

CULTIVATING CHANGE

CULTIVATING CHANGE: BUILDING ON EMERGENCY FOOD BY
INCORPORATING FRESH, LOCAL PRODUCE INTO HAMILTON'S FOOD
BANKS TO OVERCOME THE GOOD FOOD GAP

By LYNNETTE HORNUNG, B.H.Sc. (Honours)

A Thesis Submitted to the School of Graduate Studies in Partial Fulfilment of the
Requirements for the Degree Master of Arts

McMaster University © Copyright by Lynnette Hornung, September 2011

McMaster University MASTER OF ARTS (2011) Hamilton, Ontario

(Anthropology)

TITLE: Cultivating change: Building on emergency food by incorporating fresh,
local produce into Hamilton's food banks to overcome the good food gap

AUTHOR: Lynnette Hornung, B.H.Sc, Honours (University of Calgary)

SUPERVISOR: Dr. T. Moffat NUMBER OF PAGES: viii, 161

ABSTRACT

Multilaterally, Canada's food system is not succeeding – this is related to jurisdictional disconnect in policy objectives and outcomes between aspects of the system. This “good food gap” requires integrated, system-focused solutions. Considering an ecosystems approach to biocultural anthropology and the community food security perspective, this thesis studied food banks' use of fresh and local produce in Hamilton, Ontario – a city particularly affected by poverty and food insecurity. Mixed methods allowed a more holistic investigation: a nutritional assessment of 108 model grocery parcels from three Hamilton food banks over a local growing season was complemented by semi-structured interviews with 13 key stakeholders including food bank staff, clients and produce suppliers and others involved in community food work in Hamilton.

Average parcel contents met or exceeded some nutritional targets, but other results were concerning: parcels contained high sodium levels, few servings of milk and alternatives and vegetable and fruit servings were seasonally-limited with fresh, local produce making a significant contribution during the harvest months. Also, parcels varied individually but those for smaller households were significantly more adequate than those for larger households. Non-nutritive benefits to food banks' use of fresh, local produce were identified and seen to extend beyond the emergency food sector (EFS) though poor produce quality was considered a drawback. Infrastructure, knowledge and networks were the main categories of facilitating or limiting factors. These findings are situated within stakeholders' discussions of the relationships between emergency food, food security, nutrition, culture and their future aspirations. The results support the position that overcoming the good food gap in Hamilton can be best accomplished by both improving the food bank system – such as through the increasing the use of fresh, local produce – and moving beyond emergency food toward a just, sustainable, rights-based food system through the community food centre model.

ACKNOWLEDGEMENTS

Foremost, I am grateful for the support and contribution of a wonderful supervisor to my academic development and to this thesis. Dr. Moffat provided invaluable mentorship as well as direction and encouragement for this research, which would not have been possible without her support. The numerous questions answered, feedback provided and encouragement of my research interests by my committee and several other academic mentors, including faculty members and my cohort, were also essential to the completion of this thesis; for that support and for pushing me to be a better scholar, I am very appreciative.

Much gratitude is also owed to my family who, though across the country, have always endeavored to support my interests and goals in every way possible and taught me the value of appreciating your roots. To my dear friends (you know who you are), I can't thank you enough – you were by my side to share my joys and my tears, you put up with me in times of frustration and stress (of which there were plenty), and you coaxed me away when I most needed some fun, good food and good company (all of which there were no shortage).

This work is dedicated to the food community in Hamilton: the community leaders, teachers, mentors, champions, heroes, agents of change and stakeholders who make Hamilton's food system an important issue in their work and their lives. This includes the many people and organizations that offered insight and assistance in understanding food in my community and in developing and conducting this research. In particular, this thesis would not have been possible without the food banks that participated in the study and all the stakeholders interviewed whose time and viewpoints were invaluable to this thesis and to my development as a member of the food community in Hamilton.

This research was supported by the Social Sciences and Humanities Research Council.

TABLE OF CONTENTS

List of Figures	vi
List of Tables	vii
List of Abbreviations	viii
Chapter 1 – Introduction	1
Chapter 2 – Literature Review	7
Chapter 3 – Community Context: Hamilton, Ontario	24
Chapter 4 – Methods	35
Chapter 5 – Results: Fresh and Local Produce in Hamilton Food Banks	57
Chapter 6 – Results: Emergency Food within the Context of Food Security in Hamilton	86
Chapter 7 – Discussion	105
Chapter 8 – Conclusions	130
References Cited	137
Appendix 1 – Other Foods and Combination Foods	153
Appendix 2 – Households’ Estimated Dietary Requirements	155
Appendix 3 – Interview Guide: Food Bank Staff	157
Appendix 4 – Interview Guide: Food Bank Clients	159
Appendix 5 – Analysis of Interview Content	161

LIST OF FIGURES

Figure 3.1:	Map of Hamilton, Ontario	25
Figure 3.2:	Terminology and examples of food programs	32
Figure 5.1:	Food group servings in grocery parcels (n=108) by season	59
Figure 5.2:	Types of produce in grocery parcels modeled in all seasons (n=108)	61
Figure 5.3:	Types of produce in grocery parcels (n=108) by season	62
Figure 5.4:	Food group servings in grocery parcels (n=108) by household structure	63
Figure 5.5:	Food groups and caloric content of grocery parcels (n=108) by household structure	64
Figure 5.6:	Nutrient density of grocery parcels (n=108)	66
Figure 6.1:	Approaches to and categories of future directions	98
Figure 6.2:	Conceptual approaches to future directions for food security	99
Figure 6.3:	Specific directives of the future directions for food security	101

LIST OF TABLES

Table 4.1:	Study design matrix for nutritional analysis of grocery parcels	37
Table 4.2:	Nutrient requirements estimated for households	50
Table 4.3:	Interview participants by profession or group	52
Table 5.1:	Amount of food group servings in grocery parcels (n=108)	58
Table 5.2:	<i>P</i> -values for post-hoc analyses of seasonal and household trends in food group and produce categories, total energy and nutrient density (n=108)	60
Table 5.3:	Nutrient content of grocery parcels (n=108)	65
Table 5.4:	Factors facilitating or hindering the use of fresh produce in Hamilton food banks	74-75

LIST OF ABBREVIATIONS

AMDR	Acceptable macronutrient distribution ranges
CBFA	Capacity-building food assistance
CFC	Community food centre
CFG	Canada's Food Guide
CFS	Community food security
CHH	City Housing Hamilton
CSA	Community supported agriculture
DRI	Dietary reference intakes
EER	Estimated energy requirement
EFS	Emergency food sector
FAO	Food and Agricultural Organization (of the WHO)
GFB	Good food box (program)
HFTP	Hamilton Fruit Trees Project
HPHS	Hamilton Public Health Services
MDE	Minimum days' equivalence
N2N	Neighbour to Neighbour (Centre)
OAFB	Ontario Association of Food Banks
ODSP	Ontario Disability Support Program
OW	Ontario Works (program)
UL	Tolerable upper intake level
USDA	United States Department of Agriculture
WHO	World Health Organization

CHAPTER 1 – Introduction

Crisis and the Good Food Gap as an Imperative for Study

Canada's food system is multilaterally experiencing a state of crisis; however, antagonisms between the trends seen in different aspects of Canada's food system are apparent.

Alongside a continual decrease in the average proportion of income spent on food and beverages in Canada since the 1960s (Agriculture and Agri-Food Canada 2009), Canada's first food bank open in 1981 and the number of food banks and households requiring food bank assistance have persistently increased since then (Canadian Association of Food Banks 2003; Riches 2002). At the same time as we spend less on food and yet more people cannot afford food, Agriculture and Agri-Food Canada expect the gourmet and high-end sectors to account for a growing share of the future food market (Serecon Management Consulting Inc. 2005, p. 25).

Low-income households in Canada experience a double dilemma of lower nutrient levels but higher caloric density in their purchased foods compared to higher-income households (Ricciuto and Tarasuk 2007). Associated with this, the risk of many increasingly-prevalent diet-and-nutrition-related chronic diseases is linked to both caloric overnutrition and micronutrient imbalance (WHO 2003), and a more general association between income and health in Canada has been

well-documented (Phipps 2003; Wilkins et al. 2002). While the disparities in diet and health may impact those in poverty most directly and most seriously, they are burdens borne by all Canadians: diet-related diseases are estimated to annually cost our economy between \$5.3 billion (estimate by Rocan, [2005]; presented by Serecon Management Consulting Inc. [2005, p. 4]) and \$29.4 billion (Cash et al. 2006, p. 606), though economic statistics do little to acknowledge the suffering and quality of life costs of diet-related illness.

As may be intuitively expected, greater availability of vegetables and fruits in neighbourhood food retailers has been connected to higher inclusion of this food group into residents' diets – a trend noted in a variety of U.S. populations (Bodor et al. 2008; Izumi et al. 2011; Rose and Richards 2004; among others), but expected to be similar in Canada¹. However, we also know that in the United States (and likely in Canada, the U.K., Australia and New Zealand, although the evidence base outside the United States is not currently as well-developed) low-income and minority neighbourhoods may be characterized as “food deserts” with limited access to affordable, diverse and healthy foods – including vegetables and fruits – compared to higher-income or privileged areas (Beaulac et al. 2009; Walker et al. 2010).

At the same time as many Canadians have difficulty accessing or affording sufficient and nutritious food, Canadian food producers are finding their bottom-line continually tried. A reliance on food produced hundreds or thousands

¹Canadian studies (such as Apparicio et al. 2007; Larsen and Gilliland 2008) are based, at least partially, on this premise that availability translates to use.

of kilometres away has left Canadians feeling that their food security is at the whim of the global political-economy and an environmentally unsustainable food system (BC Ministry of Agriculture and Lands 2006; People's Food Policy Project 2011). Yet, more localized production is challenged by the loss of farmland ownership and increasing indebtedness of Canadian family farms (Canada's National Farmers Union 2010; Statistics Canada 2009, p. 17).

Cash et al. (2006) note that while the WHO recommends that food and agricultural policies should be aligned with the production of healthy foods, food-related policies in Canada have traditionally been jurisdictionally fragmented and several Canadian agricultural policies are mal-aligned with public health and nutritional goals and directives. One example of this is the Administered Dairy Prices program, which inflates the price of fluid milk compared to milk used in food processing, thus providing incentive for the consumption of sweetened or fat-added dairy products relative to unsweetened, lower-fat, fluid milk (Cash et al. 2006, p. 618). Additionally, although Canada has ratified at least nine international agreements that affirm the right to food (Rideout et al. 2007), it is the only G8 country that does not have a nationally-funded school meal program (People's Food Policy Project 2011, p. 5).

Food system practitioners and advocates in Canada and the United States have articulated this state of multilateral and sometimes antagonistic food system crisis as a "food gap" (of which the above paragraphs give a glimpse, but are by no means a complete portrayal). Baker and colleagues describe Canada's "good

food gap” as “the policy space separating the farm income crisis from the health crisis” (2010, p. 11) and “a result of agricultural and health policies that are historically narrow in focus, with unconnected objectives and outcomes” (2010, p. 12). While these authors also consider the disconnect between producers of fresh food and those experiencing poverty and food insecurity as one aspect of the food gap in Canada, Mark Winne’s attention to a widening food gap in the United States has focused on income-disparity in the U.S. food system, a factor not inconsequential in Canada even though there are differences in context. Winne describes how U.S. anti-hunger policies have been developed so that food assistance programs may serve the needs of agricultural supports, national security, or corporate interests, resulting in a “two-tiered food system” that perpetuates food insecurity and poor nutrition among increasingly impoverished Americans (2008).

Drawing on the work of Baker et al. as well as Winne’s focus on income-disparity in who is served by the prevailing food system, the idea of the “good food gap” is a major imperative for this research. I define the good food gap as: *the structural barriers - based in narrowly focused public policies and jurisdictionally disconnected objectives and outcomes - to a just, sustainable food system that meets the diverse needs and ensures the food security of all food-system stakeholders*. How is such a gap overcome? Academics (Cash et al. 2006; Mendes 2008), food system practitioners and advocates (Baker et al. 2010; Scharf et al. 2010; Winne et al. 1997), and even international bodies like the WHO

(2004) are increasingly recognizing that food initiatives, programming and policies must be multilateral, with integrated objectives and outcomes across elements of the food system.

