This may be due to the competition where farmers do not wish to disseminate the proprietary information which they have gained through their experience. Also, since the ECV market is a niche market which has the potential to grow in future, this information can become a powerful asset for them.

6.8. ECV Opportunities

Beside the fact that there is a lack of information, traditional Canadian farmers are unfamiliar with most of the ECV. One of the major strengths of the large scale farmers is that they have the land, farm structures and capital which are entry barriers to most new and especially immigrant farmers to ECV cultivation. According to Adekunle et al. (2010), the opportunity for local farmers is the unmet demand for locally grown ECV. In addition there is a potential to diversify unproductive, unhealthy horticultural enterprises to profitable-environmentally sound ventures. For example Lister (2007), suggests the growth of ECV as an alternative to unhealthy tobacco cultivation which results in soil degradation.

6.9. Summary

Local producers of ECV in Ontario could be divided into small or large depending on their scale of operation. Most of the large scale ECV growers were engaged in producing Chinese vegetables with a better market access when compared to small scale new ECV farmers. But the new small scale immigrant ECV farmers have proven the possibility of cultivating a number of ECV under local conditions. There is also evidence of production of South Asian ECV by medium and large scale traditional farmers in Southern Ontario, but the major problem reported was the lack of information regarding crop production.

The Small scale farmers interviewed supplied their fresh organic produce to a limited market which was made with farmers markets, CSA and direct sales. Only a few have approached the ethnic stores and restaurants, and they felt marketing was a big challenge for ECV. Consumers used ethnic grocery stores and supermarkets mostly to buy their ECV (Adekunle et al., 2010).

Although chain retailers have become a powerful actor in today's food supply chain, ethnic grocery stores also play a significant role in marketing ECV in the GTA. These retailers obtain their ECV from different sources such as direct import, use of intermediaries and from the OFT. The OFT is Canada's main facility which plays an important role in distributing fresh produce including some ECV. It also has a large farmers market where local producers have the opportunity to supply produce to the OFT within a shorter period of time, guaranteeing the freshness of the produce over imported produce. Beside the OFT there are many independent importers who import ECV to Canada.

The independent ECV importers (including ethnic stores) have some advantage over others including their product knowledge and connections with the produce suppliers in other countries. It was also discovered that large scale supermarkets depend on independent agents in sourcing certain ECV. ECV importers and supermarkets mainly import ECV from the US and a few Central and South American countries. The ECV value chain of Ontario consists of a number of sub-chains made up of short and local chains, dominant global chains, and certain ethnic and relational chains. Further, the chain is connected to various social, cultural, economic, health and environmental aspects of the food system. It was realized that large chains are becoming more and more interested in ECV within their fresh produce sector. This is due to the existing and growing demand for the ECV in Canada. It is clearly evident by the acquisition and merging leading ethnic food retailers by top retailers Canada.

There were few significant factors which determine the willingness to pay more for ECV, and they varied among different ethnic consumers. Wholesale prices of some highly demanded ECV had price fluctuations depend on many factors that affect ECV supply. Price gaps between wholesale and retail of ECV also occur due to a range of reasons including how they source their ECV, wholesale price, location of the store and operating cost.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

7.1. Introduction

This chapter presents the conclusions of the study followed by key policy recommendations. The aim of these recommendations is to provide insights for policy makers to facilitate smooth integration of the local farmer into ECV production. Further, it attempts to influence the creation of a more favourable environment for other stakeholders in the value chain to gain more benefits. The first section presents the brief summary of the study highlighting the key findings followed by the conclusions and recommendations.

The aim of this study was to understand the value chain of the ECV in Southern Ontario in order to recommend policies that will benefit farmers and other stakeholders. It specifically attempted to examine the key characteristics of ECV value chains, identify stakeholders, and explore relationships, market linkages and to identify the opportunities and challenges faced by the ECV farmers in Ontario. Another objective was to develop a conceptual framework that will enhance our understanding of the ECV market. The research also tried to determine the wholesale price fluctuations and availability highly demanded ECV and to study the difference between wholesale and retail prices for some ECV in the GTA. Finally it also tried to determine the factors that predict customers' willingness to pay more for ECV.