Objective and Specific Aims

Hamilton, Ontario offers an apt setting for studying the good food gap in Canada; the city experiences a higher rate of household food insecurity than the provincial average (see Chapter 2) and this research occurred at a time when Hamilton's food system is rapidly changing and municipal food policy for the city is being cultivated. In consideration of the good food gap, the objective of this thesis is to study the use of fresh and locally grown produce in food banks in Hamilton, Ontario – as a node of intersection between food assistance, nutritional health, and local production – and to situate this within a broader discussion of food security and the integration of diverse elements of Hamilton's food system. This topic is addressed through three specific aims:

- (1) To analyze the nutritional value of food available from Hamilton food banks and how grocery parcel contents change over a local growing season.*
- (2) To identify factors influencing the use of fresh and locally grown produce in Hamilton food banks including: perceived importance, benefits, drawbacks, barriers, facilitators, and future aspirations.*

(3) To understand how the use of fresh and locally grown produce in food banks relates to food security and food system integration in Hamilton.

Overview of Thesis

Chapter 2 identifies an ecosystem-based focus within biocultural anthropology as a relevant theoretical basis for the objective of this thesis and then moves to a review of relevant literature focusing on the emergency food sector (EFS), nutrition and community food security (CFS). This is followed by a contextual snapshot of Hamilton (Chapter 3), identifying points of history, demography and geography as well as food system initiatives, resources and key stakeholders that are germane to this thesis. The mixed-methods study on which this thesis is based comprises a nutritional survey of food banks and key-stakeholder interviews, which are further described in Chapter 4.

Chapters 5 and 6 describe the results of the research – the first regarding specific aims one and two (i.e. the use of fresh and locally grown produce in Hamilton food banks), and the second regarding a broader discussion of food security and integration of aspects of the food system in Hamilton. Chapter 7 offers an interpretation of the study's results with respect to academic as well as organizational literature, tying the use of fresh, local produce in food banks to the aim of overcoming the food gap in Hamilton. Finally, concluding remarks are made in Chapter 8.

CHAPTER 2 – Literature Review

Introduction

One aspect of the good food gap discussed in the previous chapter and one aspect of the crisis felt throughout Canada's food system is the low dietary quality food available through the emergency food sector (EFS)². The nutritional intake of individuals accessing emergency food programs is frequently poor (Starkey et al. 1999; Tarasuk and Beaton 1999b), making dietary quality of groceries available at food banks of particular interest. This chapter identifies an ecosystem-based focus within the biocultural study of the anthropology of food and nutrition as relevant for conceptualizing this topic and then moves to a review of the relevant bodies of literature. Literature reviewed includes: previous nutritional surveys of food banks, work addressing the relationship between the EFS and nutrition, and addressing capacity of community food security (CFS)-based approaches.

Because this thesis hinges on the concept of “local food”, an upfront note of disambiguation is necessary. As is noted by Edwards-Jones (2010), there is little agreement on what, geographically, defines “local”, and in some cases the definition of “local” is even primarily non-spatial. I have chosen to avoid imposing a definition of “local” onto this research. As regards the nutritional survey, the concept of local is roughly “municipal” – its use is tied to the growing

² I define the EFS as food assistance programs intended to supply immediate, short-term relief of food shortage or insecurity. See also, Chapter 3.

season of Southern Ontario and to producers' proximity or feeling a part of Hamilton such that they would contribute produce to Hamilton food banks (as opposed to elsewhere). In terms of the key stakeholders interviewed, I did not provide a definition of "local" or ask for one – the discussions took place within the context of participants' concept of "local".

Theoretical Framework

The objective of this research is aligned with a biocultural approach to the anthropology of food and nutrition. Specifically, I find an ecosystem framework to be useful in conceptualizing interrelations between factors influencing individual dietary outcomes and between different aspects of a food system (identified as crucial to overcoming the good food gap, as reviewed in Chapter 1). Within the field of anthropology, Moran (2008) discusses the popularity of an ecosystem-based approach for its focus on integration - something that resonates particularly strongly with biocultural investigations of food and nutrition. The requirement for nutrients, the physical consequences of failing to acquire the correct amounts or types of nutrients and the fact that, ultimately, all food comes from our natural environment make food a biological topic of study. The human milieu that defines what *is* versus *is not* food, and dictates how food is acquired, distributed and consumed renders the study of food socially and culturally significant. Peltó and colleagues (2000) note that these connections make an

ecological model and a focus on systems particularly well-suited to anthropological investigations of food and nutrition.

In using an ecosystem approach to study human issues, social scientists tend to work on models of closed systems, limiting considerations of flows to or from outside the boundaries of the system (Moran 2008, p. 12). One limitation of an ecosystem-based perspective on food and nutrition is in addressing an extremely globalized and delocalized food system. Moran notes this in discussing an ecosystems perspective in light of global change: “Food and famine are no longer local problems. International interventions are routine but still mediated through local, regional and national institutions caught up in a web of politics” (2008, pp. 22-23). Studies of ecosystems focus on how populations interact with their environment – for humans, an increasingly delocalized and global food system means that our food is often more closely connected to our cultural and social environment³ than our immediate physical environment.

Moran suggests that an ecological approach to anthropology may be most valuable in considering stress responses through questions such as, “Who responds? Does stress lead to changing in the structuring of the population?” (2008, p. 50). I discuss (later in this chapter) that the EFS in North America arose as a response to household food insecurity. This response has changed the structure of our society in a very real way – it has changed how people meet their

³ Jerome Peltó and Kandel (1980) present an “Ecological model for nutritional anthropology”, illustrating interconnection between diet and the physical environment, social environment, social organization, culture and technology.

food needs. This research takes a biocultural and ecosystem-based perspective by studying how the EFS (as a social and cultural response to food insecurity) may structure dietary outcomes for those for whom it provides.

Nutritional Surveys of Food Banks

Considering the nutritional quality of the food supply available from food banks is one way of assessing the outcome of the EFS as a response to food insecurity.

While some nutritional analyses of food banks have been conducted, the results remain varied and relatively little is known about the factors that may contribute to this diversity of results. A review of the literature identified ten studies of the nutritional value of food bank grocery parcels in Canada or the United States (all discussed below).

Three studies have concluded that, by and large, food bank grocery parcels are able to provide nutritionally healthy food and meet the food banks' intention for minimum amount of food supplied. Willows and Au (2006) found standardized grocery parcels from a food bank in Edmonton, Alberta to provide an adequate number servings to last the intended four days for each food group, though fat content and sources of animal protein were limited. In addition, based on a macro and micro-nutrient analysis of 68 grocery parcels in Texas, Friedman (1991) concluded that the contents were sufficient to meet the dietary needs of recipients for the intended four days. Greger et al. (2002) also analyzed the macro

and micro-nutrient content of 58 grocery parcels (from food banks in Wisconsin) and found them to be nutritionally adequate except in calcium levels.

For some of the studies, grocery parcels were concluded to be nutritionally adequate in certain respects but substantially lacking in other aspects. Akobundu et al. (2004) reported that, in general, the grocery parcels surveyed (from 19 different locations in Massachusetts) provided at least three days' worth of each food group, though they did not state whether this was the intended length of food supply. However, this study also found that a balance of the food groups was not supplied – the dairy and fruit groups were relatively limited – and that grocery parcels had a low nutrient density for calcium, vitamin A and vitamin C (Akobundu et al. 2004). Starkey (1994) also found the dairy group to be particularly limited, and the fruit and vegetable group to be variable, in 25 grocery parcels from one organization in Montreal, which aimed to provide a three-day-supply. The average nutrient content of grocery parcels was found to be adequate to meet anticipated needs, though the range in nutritional value indicated that some grocery parcels would have been nutritionally inadequate (Starkey 1994). Teron and Tarasuk (1999) conducted a nutrient (but not a food group-based) analysis of 85 grocery parcels from Toronto, Ontario food banks. Similar to findings by Starkey (1994), they reported that *average* levels of nutrients were consistently high enough to meet minimum requirements for three days, but that variation in adequacy was large – for total energy, vitamin A, vitamin D, calcium

and zinc; between 30 and 50 percent of parcels contained less than three days' worth of these nutrients.

As a separate measure of quality, this study also noted that almost 80 percent of grocery parcels included damaged or past-date products (Teron and Tarasuk, 1999). Cotugna et al. (1994) as well as Hoisington et al. (2011) looked at the number of days' worth of food group servings provided by food redistribution organizations⁴ in two major U.S. centres. Having not provided a target number of servings or persons to be served, it is not possible to assess *adequacy* of the groceries, but the findings suggest that the dietary balance of foods available was less than optimal in both cases. Both studies found that foods not comprising the U.S. dietary guidelines' recognized food groups formed a major component of EFS groceries; sweets and fats were the groups with the second and third highest total number of servings in Delaware (Cotugna et al. 1994) and foods falling outside the My Pyramid guidelines constituting over one-third of the groceries in Oregon (Hoisington et al. 2011). Both studies also found that foods from the "milk" group were distributed in relatively low quantities.

The final two studies that were considered concluded that the groceries supplied by food banks were inadequate to meet the needs of those receiving them. Derrickson and colleagues (1994) studied grocery parcel contents from 29 food banks in Hawaii and the mean number of servings per food group was consistently below 70 percent of the expected dietary requirement (based on

⁴These are organizations similar to Food Share Hamilton (described in Chapter 3).

intended days of supply and household size), and was above 50 percent for only the “grains” and “meat” food groups. Irwin et al. (2007) analyzed 180 grocery parcels from a food bank in southwestern Ontario and concluded that in general, grocery parcels were inadequate to provide the intended three-day-supply when considering either food groups or nutrients.

This inconsistency in results between various studies is likely an expression of two things: variation in supply between the food banks surveyed in different studies and factors that may influence the nutritional adequacy of grocery parcels within any given food bank. Derrickson and colleagues (1994) note that some of these factors include the “availability of food items, clients' preferences, perishability, and the agency's size and budget” (1994, p. 446). Because this research is explicitly not interested in comparisons between food banks, agency size and budget are not addressed here. Rather, I review below, considerations of clients' household structure, seasonal availability of food items, and the use of fresh produce.

Consideration of household structure

Clients' household structure was the factor most likely discussed as affecting nutritional adequacy of grocery parcels within food banks. Willows and Au (2006) looked at standard grocery parcel contents for a single adult and a one-adult, one-child household; by allocating one-third of the nutritional value of the parcel to the child, they noted that grocery supplies were more abundant for the adult when the parcels was prepared for an adult with a child. Both Friedman

(1991) and Teron and Tarasuk (1999) found a statistically significant, negative correlation between household size and nutritional adequacy of grocery parcels, while Irwin et al. (2007) reported that household size did not affect nutritional adequacy. Methodologically, the six other studies identified above did not provide a basis for considering the influence of client's household structure on the nutritional adequacy of groceries received.

Consideration of seasonality

Language suggesting *variability* and *uncertainty* is often used to describe the food supply for the EFS (as in Akobundu et al. 2004; Irwin et al. 2007; Poppendieck 1994; Tarasuk and Eakin 2003). Seasonal variation in food supply within the EFS in Hamilton has been formally acknowledged (Hamilton Food Share 2010) and was also a factor that arose as important during my preliminary consultations with food banks during the planning of this research. Still, the impact of seasonality on food supply for the EFS remains unstudied. Following her nutritional evaluation of grocery parcels from food banks in Montréal, Quebec (which did not address seasonality) Starkey (1994) called for further research into seasonal variability in food bank supply. One study (Greger et al. 2002) presented results that may indicate some seasonal variation in supply; however they studied two different food banks, each in a different season, so it is not possible to differentiate seasonal variation from inter-food bank variation. None of the remaining eight nutritional surveys of food banks identified considered seasonality of supply.

Use of fresh produce by food banks

As with seasonality, indeed one aspect of seasonal variation, the use of fresh or locally grown produce by food banks has been mentioned in the literature but not studied as such. It is, nevertheless, an important consideration: over 70 percent of households using food banks in Ontario in 2009 (as surveyed by the Ontario Association of Food Banks, OAFB) did not consume the recommended number of daily servings of vegetables and fruits (Spence 2009, p. 14). When discussed at all, both in nutritional surveys of food banks (Friedman, 1991; Irwin et al. 2007; Starkey 1994) and other publications (Algert et al. 2006; Jacob 2004; Engler-Stringer and Berenbaum 2007), it is common for the authors to mention that fresh produce is limited at food banks or that it is sometimes available, but that the supply is variable or sporadic.

Only two nutritional studies of food banks have specifically related the use of fresh produce to their conclusions. In their survey of grocery parcels from an Edmonton, Alberta food bank, Willows and Au (2006) noted that fresh produce was included when available and increased the nutritional quality of grocery parcels. In addition, Teron and Tarasuk (1999) proposed that lack of fresh produce (along with few dairy products) may account for some of the nutritional inadequacy documented in grocery parcels in Toronto, Ontario. Also, the inclusion of locally grown fresh produce by a food bank was documented in a practical report (Scharf et al. 2010) chosen by the Metcalf Foundation as one of five “new solutions to fix our broken food system” (Metcalf Foundation 2010). In

this report, the authors note that a grant allows the purchase of fresh, local (usually organic) food for the food bank operated by The Stop in Toronto, Ontario, as part of their strategy to offer integrated programs and services (Scharf et al. 2010).

Other considerations within the literature of fresh produce being used in food banks point to a desire to increase its use (Akobundu et al. 2004; Greger et al. 2002; Verpy et al. 2003), or merely mention initiatives such as gleaning that provide some fresh produce to the EFS (Hampl and Hall 2002; Hoisington et al. 2002). Gleaning would be an example of the use of locally grown produce in food banks, though these publications do not specifically point to the provision of local produce as a goal of the gleaning initiatives.

Still, no research was identified that qualitatively studied the use of fresh or local produce by food banks (for example by identifying limiting factors, benefits or drawbacks). Based on the aforementioned findings by the OAFB regarding fruit and vegetable consumption among food bank clients, increasing access to produce for those using emergency food services is clearly of interest. This dearth of information on both the qualitative and nutritional aspects of the use of fresh produce in food banks represents a major gap in our knowledge given such findings.

A Broader Focus: Connections to Food Security

It is clear that there is little agreement on the nutritional quality of groceries available through food banks, and this lack of consistency in findings may be related to the dearth of understanding of some key factors that influence what is available at a food bank at any given time. Many households have come to rely on food banks as an ongoing, rather than temporary, source of food assistance; the Ontario Association of Food Banks reported that, in 2009, 78 percent of food bank clients had used food banks for over three months and 52 percent had used food banks for over a year (Spence 2009, p. 9). A longer-term reliance on food banks (also noted in the United States by Daponte et al. [1998]) makes the nutritional adequacy of groceries available from them an important consideration. I have reviewed that seasonality in food bank food supply, variation in adequacy due to household structure, and use of fresh and/or locally grown produce have not been adequately studied but may contribute to varying nutritional adequacy.

However, because I have drawn this question of dietary quality of foods at food banks as part of the larger pictures of a good food gap, it is important to tie this topic into broader considerations and trends within the food system. This includes questions of how the EFS is related to food security, and of the capacity of initiatives based on the CFS approach. The concept of food security has become popular since the 1970s as a framework for multilateral discussions of food problems (Anderson and Cook 1999) from the individual to the global level (Lal 2007; Maxwell 1996; Pinstrip-Anderson 2009). The common theme of food

security also links discussions across otherwise separate sectors, such as agribusiness and agricultural technology, ecology and environmental studies, and social justice and social policy (Borre et al. 2010; Guthman 2008; Hendrickson et al. 2008; Riches, 2000; Riches, 2002; Zhao et al. 2008).

Considering household food security is relevant here because, as described by Riches (1986), the charitable system of emergency food in Canada arose in the 1980s as a direct response to household food insecurity. While definitions of food security vary, for the purpose of operationalizing and measuring household food insecurity, Health Canada has adopted the definition of food security put forth by the FAO (1996) World Food Summit: “food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (Health Canada 2007a, p. 2) In Canada, household food security is related to low-income status most prevalently but also to a number of other sociodemographic variables and is noted to disproportionately affect households with children (Health Canada 2007a). Household food insecurity has also been linked to compromised nutrient intake or nutritional status (Kirkpatrick and Tarasuk 2008; Rose and Oliveira 1997; Tarasuk and Beaton 1999b) and other health issues (Klesges et al. 2001; McIntyre et al. 2000; Wehler et al. 1992) including mental health problems (Melchior et al. 2009) as well as behavioural and social problems (Hamelin et al. 1999).

The charitable EFS, which developed in response to recognition of household food insecurity in Canada, has become institutionalized as a nationally unified sector, partnered with major corporations and relied upon chronically as a food source and a supplement to the public welfare system in Canada (Riches 2002). Scharf et al. review that increased, systemic demand for their services coupled with a lack of sustained resources leave the EFS as the most common response to food insecurity but simultaneously unable to address the systemic issues creating that insecurity (2010, p. 13). Some view charitable emergency food as depoliticizing hunger or diverting energy from more radical and more effective initiatives to redress the systemic causes of food insecurity (Poppendieck 1994; Tarasuk and Eakin 2003, 2005), potentially as perpetuating food insecurity.

Drawing largely on the work of Hamm and Bellows (2003) and McCullum et al. (2005), the City of Hamilton promotes a food security continuum with three stages (Hamilton Public Health Services, HPHS, 2007). Based on this continuum the EFS, as short term relief, is considered the first stage. Such relief is viewed as necessary but is recognized as “not addressing food security in its broadest sense” (HPHS 2007, p. 2). The second stage in this continuum is called “building capacity and empowering individuals and communities” (HPHS 2007, p. 2). This capacity-building and empowerment approach (associated with initiatives such as community kitchens and farmers’ markets) resonates with the CFS movement, which is felt to address limitations in consideration of food security at the individual level by expanding upon it (Hamm and Bellows 2003;

Gottlieb and Fisher 1996). Hamm and Bellows propose a definition for CFS, which has become widely-used, as, “a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice” (2003, p. 37). Although CFS has been recognized as having “conceptual richness”, it is also recognized as lacking a solid theoretical framework to tie together the diverse ways in which it is practiced (Anderson and Cook 1999). Scharf and colleagues (2010) provide a good review of the development, focus and some critiques of the CFS movement.

Of particular relevance to this research are two types of critiques of CFS. Riches notes that from a policy standpoint, it is important to contrast the utility of food banks to that of community-based, CFS-driven approaches (like community kitchens for example) in providing adequate food and nutrition to those facing food insecurity (2002, p. 649). Some research has demonstrated the potential for initiatives focused on capacity building and self-reliance to increase food security through better nutrition or food access for those involved (Aliamo et al. 2008; Kortright and Wakefield 2010; Meares 1999) and by being more acceptable and dignified means of meeting their food needs than is charitable assistance (Engler-Stringer and Berenbaum 2007). However, it is also recognized that the capacity of such approaches to impact food security status for whole communities or populations remains limited (Allen 1999; Glover 2004; Kirkpatrick and Tarasuk 2009; Tarasuk 2001).

A second pertinent critique to the CFS approach is based on the focus within CFS on local food systems as a way to support local economy, community resilience, and environmental sustainability (Allen 1999; Gottlieb and Fisher 1996; Hamm and Bellows 2003). In fact, the third stage of the food security continuum adopted by the City of Hamilton (HPS 2007) promotes the need to address systemic issues including support for local agriculture and local food systems. However, the generally higher cost of local food may make it economically inaccessible to some, and promotion of fresh and locally produced food has been critiqued from a consideration of cultural politics and social positionality.

In particular, Hinrichs postulates how the social embeddedness of direct agricultural markets (as a mainstay of local food systems), where the cultivation of social ties insinuate alternatives to the commodification of food, may in fact shift the balance of power further from poorer customers and farmers to the more well-off customers (2000). In a case study of a Midwestern community supported agriculture (CSA⁵) program Hinrichs and Kremer (2002) found that actively seeking inclusion of lower-income households in local-food-promoting programs did not necessarily address any of the class-based injustice enshrined in the local food system movement. Focusing on race rather than income, Slocum (2006) addresses how white privilege structures the direction and administration of the

⁵ CSA programs entail consumers purchasing a “share” or “subscription” with a grower, which may vary based on success of the season’s harvest, but provides the grower with the necessary capital at the beginning of the season.

community food movement and how the movement could benefit from adopting anti-racist practice. Adding to this discourse, Guthman (2008) predicates that alternative food movements that have focused on bringing “good food” (including fresh and local produce) to African-American communities are rooted in expressions of whiteness that may make the programs unappealing and inappropriate for the intended beneficiaries. These critiques represent some of the complexity in the relationship between local food systems and the social justice aspect of CFS.

In addition to supporting local agriculture and food systems, also promoted within the third stage of Hamilton’s food security continuum is a need to ensure a systemic basis for food security through the guarantee of a living wage or social assistance (for workers, the unemployed, underemployed or those on disability assistance) and adequate housing (HPHS 2007). This concern underlies questions both of how the EFS is related to food security (Tarasuk and Dachner 2009), and of the capacity of CFS approaches (Tarasuk 2001, p. 494). The above critiques of the CFS approach (and one of its mainstays – localism), and of the relationship between the EFS and food security are salient considerations throughout this research. It has been important to plan and conduct the research in a way that acknowledges these discussions and to interpret the results of this study in a manner that contributes to these conversations that have shaped the directions of our food system.

Chapter Summary

This chapter has situated my research within a biocultural approach to the anthropology of food and nutrition, especially an ecosystem-based approach. While I recognize the limitations of an ecosystems approach to studying food in a world with a predominantly globalized food system, the focus on ecosystems within anthropology acknowledges the extremely integrated nature of food systems and considers the objective of this research as a topic of adaptation – a social and cultural response, structuring dietary outcomes, to household food insecurity (as an experienced stress to the system).

While the nutritional study of food banks is not novel, the variation in previous result is not well explained. While some of this variability may relate to differences between food banks, I have identified that client household structure, considerations of seasonality in food bank supply and both the qualitative and quantitative aspects of use of fresh produce are also relevant gaps in our knowledge. The discrepancies in previous studies also speak to the need to situate similar work within its local context, which the following chapter does for Hamilton, Ontario.

Finally, this chapter has reviewed the need to place food bank-focused research within the broader context of discussions on food security. Questions of the relationship between the EFS and household food security and of the capacity of CFS-based approaches are relevant to the utility of this research for an evolving food system.

CHAPTER 3 – Community Context: Hamilton, Ontario

Introduction

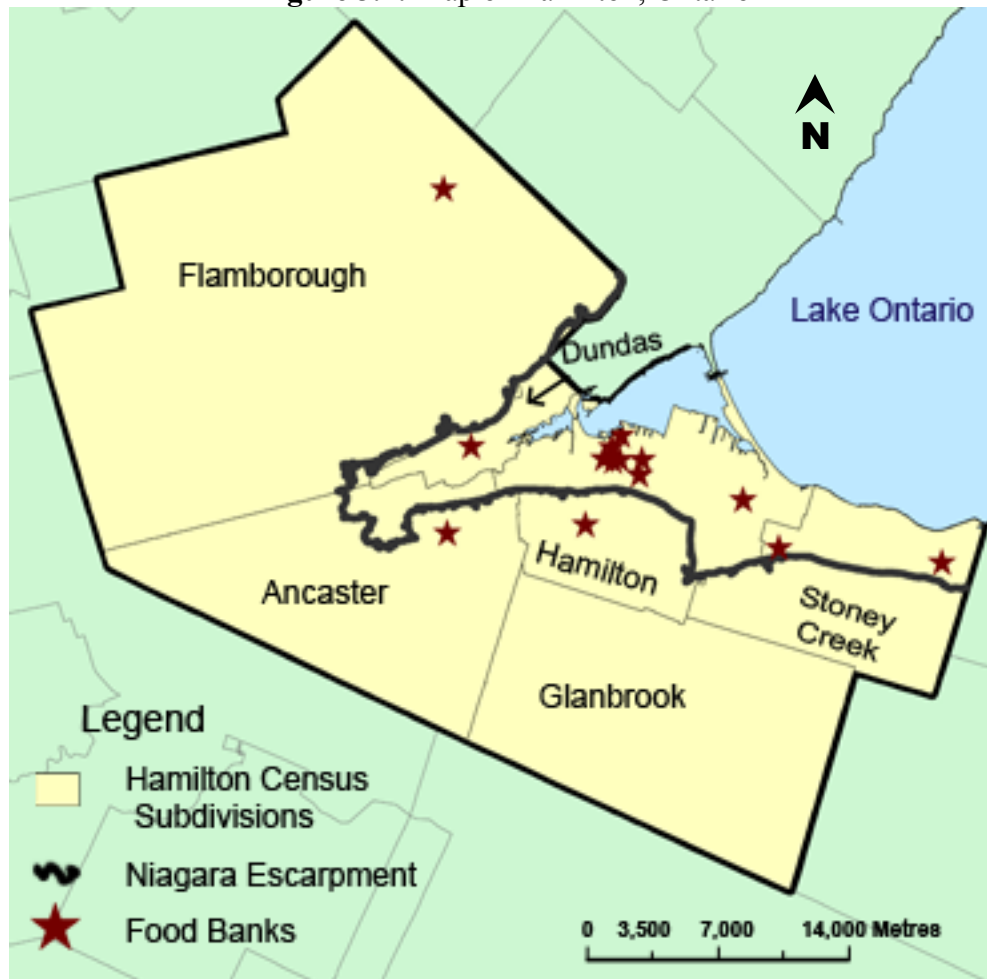
This chapter begins with brief notes on the history, geography and demography of Hamilton followed by an introduction to food system initiatives, resources and key stakeholders that are relevant to this research. The descriptions provided here are by no means comprehensive; the purpose is to provide sufficient information that the discussions throughout the remainder of this thesis become digestible for those unfamiliar with Hamilton and Hamilton's food system.