Ethno-cultural vegetables are non-traditional crops, which are new to the region and oriented to a niche market (Gunst et al., 2010). Recent changes in immigrant

population in the Greater Toronto Area (GTA) have created new markets for ethnic food, and it is important to understand how the demand for ECV can be satisfied (Adekunle et al., 2011). Donald (2009), defines this new emerging subdivision as the “creative food economy sub-sector” which includes ethnic, organic and local foods, which has a rapid growth. According to Adekunle et al. (2011), the estimated demand for ECV in the GTA is CAD \$61 million for the three major ethnic groups; Chinese, Afro-Caribbean and South Asians. The unmet demand for ECV has created an opportunity for Ontario vegetable growers to produce high quality fresh ethnic vegetables for the Ontario market (Farm Start, 2010). The other driving forces behind the demand are the cultural attachment, tradition, taste and other unique characteristics of ECV. Even though the demand is high much of the ECV are imported to Canada from other countries. Some of these ECV could be grown locally, but there is a need for production research as well as research to develop market linkages between farmers and retailers (Adekunle et al., 2011).

Toronto has become more dependent on food imports in recent years. About 60% of the fresh produce is imported from the United States today (Lister, 2007). Increasing imports have led to higher greenhouse gas emissions with the increased food miles in North America (Xureb, 2005 cited in Puduri & Govindasami, 2011). As a result of the expansion of large scale industrialized agriculture Canadian small scale farms have become smaller in size and numbers at present. This trend was further supported by the rapid emergence of the large supermarket chains in the past decades who have gained the control of food distribution. At present the consolidation within the agri-food sector has determined the power in the value chain in the food industry (Reardon et al., 2003). The modern food system is based on the mass production of cheap food, but the unseen cost of the cheap food is increasing (Seccombe, 2007; Lister, 2007). The present system has

created many economic, social, environmental and health risks where the cost eventually has to be paid by the society (Lister, 2007).

There is an increasing awareness with many Ontarians today regarding quality, health benefits, and other social, environmental and economic benefits associated with food (Donald, 2009). According to Filson (2011), as the latest international food regime becomes increasingly globalized and standardized, a counter consumer trend has emerged which includes a demand for local, quality, fresh, organic and ethnic food.

Growing ECV locally has many benefits. Beside the economic gains to farmers, it has the advantage of vegetable consumption as a part of healthy diet in fighting food related diseases like obesity (Adekunle et al., 2010). Furthermore, local supply of ECV benefits the environment by reducing product transportation requirements, and also protecting the product quality while supporting the local agricultural economy (Kelleher et al., 2008). It is also a new employment opportunity for new immigrants and can be a profitable crop diversification option (Lister, 2007). There are some challenges in cultivation ECV locally too. Short cultivation period, pests and diseases, lack of seeds and pesticides, higher labour cost and lack of government support are some of them. In addition lack of knowledge about production methods and poor understanding of the market are critical (Adekunle et al., 2010; Gunst et al., 2010). According to Kelleher et al. (2008), farmers need proof of a strong market before they will make a decision to switch into ECV production. Profitability is a major criterion for farmers to switch into ECV. Farmers need to know the approximate costs of production including profit that they can make by producing ECV.

Exploring the ECV value chain enables us to understand the relationship among the variables, institutions and stakeholders in the chain. It also gives the opportunity to look into the broader market needs by close examination of various actors and direct and indirect influences they have on chain performance.

This research adopted an exploratory and descriptive research design. A mixed method approach was employed. Multiple data collection methods were used in this study including in-depth interviews, observation and focus group discussions. Quantitative analysis used some secondary data from a previous consumption survey. Qualitative data were processed using coding and analysed using thematic analysis, while quantitative data were analysed using descriptive statistics.

The value chain for ECV in Ontario consists of two major types of chains. One of them originates locally while the other is international which forms a continuum with some variants in between. There were two groups of ECV farmers based on their scale of operation. The small scale new immigrant farmers have proven the possibility of cultivating a number of South Asian and Afro Caribbean ECV under local conditions successfully. Most of the large scale ECV growers were engaged in producing Chinese vegetables with better market access when compared to small scale new ECV farmers. Most of the small scale farmers interviewed supplied their fresh organic produce to a limited market which was made with farmers markets, CSA and direct sales. Only a few have sold their produce to the ethnic stores and restaurants. Small scale farmers found that break into existing value chains is hard for them.

The long value chain includes ECV imports. The OFT and many other independent importers import ECV into Canada. The OFT is Canada's main facility which plays an important role in distributing fresh produce including some ECV. It also

has a large farmers market. At present locally produced Chinese greens are sold at the OFT representing the ECV sector. ECV are mainly imported to Canada from the US and a few Central and South American countries due to availability and cost. This is a well-organized operation between producers, suppliers and buyers where trust and mutual understanding plays a vital role equally important as contracts.