Snapshot of Hamilton: History, Geography, Demography

The Neutral confederacy (an Iroquoian-speaking people), are commonly cited (for example, Trigger 1994) as having lived in what is now Hamilton, Ontario prior to European occupation of the territory from the late 1700s (Weaver 1984), though the region was likely hunting and fishing territory for a diversity of Aboriginal peoples (Dr. Rick Monture, email communication, 19 July 2011). From a frontier town focused on commercial settlement and farm activities, Hamilton developed into an industrial hub by the mid-1900s with the steel industry booming into the 1980s (Freeman 2001; Weaver 1984). The latter part of the twentieth century saw deterioration of Hamilton's urban core in conjunction with a suburban shift and decline of the industrial sector (Freeman 2001), resulting in a recent municipal

focus on revitalization through supplementing the city's traditional sectors by fostering creativity and knowledge-based economic sectors⁶. Figure 3.1 shows the City of Hamilton as of 2011.

Figure 3.1: Map of Hamilton, Ontario



Data sources: DMTI Spatial. 2009. Markham, ON: DMTI Spatial Inc.; HPHS 2011

⁶The 2010 Economic Development Strategy clearly focuses on innovation and technology, and notes that from 1991 to 2006 the largest growth in employment was in the creative sector (Hamilton Economic Development Office 2010, p. 21).

The Niagara Escarpment runs roughly east-west through Hamilton (Figure 3.1), bisecting the city into the northern “lower” Hamilton and the southern “upper” Hamilton or “Hamilton Mountain”. In addition to the physical division provided by the Niagara Escarpment, the former municipalities of Ancaster, Dundas, Flamborough, Glanbrook, Stoney Creek, and Hamilton were amalgamated into the current City of Hamilton in 2001 (displayed as the Census subdivisions making up the City of Hamilton, Figure 3.1). These divisions within the city have created regions with distinctive characteristics and tension between different areas (Freeman 2001) – something that is still maintained to a degree, and is apparent through some of the discussions with key stakeholders presented in this thesis.

Table 3.1, below, provides select demographic indicators for the City of Hamilton with Ontario averages presented for comparison. The indicators presented portray a demographic snapshot of Hamilton and also estimate the factors Che and Chen found to be statistically significantly associated with food insecurity in Canada (2001). As would be expected given the elevated levels of all indicators except Aboriginal identity in Hamilton compared to the Ontario averages, the prevalence of food insecurity in Hamilton, at 10 percent of households, was also above the Ontario average of 8.2 percent, in 2007.

Table 3.1: Demographic indicators for Hamilton and Ontario

	Hamilton	Ontario
Total population ^a	504,559	12,160,282
Low-income prevalence ^b	14.0%	11.10%
Female-single-parent families ^c	14.80%	12.90%
Aboriginal identity ^d	1.53%	2.01%
Social assistance use (caseload per 1000 persons) ^e	60.7	44.8
Tenancy ^f	31.70%	28.80%
Children ^g	18.1%	12.4%
Food-insecurity prevalence ^h	10.0%	8.2%

Notes and data sources:

Bolded cells estimate an association with higher rates of income-linked food insecurity as per findings of Che and Chen (2001).

- Data from 2006 census: Statistics Canada (2007).
- Percentage of persons in low-income after tax category in 2006 (Statistics Canada 2007).
- Female lone-parent families as a percentage of all census families in 2006 (Statistics Canada 2007).
- Percentage of the population who identify as Aboriginal in 2006 (Statistics Canada 2007).
- Ontario Works (OW) and Ontario Disability Support Program (ODSP) total caseload for May 2011 (Ontario Ministry of Community and Social Services 2011a, 2011b; City of Hamilton 2011a, 2011b) adjusted to 2006 population (Statistics Canada 2007)
- Percentage of all dwellings that are rented as opposed to owned dwellings in 2006 (Statistics Canada 2007).
- Percentage of the population up to age 19 in 2006 (Statistics Canada 2007).
- Percentage of population experiencing any degree of income-related food insecurity in 2007 (HPHS 2010; Health Canada 2011)

Considering the costs of food in the city and rates for social assistance and minimum wage, the Hamilton Nutritious Food Basket⁷ (HPHS 2010) concluded

⁷The Nutritious Food Basket scenarios are an assessment of whether various income levels (provided by minimum wage, a median income, Ontario Works, the Ontario Disability Support Program and Old Age Security/Guaranteed Income Support) are livable based on the costs of housing and maintaining a healthy diet in Hamilton.

that many people in Hamilton would have been unable to afford a healthy diet in 2010. Over 8500 households (with a total of 18,600 members) received groceries from Hamilton food banks in March 2010 (Hamilton Food Share 2010), affirming the Nutritious Food Basket conclusion.

Hamilton Food System & Key Stakeholders

Food production

Southern Ontario has a rich history of, and potential for, food production – presently there are many fruit and vegetable, meat, dairy, grain and other commodity producers in the Hamilton region (Environment Hamilton 2011). Flamborough, Ancaster and Glanbrook (communities in the City of Hamilton; Figure 3.1) comprise a wealth of vegetable and fruit farmland. In addition, the Niagara region (less than 100km east of Hamilton) is one of the richest fruit-producing regions in Ontario (Gardner et al. 2004). In terms of smaller-scale production, Hamilton has a growing culture of gardening, with 26 documented community gardens (Green Venture 2010), in addition to household or undocumented gardens. The City of Hamilton established a Community Garden Program Coordinator position for the city's [Community Garden Network](#) as of 2011, and [City Housing Hamilton](#) (CHH) also recently (as of 2010) established a staff position to support CHH residents in developing gardens in their communities. Theresa Phair, volunteer Garden Coordinator of the McQuesten community garden and Garden Coordinator for CHH, participated in this study as

one of the key stakeholders. Research has demonstrated that even though the non-food benefits of gardening are prominent, both community and home gardening are important food resources for some people in southern Ontario (Kortright and Wakefield 2010; Wakefield et al. 2007).

This thesis discusses three specific initiatives that produce fresh vegetables and fruits for food banks in Hamilton. In 2010, the [Ontario Association of Food Banks](#) (OAFB) began the first season of the [Community Harvest Ontario](#) project (OAFB 2010), with Hamilton as one of the focus areas. As one aspect of the project, [Plan B Organic Farm](#), located in Flamborough, grew vegetables on 23 acres of land for distribution to Hamilton food banks through [Hamilton Food Share](#) (see below regarding Hamilton Food Share). The project covers the costs of production and helps organize community volunteers to assist with the growing and harvest. Melanie Golba and Alvaro Venturelli are two of the founding farmers of Plan B Organic Farm and participated in this study as key stakeholders.

A second relevant initiative in Hamilton is the [West Highland Baptist Church Victory Garden](#). Since 2006, this garden has been producing thousands of pounds of vegetables, herbs and even some fruit to donate to food banks and hot meal programs in Hamilton (West Highland Baptist Church n.d.). The garden was developed and is coordinated largely through the leadership of the Project Champion, Bill Wilcox, who participated as one of the key stakeholders in this research. The land and equipment for the garden are provided through the Church and work in the garden is done by parish and community-member volunteers.

The [Hamilton Fruit Tree Project](#) (HFTP) is an initiative, coordinated through [Environment Hamilton](#) that began in 2005. The HFTP works as a liaison between fruit tree owners in Hamilton and community members who volunteer to harvest excess fruit, which is then divided between the tree owners, volunteers and the HFTP's community partners (food banks, hot meal programs and child/student nutrition programs). Juby Lee, the Project Coordinator for the HFTP, was one of the key stakeholders who participated in this study.

Food distribution and infrastructure

In addition to the mainstream grocery retailers, Hamilton's food system includes a number of alternatives in food distribution and infrastructure, including several farmers' markets, farm stands and community supported agriculture (CSA) programs. Grace Lutheran Church in the Westdale neighbourhood of Hamilton has run a Good Food Box program⁸ (GFB) in the past. In 2010, [Hamilton Eat Local](#) (a project of Environment Hamilton) in collaboration with [Dundas in Transition](#) began to pilot a GFB program with the intentions of making it available city-wide eventually. The Project Manager for Hamilton Eat Local, Karen Burson, was one of the key stakeholders interviewed in this study.

⁸ Good Food Box programs offer boxes of fresh produce at less than retail costs, and are able to do so through bulk-buying and distribution. FoodShare Toronto has published a manual on GFB programs (Biberstein and Daalderop 2008).

Food assistance

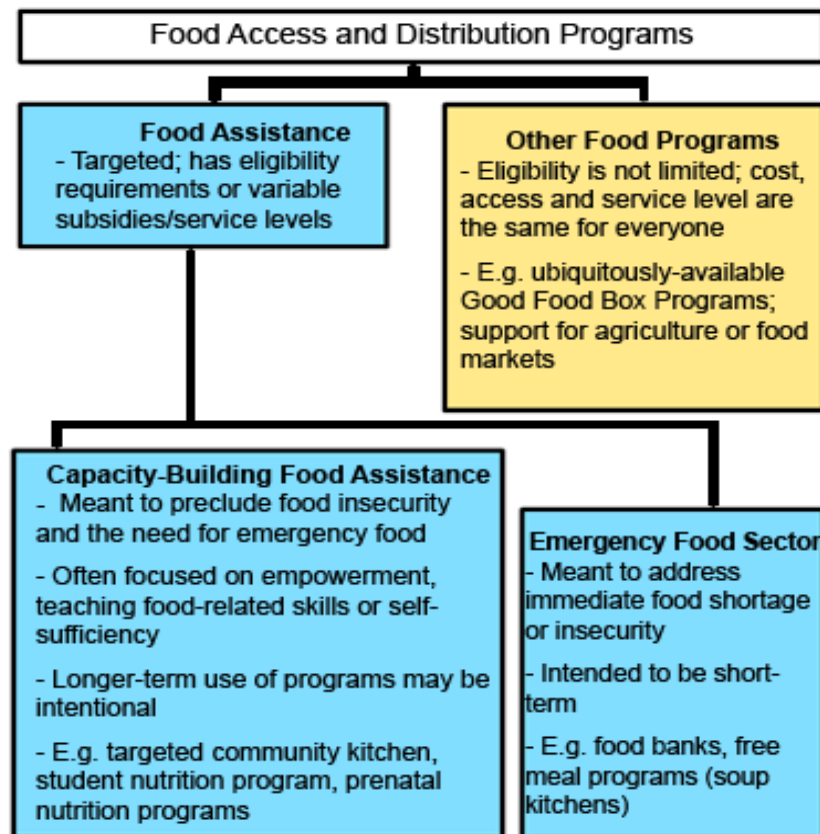
In contrast to the well-known food assistance programs administered by the United States Department of Agriculture (USDA)⁹, there are no federally-provided food programs in Canada targeted at helping food insecure or otherwise nutritionally-marginalized households. Most food assistance in Canada, as in Hamilton in particular, is charitable or community-based in nature.

Figure 3.2 depicts the terminology used in this thesis to describe various forms of food assistance and food programs. Rather than contribute to any theoretical discussion of how food programs are conceptualized, the figure serves mainly to differentiate *food assistance* (as targeted to low-income or otherwise nutritionally-marginalized populations or persons) from all other food programs including, but not limited to agricultural support, support for farmer's markets and distribution (such as ubiquitously available GFBs), or food-based benefits through employers. In contrast to the *emergency food sector* (EFS, intended to provide relief of food shortage or hunger), I use the term *capacity-building food assistance* (CBFA) to describe targeted programs intended to build self-sufficiency so as to prevent food shortage and hunger. This distinction between immediate relief and capacity-building mirrors the conceptualization of the first two stages of Hamilton's Community Food Continuum (HPHS 2007). The more general terminology of *food assistance* also recognizes that, while EFS may have

⁹Such as the Supplemental Nutrition Assistance Program, SNAP, formerly the Food Stamps Program; the Commodity Supplemental Food Program; and supports for women, infants and children (USDA 2011a, 2011b, 2011c)

been intended for short-term relief during exceptional circumstances, for some it has become a more perpetual point of food access (see discussion in Chapter 2).

Figure 3.2: Terminology and examples of food programs



[Hamilton Food Share](#) is a food redistribution centre supporting the EFS in Hamilton by procuring, storing and distributing food – mostly industry-sourced surplus or unusable food, but also from community food drives (Hamilton Food Share 2007). Hamilton Food Share distributes food to food banks and hot meal

programs: Hamilton has 14 food banks¹⁰ and eight hot meal programs¹¹ listed in a Food Access Guide (HPHS 2011), though additional programs may exist informally. The highest concentration of food banks is in north-central Hamilton (see Figure 3.1), the area surrounding the downtown core. Some food banks offer grocery vouchers for stores or supermarket chains in Hamilton while others provide groceries only. The food banks operate in a diversity of ways, with varying amounts of client input in the foods received – from a shopping system where clients select their grocery products off the shelf (with some limitations), to a system where grocery parcel contents are generally standardized based on available foods, though clients can leave products they are unable to use before taking the groceries. Three staff from two of Hamilton’s food banks participated as key stakeholders in this study: Sara Collyer, Operations Manager and Krista D’Aoust, Director of Family Services, at [Neighbour to Neighbour \(N2N\) Centre](#), and one staff member from a different food bank who chose to have their identity remain confidential. As well, three food bank clients participated in the study as key stakeholders.

¹⁰ This thesis uses the term “food bank” to refer to any point of distribution of groceries to households in need, free of charge. This is in keeping with much Canadian research and practice, but in contrast to most U.S. scholarship that refers to such programs as “food pantries”, using the term “food bank” to refer to food redistribution centres like Hamilton Food Share.

¹¹ The count of hot meal programs excludes those listed as congregate dining programs – for these programs the cost of the food may be subsidized or free for participants but the focus of the program is likely social or nutritional rather than on food security.

CBFA programs in Hamilton include two community kitchens (targeted to seniors in the North End neighbourhood and those households including someone with diabetes), as well as child and student nutrition programs (HPHS 2011). The [Hamilton Partners in Nutrition](#) program supports meal and snack programs for children and youth in close to 100 locations in Hamilton (Hamilton Partners in Nutrition n.d.), and at least three additional child and student nutrition programs serve high-needs or at-risk neighbourhoods (HPHS 2011).

Lastly, the [Stop Community Food Centre](#) requires recognition here, as it was referred to by several of the key stakeholders. The Stop is located in the Davenport West community of Toronto, Ontario; it began as a food bank and has developed into a hub of integrated food programs and activities. A 2010 Metcalf Food Solutions report by Scharf and colleagues describes the guiding principles, impacts and future directions for The Stop; this report is a valuable complement to the references to The Stop made in the results of this study.

Chapter Summary

This chapter has briefly recapped the history of Hamilton, Ontario as well as captured a snap-shot of demographic and geographic information relevant to the city's food environment. I have also outlined some key components and key stakeholders of Hamilton's food system that will be relevant to the discussions of this study's methods and results in the following chapters.

CHAPTER 4 – Methods

Overview and Methodology

This study employed mixed methods, using both quantitative (nutritional analysis) and qualitative (key stakeholder interviews) techniques within an overall Community Food Assessment-orientation. As previously described, the specific aims that are addressed in this research are informed by consideration of the good food gap and an ecosystems-based approach to biocultural anthropology. Similarly, Community Food Assessment, as a methodology, is characterized by being multi-faceted, systems-based and solution-focused (Pothukuchi et al. 2002).

Nutritional assessment of the EFS has been understood as a way to consider the impact of food assistance as opposed to its sheer output (Cotugna et al. 1994). The quantitative portion of this project entailed an analysis, by food group and selected nutrients, for 108 hypothetical grocery parcels modeled on normal food availability at three Hamilton food banks over the course of a local growing season. This study design is based in the nutritional sciences, specifically Gibson's (1990) description of food account methods for approximating food consumption at the household level. Although my use of a food account method is somewhat atypical, it maintains a reliance on recording retail units of food available as opposed to recording what has been consumed. Using a food account design is also appropriate because of the method's noted potential for describing

seasonal variation and dietary patterns for populations (Gibson 1990, pp. 26-27).

Seasonal variation in food supply has a recognized importance in anthropological investigations of food and nutrition (see, for example, Pelto et al. 1989); in the context of Hamilton's food banks, studying seasonal food supply highlights the fact that grocery availability is highly context-dependent (Chapter 2).

As described by Neuman and Robson (2009), one of the strengths of a mixed-methodology is in attaining multiple perspectives on an issue. In this study, nutritional analysis may tell us about the impact of local and fresh produce on groceries available at food banks, but tells us nothing of why and how it is procured, distributed and conceived of or how its use relates to food security. The use of maximum variation sampling (described by Harris et al. 2009) for interviews illustrates one of the key elements of Community Food Assessment – involvement of a diverse spectrum community members (Pothukuchi et al. 2002). Using semi-structured interviews (Morse and Richards explain this technique [2002, p. 84]) also aligns with a Community Food Assessment approach by using clear questions and objectives, addressing both problems and resources, and examining broad, interconnected food issues (Pothukuchi et al. 2002).

Nutritional Survey of Grocery Parcels

Study design

The nutritional survey was designed to model what was normally available to each of three households visiting food banks in Hamilton in the spring, summer

and autumn. The use of three different hypothetical households for grocery parcel modeling was an acknowledgment that food banks try to meet the nutritional needs of diverse households, but that there may be variation in how well parcels meet the needs of the household receiving them (see Chapter 2). Because numerous visits to each food bank were required (Table 4.1 addresses the variables considered in calculating the total number of grocery parcels modeled), it was determined that a maximum of three food banks could be included in the study. In addition to reasons discussed in Chapter 2, seasonal analysis was important for understanding the use of locally grown produce as the spring grocery parcels could be used as a baseline against which summer and autumn parcels would be compared (since these are the primary seasons of local harvest).

Table 4.1: Study design matrix for nutritional analysis of grocery parcels

	Spring (May-Jun. ¹²)	Summer (Aug.)	Autumn (Oct.)
Food Bank 1	4 visits x 3 families = 12 parcels ^a	12 parcels ^a	12 parcels ^a
Food Bank 2	12 parcels ^a	12 parcels ^a	12 parcels ^a
Food Bank 3	12 parcels ^a	12 parcels ^a	12 parcels ^a
Total	<i>36 parcels</i>	+ <i>36 parcels</i>	+ <i>36 parcels</i> = 108

a. Four (4) visits were made to each food bank in each season, and parcels were modeled for three (3) hypothetical families at each visit.

In total, itemized contents for 108 model grocery parcels were recorded from May through October of 2010. At food banks in Hamilton, food supply varies not only annually, but on a daily basis based on such factors as weekly food

¹²Due to scheduling difficulties, the spring data collection at one food bank occurred in the first two weeks of June rather than the last three weeks of May.

deliveries, increased demand closer to the end of each calendar month, and on which days other food banks in the area are also open or closed. It is for these reasons that multiple visits to each food bank were planned within each season; as best as could be scheduled, these visits were planned on different days of the week and during different weeks. In May, the season's local harvest has generally not yet begun and so fresh produce at food banks would have been coming almost exclusively from imported sources. During August, a variety of locally produced summer crops are in season and would have supplemented imported fresh produce at food banks, while in October, normally-available locally grown produce includes late-summer varieties and the longer-storing winter vegetables (with some imported fresh produce still available at food banks).

During each food bank visit, I recorded what foods were available on that day to each of three hypothetical households (Families A, B and C). Family A is a household with two adults (male and female, aged between 31 and 50 years) and two children (a girl age 8 and boy age 14); Family B is a single-parent household (a female aged between 31 and 50 years and the same two children as Family A); and Family C is a household with a single adult male (aged 31 to 50 years). These hypothetical households reflect those used in the 2010 Nutritious Food Basket Scenarios (HPHS 2010). In addition to making the present study complementary to the Nutritious Food Basket Scenarios, these household structures are common at food banks. Of all households accessing a Hamilton food bank in March 2010, 42 percent were single parent households, 32 percent were singles, and 16 percent

were two-parent households (Hamilton Food Share 2010). Moreover, it was important to include both a single adult and families with children because at some food banks in Hamilton, certain products are available for families, or specifically for households with children, with different products being given out to single individuals or families without children. At all food banks that participated in this study, the amount of food available to a household varied depending on the number of household members.

Because the nutritional analysis portion of this study did not include human participants, permission to collect data came from food bank directors directly. Requests to conduct the study were initially sent to only three food banks, all of which were accepted so no further food banks were contacted. Recruitment of food banks was based on purposeful, maximum-diversity sampling to acknowledge the diversity in structure and organization of Hamilton's food banks, which may result in different amounts and types of food being available from different programs. I sought to include food banks in different communities, of different sizes and that are functionally diverse (reflecting differences in how clients are registered, how parcel contents are determined and how parcels are prepared and distributed). In recognition that a study such as this could result in potentially denigrating comparisons between food banks, those food banks that participated were ensured that their organizations' identities would be confidential. While the results of the nutritional analyses in this study

will not be presented by food bank, each food bank was offered a report with the nutritional analysis based on the data collected from their individual organization.

Modeling grocery parcel contents

As described above, variation (seasonally, weekly, even daily) is a prevailing factor in the food supply at Hamilton food banks. While this presents an ongoing challenge for food bank directors and staff who work tirelessly to provide consistent emergency food services, this variation – along with the effort to tailor grocery parcels to individual families’ needs – also means it is virtually impossible to record what constitutes a “standard” grocery parcel. However, based on the methods described, I am confident that the parcel contents recorded for each household, on each day, fall within the range of what is typical and, thus, constitute very reasonable model grocery parcels for the hypothetical households.

Modeling of grocery parcel contents was done in a slightly different manner at each food bank, as decided upon through consultation with food bank directors. At two locations, I was provided with the guidelines used by food bank staff and volunteers to determine what was offered to incoming households of various sizes. There, I followed their guidelines while taking an inventory of which “normal” products, as well as any extras, were available on any given day. At the third location, similar guidelines were created by the food bank partway through the study. Prior to this, I was invited to observe the day-to-day variation in food supply and parcel contents as grocery parcels for various household sizes

were packed¹³. While the modeling of the majority of model grocery parcel contents was based on guidelines or norms, food bank volunteers were invaluable contacts for answering questions about daily nuances in supply such as, “Is the same amount of milk given out to everyone today or does it depend on the household?” or “Is there a limit today for how many extra ‘free’ loaves of breads a household may take?”. These interactions were encouraged by food bank directors who were open with volunteers and staff about my presence as a student and researcher and about the purpose of my study, often inviting me to share what I was doing when I was introduced to staff and volunteers.

The combination of an inventory-style list (of how many and what types of products) along with either photographs or field notes (containing product description, brand name and quantity) was used to document processed or packaged foods available for grocery parcels each day. Photographs were only taken with the consent of food bank directors and never in an area open to clients or the public. For foods that were neither processed nor packaged, descriptions and *estimated* quantities were recorded in daily field notes. These foods included fresh produce, items available to the food banks in bulk but given to households in re-packaged forms (such as dry rice or powdered milk), and individually packaged but unlabeled bakery-style bread or baked goods. At one food bank, late afternoon was the agreed-upon time for my data collection. There, I sometimes had to rely on volunteers’ estimates of what quantity of produce had been

¹³ The only information available to me was the number and gender of people in the households; all clients’ personal information remained anonymous.

available if it was all gone by the time I arrived. My estimates were based on what I considered normal measures of quantity for a product (sometimes volume or weight, but sometimes number, for example, six medium apples), and I often used other products as a basis for comparison. Estimated quantities were also used for small, packaged snack foods (such as cereal bars or fruit snacks) at one food bank where these foods were given out in approximate rather than exact numbers (about a dozen, or 2 handfuls, are examples of the estimates).

Basing the analysis on some estimates was necessary but sufficient for several reasons. Foremost, it was necessary because the food banks were hectic, with many people around me, busy at various tasks. The directors and staff were willing to allow me to collect data, so long as I did so in the least disruptive way possible. Attempting to make precise measurements for all foods would have been very disruptive to the work of the food banks. An estimate of amount for several products is also sufficient for this study. Because the study design represents a modeling of grocery parcel contents rather than a sampling of actual parcels, I was interested in what constituted a typical food supply rather than precisely what any single household received. Quite simply, there is an element of uncertainty in exactly what and how much of a product is put into a grocery parcel at all the participating food banks. Where fresh produce was available, it was often bagged or packaged at the food banks; one bag may have had five potatoes while another had seven or all bags may have had a dozen carrots, but of various sizes. This was also the case with repackaged dry goods, which were often scooped or poured into

bags at the food banks, based on approximate amount. With unlabeled baked goods, various product types and quantities were often used as equivalent servings. For example, some bags contained a single loaf of bread, but different types and sizes of loaves, while other bags contained six muffins or a mix of croissants and bagels, and all of these were given out as equivalents.