Most of the supermarkets have realized the need of developing their area for ECV and are very keen to know about the demand trends for ECV. They have their production arrangements in Canada and other countries. The local purchases are mainly limited to Chinese greens during the summer months. Ethnic grocery stores were an important segment of the ECV value chain that used different ways to obtain their ECV. Some of them imported ECV directly and others sourced from intermediaries or bought from the OFT. There were many independent ECV importers in the market due to the diversity and lack of organization when compared to mainstream sector.

Analysis to understand the willingness to pay more for ECV indicated that certain factors can influence consumers' decision. Importance of the ECV price, monthly spending on ECV, total monthly household income, age of the respondent and whether respondent is a vegetarian were significant variables in the model.

The wholesale prices of a few highly demanded ECV have fluctuated more when compared to a few popular mainstream vegetables. Wholesale price of Chinese ECV were less changing among the other varieties. ECV such as eggplant and okra prices changed with their availability and the countries of origin also changed over time. In the case of retail prices, mainstream stores had low prices and, price fluctuation also less for certain ECV when compared to small ethnic groceries.

7.2. Conclusions

Production of ECV locally can strengthen the local ECV value chain which is shorter in comparison with the long international ECV value chain. Most importantly shorter food chains reduce the greenhouse gas emissions by reducing food miles. Also high fossil fuel and energy consumption levels accompanying the long chains will not be a sustainable part in the future food systems (McMichael, 2009). This is further evidenced by the recent emerging public movement against “long food miles” and increasing awareness on local food (Friedmann & McNair, 2008). Besides the social and environmental welfare gains, Ontario consumers will have the opportunity to taste fresh and healthy ECV in their diet by sourcing them locally. From the farmers’ viewpoint, apart from the opportunity to cater to the huge demand in the GTA for ECV, they can use ECV as alternative crops for unproductive horticultural ventures (Adekunle et al., 2011; Lister, 2007).

At present, large scale ECV growers in Ontario are in a stable position due to their scale of production and level of integration in the market. Most of them are producers of Chinese greens and own a relatively strong place in the ECV value chain. Besides their farming in the Ontario, some of them are active in the international ECV value chain by operating outside the Canada, and they import ECV from their own farms in countries like Mexico and the Dominican Republic.

The small scale local ECV farmers characterise the local-shorter value chain. At present most of them are operating within a limited space defined by their resources including the factors of production like land, technical knowhow and markets. But, by looking at their growth, expansion and enthusiasm in the business, it demonstrates the potential for the future development of the ECV sector in southern Ontario. According to

these farmers, the lack of knowledge and extension, poor consumer awareness and low level of understanding about the ECV market are the major barriers preventing them from trying to grow these ECV. Marketing of organically produced ECV was also a major challenge for small farmers within the supermarket dominated food system at present. Currently farmers markets, community shared agriculture (CSAs) and direct sales of ECV are the most popular methods of marketing for small ECV producers covered in this study. But, there were a few cases where a few entrepreneurial small farmers have sold their ECV to ethnic stores, supermarkets and restaurants.

The prominent powerful retail sector valued the quality of ECV in terms of freshness, variety and as a commodity which satisfies the consumer dollar. However, the local farmers valued it as organic, locally grown and healthy food. Various ethnic consumers valued ECV differently based on a range of product attributes such as taste, medicinal value, size, freshness, etc., based in turn, to a significant degree, on their cultural-food affiliations.

Ethnic stores and supermarkets were the most popular ECV outlets for ethnic consumers in the GTA (Adekunle et al., 2010). The retail prices of some of the ECV had significant differences in comparison with different ethnic stores and mainstream supermarkets. These price variations and fluctuations occurred due to a number of reasons such as the method of sourcing and the location of the stores other than the common market forces which affect demand and supply. Most retailers depend on independent intermediaries in obtaining ECV. Some sourced directly from OFT, while others import on their own. The existence of many intermediaries indicates the diversity of the ECV market. It also proves that independent agents have unique power within the chain.

The OFT was a home for a few large importers that represented strong and strategic positions in the fresh vegetable value chain. The OFT farmers market was occupied with local farmers and Chinese greens were the main ECV sold. Beside the large importers/wholesalers, supermarkets were in the top of today's food system that exerted power throughout the agri-food chain (Reardon et al., 2003). Consolidation and vertical integration were prominent characteristics of these conglomerates who continuously seek competitiveness over others for market share.

7.2.1. ECV value chains: diversity and variations

Two types of major value chains could be identified for ECV in Ontario with many variations. These variations arise due to a range of socio-cultural, economic and physical factors which are associated with the ECV. Some of the ECV cannot be grown in the Ontario where importing them from other countries remains the only solution. But, many ECV are grown locally and I have already indicated the potential for local production. Many individuals belonging to various ethnic groups were involved in the ECV sector representing different activities from production to marketing. Their scale of operation of those activities also varied from simple to complex where individual farmer selling his/her produce at local farmers' markets to chain supermarkets which sourced their ECV through global supply chains. On top of this, consumers' demand for ECV is high and complex. All these factors have made the ECV value chain in Ontario a diverse chain.