Variation in exact grocery parcel contents also applies to the packaged and labeled products that were included in parcels. While, according to the food bank guidelines for parcel contents, a household may receive one box of cereal, the food bank shelves usually contained several sizes and types of cereal. Particularly large quantities were often saved for households with many members, but in general, which products were given out on any day was largely a function of whatever the person preparing the grocery parcel (including myself) happened to grab. Where there was an apparent discrepancy in size of products available, I opted for small to medium sizes for the single person household and medium to large sized for the families. If most of the available options were a single product, I recorded it as my example, based on the assumption that it would be what most households visiting the food bank on that day received.

In addition to receiving a grocery parcel, two of the three participating food banks have areas in which clients were able to select additional “free” food items. Because these options were sometimes unlimited, it is difficult to make generalizations about how much they would contribute to any household’s food supply. On one hand, a household in particularly high need could take plenty of

free extras to increase the total caloric value available to them. However, the products available as free extras were often bread or grain products, with which grocery parcels were already quite laden; it is most reasonable to assume that households would make use of free options but in a limited way, except in outstanding circumstances. Because of the possibility that a large additional grain intake could skew nutritional analysis, I opted for the inclusion of non-grain based “free” foods where available, and included what I felt to be a generous but reasonable amount. Coffee and tea were sometimes included in grocery parcels but were not recorded due to their negligible caloric content, and were the only food items included in grocery parcels but selectively excluded from analysis¹⁴.

As discussed above, I hold that these methods allowed me to determine *typical* grocery parcel contents, even though there are several sources of variation and imprecision in the measurements recorded. There were, however, discernible trends in grocery parcel contents by food bank; for reasons of confidentiality, an analysis by food bank will not be presented in this study. In addition, because the guidelines used by each food bank for preparing parcels remained relatively (though not exactly) consistent, the variation between food banks should not confound other trends analyzed in this study.

¹⁴ Infant foods available at food banks were itemized during data collection, but not included in analysis because standardized dietary guidelines do not exist for infants and because the process of introduction of complementary foods while potentially continuing breastfeeding complicates infants’ dietary needs.

Determining nutrient content of grocery parcels

Nutrient analysis of grocery parcels was performed using NutriBase IV software (CyberSoft Inc., 2003), with 27 “Intake-Only Clients” set up, each corresponding to a specific season, food bank, and hypothetical family, with grocery parcels recorded for each of the four days on which the food bank was visited. Itemized grocery parcel contents were added to each day’s intake through the Canadian Database plus Brand Names database, which gave a wider scope of product options than either the Canadian Database alone, or the Research Quality Database. Exact brand name and product description matches were used where possible, but this was rare. Where an exact match could not be found, a product with the same description but of a different brand, or a generic database entry without a brand name, was used. Where the same product was not available, I used a similar product, with comparable nutritional information. One example of this was Italian Wedding soup, for which a nutritionally comparable beef barley soup was used in its place. If a substantial discrepancy in a nutrient¹⁵ amount was noted, it was recorded and later added to or subtracted from the daily totals.

Because this study considered food availability at food banks, rather than dietary intake, foods were analyzed based on the form in which they were available at the food bank. For example, fresh potatoes were entered into the client intakes as raw potatoes including flesh and skin, and stir-fry style beef was entered as lean, raw beef cuts. As an exception, for dried products (such as dry

¹⁵Nutrients analyzed: total calories, carbohydrates, protein, fat, sodium, and sugar.

soup mix), if the unprepared version was not available in the database and if only water was required to be added, the prepared version was used. There were a few common products requiring additional, special attention. One was unprepared macaroni and cheese and the other was packaged, dried side dishes (usually noodle, rice or potato-based sides). The preparation instructions for these call for additional ingredients (usually butter, margarine, oil or milk), which would be included in nutritional values in the database. However, the nutritional information for unprepared forms was available on product labels and these two products were added into the database as “personal food items”. Three additional personal food items had to be created for this analysis, because no equivalent existed in the NutriBase (CyberSoft Inc. 2003) database: unprepared instant ramen noodles, canned lentils, and a frozen shrimp penne entrée¹⁶. After all client intakes had been completed, the “Intake-Only Client Intake Analysis” function was used to calculate the total calories (kcal), protein (g), carbohydrates (g), fat (g), sugar (g), and sodium (mg) contained in each grocery parcel.

Determining food group makeup of grocery parcels

Using the NutriBase (CyberSoft Inc. 2003) reports that listed quantities and details for all foods entered, the number of food group servings was calculated for

¹⁶ For macaroni and cheese dinners and unprepared noodle, rice or potato side dishes, nutrient averages between several of the common brands for these items were used when creating a personal food item. For ramen noodles and canned lentils, nutritional information was very similar between brands, so one product was used as a model and its nutritional information was entered as the personal food item. The shrimp penne entrée was a single item available for a few days, and so was entered using the nutritional label information exactly.

each grocery parcel. This was done according to the 2007 version of Canada's Food Guide (CFG; Health Canada 2007c-f). Foods that did not fit clearly into a single food group were either assigned as an "other" food, or were considered "combination foods", consisting of two or more food groups. "Combination foods" included those with main components corresponding to individual food groups – things like soups, canned pasta entrees, pizzas or sandwiches. "Other" foods were those for which major components were not representative of any food groups, for example cookies, snack bars, sauces and broth (see also, Appendix 1).

Again, basing the analysis on the form in which foods were available at food banks created something of a methodological challenge. For some vegetables and fruits (like watermelon or squash), determining the number of food group servings required an estimation of the edible portion or density of these foods because they include a rind and seeds that are not eaten but would have been included in the weight or volume recorded at the food bank. Also, sometimes the weight of some vegetables and fruits (like peaches and green beans) had been available or estimated at a food bank, but CFG serving sizes are based on a certain number of items or a volume. In these cases, the item information in the NutriBase (CyberSoft Inc. 2003) database was used to convert weight into volume.

Analyses

For both food groups and nutrients, averages and ranges per parcel were calculated for each household within each season (e.g. the average number of

meat and alternative servings included in all grocery parcels modeled for Family A in the spring). Average *contents* were then compared to estimated *requirements* for each household – based on recommended CFG servings and Canadian Dietary Reference Intake (DRI) tables (Health Canada 2007b, 2010). For food groups, an estimated *household* requirement was calculated by adding the lower end of the range provided in CFG (Health Canada 2007b) for each member of the hypothetical household based on age-sex group (see Appendix 2 for estimated household requirements). As was done by Akobundu et al. (2004) in their analysis of grocery parcels from food banks in Massachusetts, a minimum days' equivalence (MDE) was calculated as the number of days, per food group, that minimum daily serving requirements would be met by grocery parcel contents (e.g. if the recommendation is seven servings of grains per day and a parcel contains 21 servings, this is three days' worth).

Vegetables and fruits were also categorized as fresh, non-perishable (canned, frozen or 100 percent juice), or processed (food products based on vegetables but with added ingredients that would alter their nutritional quality, such as ready-to-serve pasta sauce, soup, French fries or prepared entrees with sauces). Although there are no dietary guidelines for different types of produce, MDEs for produce type were calculated based on the estimated household requirement for the vegetable and fruit food group. Doing so made the availability of different produce types comparable across household structures.

For the analysis of nutrients, MDEs were calculated for total energy and sodium content of parcels, and macronutrient contents were compared to Acceptable Macronutrient Distribution Ranges (AMDR; Health Canada 2010), which provide a recommended intake of macronutrients as a percentage of total calories. Calculating these energy and nutrient requirements for the hypothetical families involved making a number of assumptions, described in Table 4.2.

Table 4.2: Nutrient requirements estimated for households

Nutrient	Guideline Used ^a	Assumptions and Calculations
Total Energy	EER ^b	-Adults assigned age of 41 years ^c -Reference heights, weights from DRI tables ^d -Physical activity coefficient of 1.0 used ^e
Carbohydrates	AMDR ^f	-Based on EER assumptions
Protein	AMDR	-Based on EER assumptions
Fat	AMDR	-Based on EER assumptions
Sugar	Additional recommendation	-Based on EER assumptions -25% of total energy used as recommendation: given as the suggested limit for <i>added</i> sugars ^g
Sodium	UL ^h	-Can assess adequacy by comparing MDE of sodium to MDE of total calories

Notes and data sources:

- a. All guidelines cited and reference data are from Health Canada 2010
- b. Estimated Energy Requirement
- c. An age of 41 was used because it is the mid-point of the 31-50 years range attributed to adults in the Nutritious Food Basket scenarios on which household structures were modeled
- d. These values are calculated from median heights median Body Mass Indices from the U.S. National Centre for Health Statistics growth charts.
- e. 1.0 corresponds to the lower range of the “sedentary” category which includes typical daily living activities – used for a conservative estimate of EER.
- f. Acceptable Macronutrient Distribution Range
- g. No formal recommendation for *total* sugar intake; it is, however recommended that *added* sugars be limited to no more than 25% of energy intake. This was used as an overall guideline for three reasons: (1) Sources of natural sugars would have been limited (though not absent) in grocery parcels because fruit and dairy products were relatively limited; (2) Sugar intake has been a major concern in the study of nutritional health (Sizer and Whitney 2003, pp. 129-132) and having a guideline requiring cautious interpretation was considered more valuable than having no guideline for analysis; (3) Other influential dietary guidelines, including those in the United States (USDA 2010a) and by the WHO (2003) are much more conservative, with recommendations that added sugars be limited to around 10% of total energy
- h. Tolerable Upper Intake Level

Statistical analysis (in SPSS Statistics [IBM Corporation 2010]) was performed on the food group and produce type MDEs (n=108) of grocery parcels to determine whether the trends observed by season and by household structure

were significant (analysis by household structure also included total calories). The normality of data were tested using the Shapiro-Wilk test ($p > 0.05$ indicating normally distributed data [Mooi and Sarstedt 2011]). All data were found to be non-normally distributed, so means were compared using the non-parametric Kruskal-Wallis test (described by Madrigal 1998). The Mann-Whitney U test (explained by Madrigal [1998] as a non-parametric analogy to an unpaired t-test) with a Bonferroni correction for three tests was used for post-hoc analysis, where significance was found. The Bonferroni correction is described by Norman and Streiner (1994) as a simple method for accounting for the increased probability of making a Type I error with multiple comparisons.

Key Stakeholder Interviews

Study design and interviews with key stakeholders

Ethics approval for interviews was granted by the McMaster University Research Ethics Board in July 2010. As the interviews were meant to address two specific aims, key stakeholders representing two groups were sought: those involved in the use of fresh and local produce in Hamilton food banks and those involved more broadly in community-based food work in Hamilton. Table 4.3 presents a list of interview participants by profession or group. Food bank clients represent a unique group within the key stakeholders and the sampling, recruitment strategy and modified interview parameters for this group are outlined below. Regarding all other key stakeholders, 16 interviews were requested via phone or email, based

on a purposive sampling strategy (described by Harris et al. 2009) to provide maximum variation in the expertise and viewpoint of participants. Ten of the 16 requests were accepted and three food bank clients participated in interviews, resulting in a total of 13 individual¹⁷ semi-structured interviews being conducted between July and November 2010.

Table 4.3: Interview participants by profession or group

<i>Key stakeholders in the use of fresh and local produce in food banks [10]</i>	
3 Food bank staff	Sara Collyer, Krista D'Aoust, KS-4 ^a
3 Food bank clients	KS-9, KS-10, KS-12
4 Suppliers of locally-grown produce to food banks	Melanie Golba, Juby Lee, Alvaro Venturelli, Bill Wilcox,
<i>Key stakeholders in Hamilton's food system [3]</i>	
Project Manager, Hamilton Eat Local	Karen Burson
Garden Coordinator, McQuesten community garden and Garden Coordinator, City Housing Hamilton	Theresa Phair
Primary care physician	KS-11

Notes:

Numbers in brackets indicate total number of key stakeholders

a. KS (Key Stakeholder)-# indicates participants whose identities are confidential

Participants were asked to identify a location at which they were comfortable with the interview being held; most occurred in the participants' workplaces but some were in a coffee shop or other public location. All key stakeholders provided written consent to participating in the study, and as part of the consent process were given the option to be identified by their real name or to

¹⁷During one interview, with Melanie and Alvaro from Plan B Organic Farm, both participants were present and mutually contributing to the discussion.

have their identity remain confidential. Interviews ranged from approximately thirty minutes to an hour in length, and were audio recorded with the consent of the participants. Interviews were semi-structured and loosely based on an interview guide. In accordance with Pothukuchi et al., who noted that key stakeholder interviews may require individualized and careful planning to access a participant's unique expertise (2002, p. 14), this guide was adjusted slightly based on the role of the participant prior to each interview. For a sample interview guide that was used for food bank staff, see Appendix 3. Although the sample interview guide appears quite formal, the interviews were semi-structured, with the guide used mostly as a checklist of topics to be covered, rather than a script for actual questions or probes. Preparation of a formal interview guide was useful in triggering my memory during the interview of the topics to be covered, level of detail sought from each participant, as well as reminding me what wording of a question had or had not worked well in previous interviews.

Modified methods for interviews with food bank clients

Food bank clients were considered a vulnerable population and, thus, recruitment and interviews differed slightly from those with other key stakeholders. Food bank clients were recruited through collaboration with one Hamilton food bank. The food bank's director agreed to distribute a small number of flyers to clients during the intake process and by leaving them in the waiting room. The number of flyers distributed was limited to 15 with the intent of conducting between three and six interviews without having to decline interested participants. This

limitation was considered necessary because a grocery gift card was offered as compensation and, as households using food banks could be assumed to need groceries, I did not want to turn away any expectant participants. There were three eligibility requirements for participants: participants were required to be 18 years of age or over, had received groceries from a Hamilton food bank within the past year, and were limited to one person per household.

Three interviews with food bank clients were conducted. As with other key stakeholders, participants were asked to identify a location where they felt comfortable for the interview, and I suggested coffee shops or libraries. However, two participants requested that the interviews be conducted in their homes (which they were), and one interview was conducted at a public library. All food bank clients' identities were kept confidential, without the option to be identified by their real name. This was important because participants were recruited through a food bank that maintains client confidentiality, and also since the flyer used for recruitment stated that the decision whether or not to participate would not affect any services received by a food bank (which could only be guaranteed if clients' names were not released). Interviews with food bank clients lasted between thirty minutes and an hour, and were semi-structured (see Appendix 4 for a sample interview guide). At the end of the interview, participants were provided a \$10 grocery gift card as compensation for their time and were offered a copy of the Hamilton Food Access Guide, which lists local resources like food banks, community kitchens and community gardens.

Analysis

Following the interviews, audio recordings were transcribed and summarized. A summary of his or her interview was sent to the key stakeholders for whom being personally identified was given as an option (a technique called member checks or respondent validation, described by Harris et al. [2009]). Through member checks, participants were given the option to add to, remove or change any portion of their interview, and were also reminded of whether they had chosen to be identified or have their identity kept confidential so that they could confirm or change their preference. Two key stakeholders changed a portion of their interviews, and one changed her preference regarding confidentiality.

Interview content was then coded based on themes that were organized as “tree nodes” using NVivo 8 software (QSR International 2009). Following from the three specific aims of this study, the initial division was made between content related to the use of fresh and local produce in food banks versus content more broadly related to food security and community-based food initiatives. Successive tree nodes were developed by loosely following the main themes and questions in the interview guides, and are presented in Appendix 5.

Chapter Summary

This study employed both a nutritional analysis and key stakeholder interviews, capitalizing on the benefits of mixed-methods research noted to be in line with the Community Food Assessment approach. The nutritional survey was adapted from

the food account method used in nutritional sciences, modeling 108 grocery parcels for three hypothetical families, during the period of May to October, 2010. Food group, produce type and nutrient content of the grocery parcels were analyzed and compared with dietary recommendations. In depth, semi-structured interviews were conducted with 13 key stakeholders, purposefully sampled to have expertise or perspectives relevant to the use of fresh and local produce in Hamilton's food banks and to community-based food initiatives more broadly. The results of this study are also divided along the lines of these specific aims: Chapter 5 presents results regarding the use of fresh and locally grown produce in Hamilton food banks and Chapter 6 is a broader consideration of food security and integration of various aspects of the food system in Hamilton

CHAPTER 5 – Results: Fresh and Local Produce in Hamilton Food Banks

This chapter specifically considers the use of fresh and locally grown produce in food banks in Hamilton. The results of the nutritional survey of three Hamilton food banks focuses on the seasonality of grocery parcel contents, the contribution of fresh and local produce to the dietary quality of the parcels, and on the variation of grocery parcel adequacy by clients' household structure. These results are complemented by the food-bank-related portions of the interviews with 11 of the key stakeholders (see Appendix 5 for a schematic of the organization of interview content), considering the perceived importance of fresh and local produce, facilitating and limiting factors to providing it in food banks, benefits and drawbacks to doing so, and stakeholders' future aspirations. The next chapter then presents results of the remaining interview content – that related more broadly to community food initiatives and food security in Hamilton.

Nutritional Survey

The averages and ranges for food group servings (based on Canada's Food Guide) of the 108 modeled grocery parcels are presented in Table 5.1, along with the

proportion of all parcels that contained less than the commonly-accepted EFS goal of providing three days' worth of groceries¹⁸.

Table 5.1: Amount of food group servings in grocery parcels (n=108)

Food Group Category	Average (# servings per parcel)	Range (# servings per parcel)		% Below Target
		min.	max.	
Grain products	127.6	27.9	274.1	4.6 %
Meat & alternatives	34.3	2.7	83.8	27.8 %
Vegetables	53.7	6.9	132.9	41.7 %
Fruits	16.4	0	70.4	88.0 %
Milk & alternatives	8.2	0	26.3	n/a
Other foods	108.2	0	397.6	

a. Proportion of grocery parcels containing less than three days' worth

Seasonality and importance of fresh produce

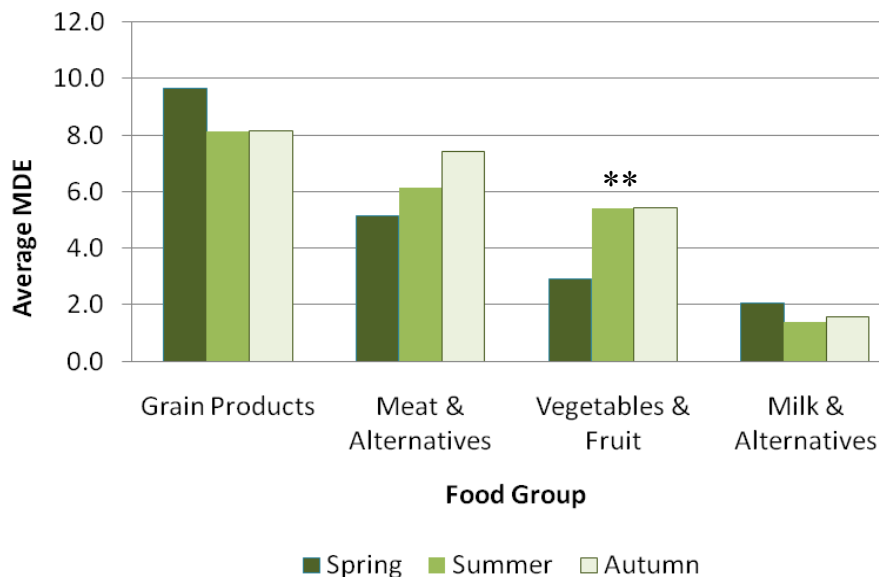
Figure 5.1 presents the average number of days' worth (minimum days' equivalence, MDE)¹⁹ of each food group provided by the grocery parcels across the seasons (with 36 parcels modeled in each season, for the total of 108 parcels). MDE was calculated for each parcel by dividing the total number of servings in the parcel by the minimum requirement for the household for which the parcel was intended. Calculation of MDE for each individual parcel also allowed a count of how many parcels fell at or above, versus below, three days' worth.

¹⁸Two of the food banks that participated in this study identified three days' worth as their minimum goal. Based on this and its use as a benchmark in other Canadian studies of food banks, (Irwin et al. 2007; Teron and Tarasuk 1999) three days' worth was considered a minimum target for this study.

¹⁹An MDE is the minimum number of days, per food group, for which a parcel could meet a household's minimum dietary requirements (Akobundu et al. 2004).

The most notable seasonal trend in grocery parcel contents is that the vegetables and fruits group almost doubled from an average of 2.9 days' worth in spring grocery parcels to 5.4 days' worth in both summer and autumn (Figure 5.1). This trend is statistically significant ($p < 0.05$) between spring and summer and between spring and autumn (Table 5.2). While all food groups varied somewhat over the seasons, no other trends were statistically significant. It was found that not only did the average amount of vegetables and fruits in grocery parcels increase over the local harvest season, but that the proportion of grocery parcels containing at least three days' worth of produce increased from 37 percent (13 of 36 parcels) in spring to 58 percent (21 of 36 parcels) in summer and 81 percent (29 of 36 parcels) in autumn.

Figure 5.1: Food group servings in grocery parcels (n=108) by season



** Indicates statistically significant difference ($p < 0.05$, Kruskal-Wallis test)

Table 5.2: *P*-values for post-hoc analyses of seasonal and household trends in food group and produce categories, total energy and nutrient density (n=108)

	Seasonal Trends			Trends by household structure (<i>Family</i> ^a)		
	spring-summer	summer-autumn	spring-autumn	A-B	A-C	B-C
<i>Food Group Servings (MDE)</i>						
Grain Products	--	--	--	0.011	0.000	0.001
Meat & Alternatives	--	--	--	--	--	--
Vegetables & Fruit	0.006	0.277	0.000	0.117	0.000	0.000
Milk & Alternatives	--	--	--	0.215	0.002	0.006
<i>Total Energy (MDE)</i>						
Calories	n/a	n/a	n/a	0.001	0.004	0.000
<i>Servings of Produce by Type (MDE)</i>						
Fresh Vegetables	0.000	0.020	0.000	0.291	0.004	0.025
Canned/Frozen Vegetables	0.039	0.477	0.006	--	--	--
Processed Vegetables	--	--	--	0.100	0.003	0.017
Fresh Fruit	--	--	--	--	--	--
Canned Fruit/Juice	0.003	0.623	0.000	--	--	--

Notes:

Bolded cells indicate statistical significance (Mann-Whitney U test, $p < 0.0167$)

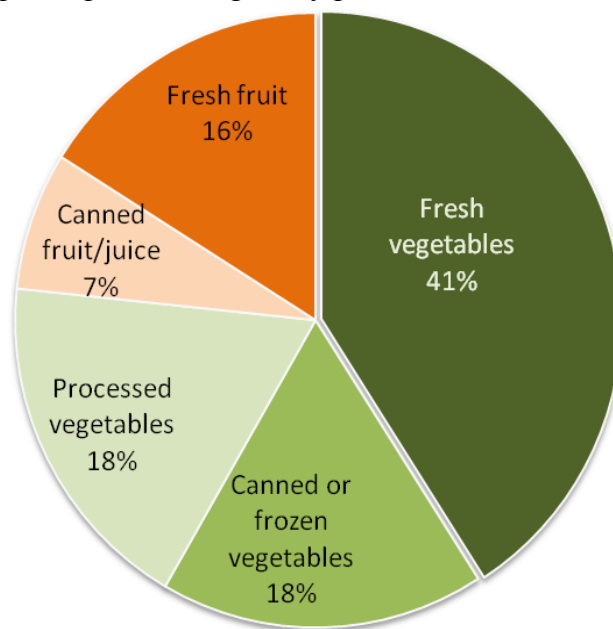
-- Indicates no significant relationship found; post-hoc testing not required

a. Family A = two adults, two children; Family B = adult female, two children; Family C = single adult male

Since other food groups also displayed seasonal trends, some of the seasonal change in the vegetables and fruits group is probably linked to the factors responsible for seasonal trends in the other food groups, rather than being associated with the local harvest season. Thus, it is relevant to consider the seasonality of produce type. The rationale for using a seasonal structure to study the use of fresh and locally grown produce is the assumption that fresh, locally grown produce would have a stronger seasonal variation than would the supply of

canned, frozen or processed produce. In fact, 57 percent of all vegetable and fruit servings in grocery parcels were fresh (Figure 5.2). Total fruit servings (fresh fruit combined with canned fruit and fruit juice) accounted for 23 percent of the produce, and processed vegetables accounted for 18 percent (Figure 5.2).