It was understood that more Chinese vegetables are grown locally as compared with South Asian and Afro-Caribbean ECV. But according to Adekunle et al., (2010), the biggest demand arises from South Asians which is \$ 31 million per month. According to

Gunst et al., (2010), by 2031 the ethnic population in the GTA is estimated to be close to 63% of the whole GTA population and will be the largest group will be South Asians. In this case, it is important to increase research and promote these ECV in the province soon.

Based on the findings, it is obvious that accumulated knowledge of ethnic immigrant farmers is an asset in ECV farming. This knowledge and skill could be used more productively in addressing the emerging need for growing ECV locally. In addition, there is a big gap of information in the ECV market. This is critical for cost of production and market information, especially in the case of small scale farmers.

There was no comprehensive data or statistics available on the numbers of ECV farmers available. There is no formal association at present to unite or represent the needs of these farmers. This is even more relevant to small scale farmers who do not participate in the Ontario Fruit and Vegetable Growers Association meetings, expos and fairs. The Ontario Fruit and Vegetable Growers' Association (OFVGA) is the voice of Ontario's 7,500 fruit, vegetable, and greenhouse farmers on issues affecting the horticulture sector (OFVGA, 2011).

7.2. Recommendations

- Information, or the knowledge and extension are crucial areas to be developed in order to integrate new and existing farmers to ECV sector. Information on technical knowledge and cost of production information has to be available for ECV farmers in order for this niche to grow. Further, effective mechanisms to disseminate information are also required. It could be done through establishing a separate sub-unit for ECV at OMAFRA, organizing workshops for ECV farmers

and through field visits to farms or research stations which are growing ECV and/or conducting trials with ECV.

- Some of the new small and medium scale ECV farmers have their websites for promoting their businesses. It is good to have a central website to link them all which will help them to market their produce and to link with other stakeholders. This is also a low cost option for information dissemination.
- Connect university research with large scale farmers. Students can do their ECV research projects at the farms.
- Stakeholders in the value chain such as retailers and wholesalers and importers should be educated on information sources. There is a need for information about independent agents and retailers to be collected in order to check possibilities for linking farmers to their local chains.
- ECV have many socio-cultural affiliations as food is a strong reflection of the culture. Therefore more information about special cultural events and festivals by different ethnic groups may be useful to learn about any demands ECV produce.
- Interdependent associations for ECV growers should be developed and recognized as an important group in the local food system. This initiative will assist them to organize in better ways, to share information, create networks, market their produce better and lobby policy makers. On the other hand it helps to collect information from farmers, crops grown, acreage, markets, etc. The ECV growers can come under the Ontario Fruit and Vegetable Growers Association (OFVGA) who represents the horticultural sector of Ontario.

- Government should provide financial or similar assistance (eg. subsidized inputs or greenhouses) to existing farmers in order to facilitate a smooth transition to ECV. Also, there should be a better system to integrate and utilize the knowledge and experience of new immigrants on ECV effectively.
- Ethnic grocery store owners should be educated to sell more locally grown ECV. This can be done through providing an incentive for retailers to upgrade their vegetable shelves to display ECV with under controlled conditions similar to supermarkets.
- There should be collaboration between small ECV producers and large scale traditional farmers where new farmers can lease land for ECV. In the long term, it will assist to create awareness about ECV among large scale farmers who will see what they grow.
- Increase the awareness of the general public towards the benefits of locally produced ECV. It could be done through promoting summer growing locally, giving more opportunities to people to try ECV in community gardens and invite school children to ECV farms. In addition ECV farmers' markets can be established in strategic locations targeting ethnic population.
- The OFT is a central hub for vegetable marketing in Ontario. If the OFT can assign a special section for local ECV (especially for South Asian and Afro Caribbean), it may be a good initiative to form business linkages between local retailers in GTA and local ECV producers.
- Accelerate the ECV seed importation procedures to increase the seed availability in the market and to discourage illegal seed arrivals.

- Pesticide recommendation process for ECV has to be accelerated. ECV farmers can cultivate ECV organically as well as using pesticides, and market their produce to different market windows. This can give them more options at the competitive market.
- The future research should focus more on South Asian vegetables production as the demand will be high for them in the future. In marketing, understanding the links between ethnic retailers and local farmers will help to develop market linkages between these two groups. In addition research on the possibilities in ECV processing is also an important area to consider.

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