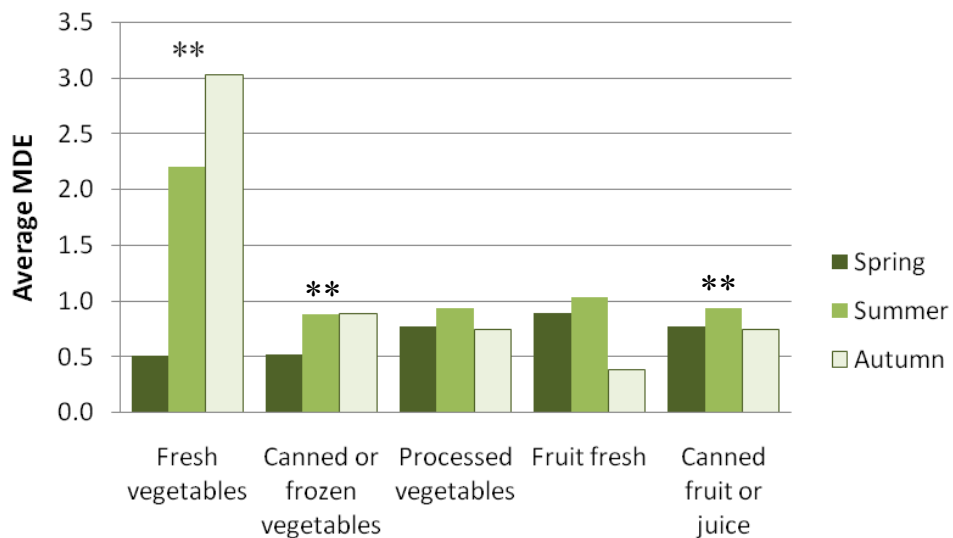
Figure 5.2: Types of produce in grocery parcels modeled in all seasons (n=108)



A breakdown of vegetable and fruit servings in grocery parcels by produce type *and* season demonstrates that the fresh produce content of grocery parcels indeed has a very strong seasonal component. The average MDE of produce types for grocery parcels in the spring, summer and autumn is an indicative measure since it is comparable across family structures, even though an MDE for only a certain type of produce is not useful for comparison to dietary guidelines.

While fresh vegetable content increased stepwise from an average of 0.5 days' worth per parcel in the spring to 3.0 days' worth in the autumn, fresh fruit content peaked at an average of 1.0 days' worth in the summer, dropping steeply to 0.4 days' worth in the fall (Figure 5.3). The statistically significant trend in fresh vegetables was found to be significant between spring and summer as well as spring and autumn (Table 5.2). However, the combined average MDE of *all fresh produce* still increased with each season (from 1.4 days' worth in the spring to 3.4 days' worth in the autumn). Statistically significant differences were also found between some seasons for canned or frozen vegetables and for canned fruit or juice (Figure 5.3; Table 5.2), although the seasonal changes in these categories were not as steep as for fresh vegetables.

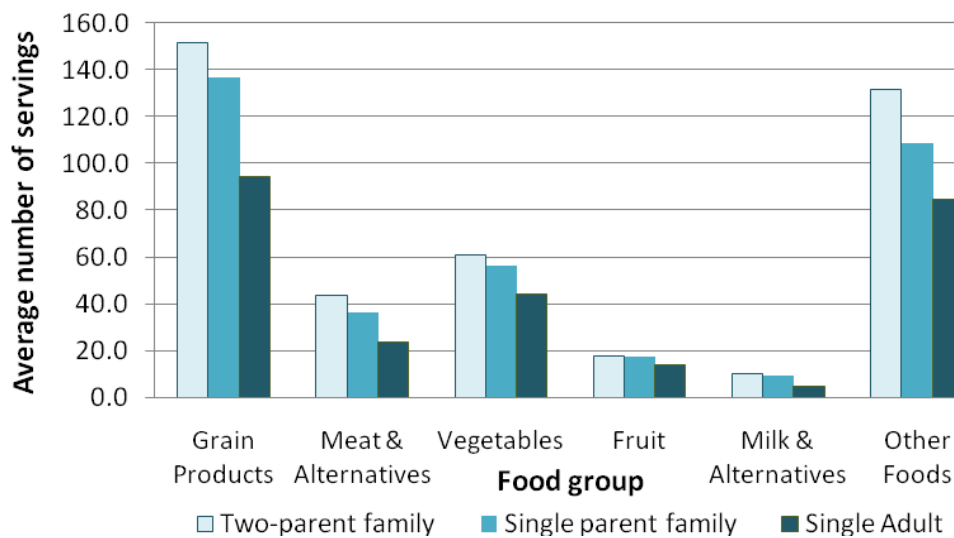
Figure 5.3: Types of produce in grocery parcels (n=108) by season



Variation in grocery parcel contents by household structure

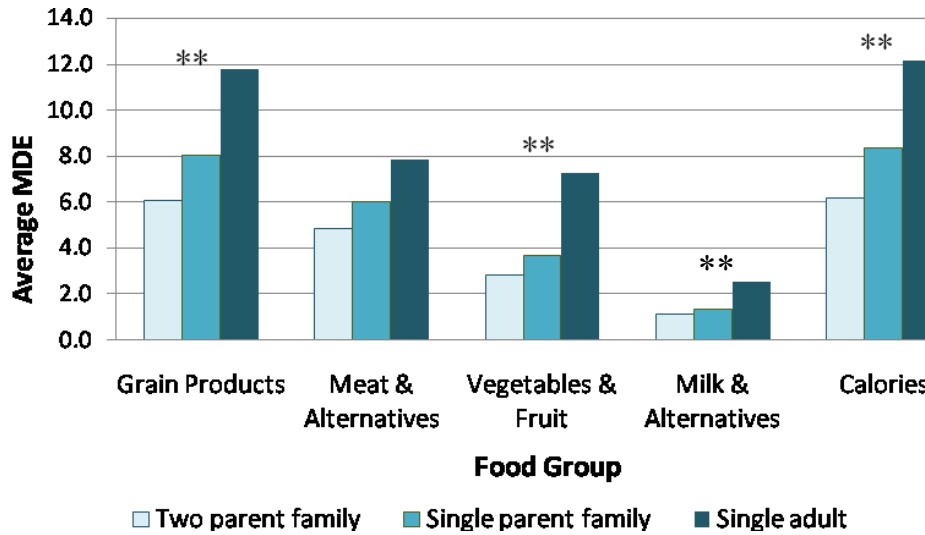
Unsurprisingly, the average number of servings from each food group was consistently higher for larger households (Figure 5.4).

Figure 5.4: Food group servings in grocery parcels (n=108) by household structure



However, the data tell a different story when the households' dietary requirements are taken into account by calculating a MDE. For all food groups and total caloric content of grocery parcels, MDEs increased as household size decreased (Figure 5.5). This trend is statistically significant between all household structures for grain products and total calories, and is statistically significant for the vegetable and fruit group and the milk and alternatives group between the single adult household and each of the two larger households (Table 5.2).

Figure 5.5: Food groups and caloric content of grocery parcels (n=108) by household structure



** Indicates statistically significant difference ($p < 0.05$, Kruskal-Wallis test)

On the other hand, the target of providing, at least a three-day-supply of food was generally being met for all household structures. The average MDE for caloric value indicates that between six and twelve days' worth of energy was available in grocery parcels (Figure 5.5). A breakdown by food group, however, is more telling of the supply of meals or snacks (rather than sustenance) available to different household structures. For grain products, meats and alternatives and vegetables and fruits the three-day target was met and often exceeded for all household structures considered (with the exception of the vegetables and fruits group for a two parent household for which the average MDE is just below this benchmark, at 2.8 [Figure 5.5]). The three-day target, however, was consistently not being met for the milk and alternatives group (Table 5.1; Figure 5.5). It is also noteworthy that grocery parcels contained an average of 108.2 servings of “other

foods”²⁰, with individual grocery parcels ranging up to 397.6 servings. This average is only slightly lower than the average for servings of grain products and far exceeds the averages (and ranges) for all other CFG food groups (Table 5.1).

Nutrient content of grocery parcels

The averages and ranges for the amount of nutrients in all grocery parcels (those modeled in all seasons) are presented in Table 5.3, along with the proportion of parcels containing nutrient levels outside of the target ranges.

Table 5.3: Nutrient content of grocery parcels (n=108)

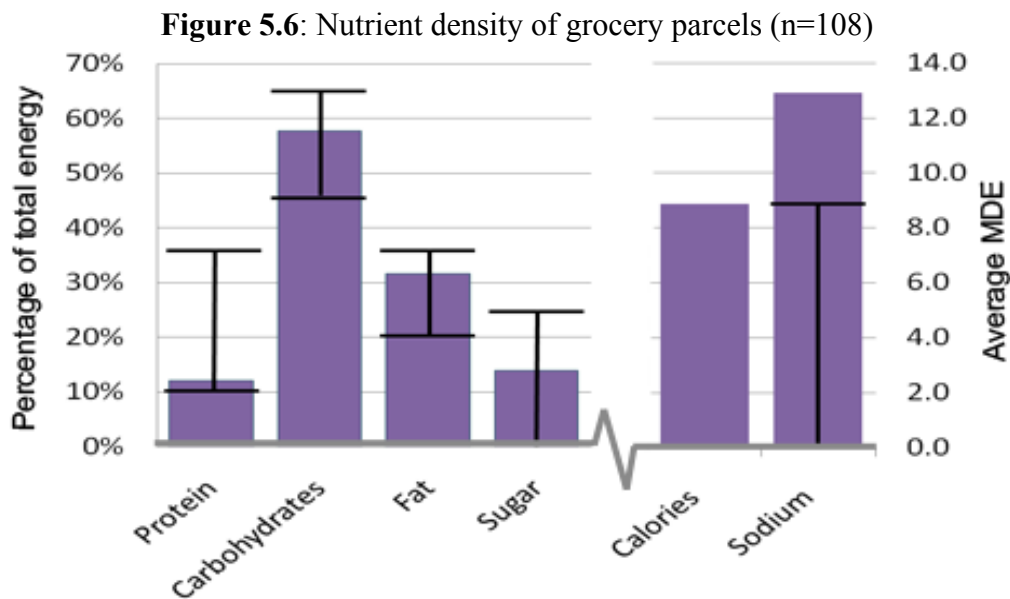
Nutrient	Average (per parcel)	Range (amount per parcel)		% Outside Target Range	
		min.	max.	below ^a	above ^b
Calories (kcal)	36,791	11,305	138,075	0.0 %	n/a
Protein (g)	1098	249	2779	20.4 %	0.0 %
Carbohydrates (g)	5261	1446	13108	14.8 %	38.9%
Fat (g)	1323	199	10792	24.0 %	25.0%
Sugar (g)	1274	327	3730	n/a	0.0 %
Sodium (mg)	63,501	12,351	190,061	0.0 %	77.8 %

- For sodium and total calories this is the proportion of grocery parcels containing less than three days’ worth. For macronutrients it is the proportion falling below the recommended range (Table 4.2).
- No upper target exists for days’ worth of calories. For sodium, this is the proportion of parcels with a higher MDE for sodium than for calories (i.e. more days’ worth of sodium than of energy). For macronutrients it is the proportion containing above the recommended range (Table 4.2).

To make macronutrient levels comparable between parcels of different sizes, the proportion of energy accounted for by each macronutrient was also calculated; the average levels for all 108 parcels are presented in Figure 5.6. All

²⁰Other foods are those not fitting into any particular food groups (e.g. cookies, snack bars, sauces and broth).

average macronutrient amounts were within, or very near, the Acceptable Macronutrient Distribution Ranges (AMDR [Health Canada 2010]; see also Appendix 2). At an average of 12.1 percent total energy content, protein fell at the low end of the AMDR (Figure 5.6) and 20.4 percent of all parcels fell below the AMDR with none above the AMDR (Table 5.3). Carbohydrates, on the other hand, accounted for almost 60 percent of the caloric content of grocery parcels (Figure 5.6), and 38.9 percent of parcels had carbohydrate levels above the AMDR upper limit (Table 5.3). Although average fat content (31.6 percent of energy) was near the upper range of the AMDR (Figure 5.6) approximately one-quarter parcels fell each above and below the endpoints of the range (Table 5.3). At an average of 14.0 percent of energy in grocery parcels, sugar consistently fell under the suggested maximum for added sugars.



Note: Bars indicate recommended nutrient ranges (see Table 4.2)

The only micronutrient considered in this analysis was sodium. With an average of 12.9 days' worth of sodium per parcel, 77.8 percent of parcels contained more days' worth of sodium than they did days' worth of calories (i.e. they contained a high density of sodium); some parcels had a MDE for sodium over two times the MDE of calories. The overall range of sodium content in grocery parcels (for single and multi-person households) was 12.35 to 190 grams. With the Tolerable Upper Intake Level (UL) for sodium set at 2.3 g per day for most people, this range is the equivalent of from 5.4 to 82.6 days' worth of sodium for a single person, in the modeled grocery parcels.

Nutrient levels in grocery parcels broken down by season or household structure are not presented here. There was very little variation the nutritional composition of grocery parcels by household structure, though some seasonal differences in nutrient levels were noted (data not shown). It was felt that presenting these trends would reasonably oblige the investigation of the relationships between the seasonal trends in nutrient levels and the seasonal trends in food group and produce type servings, an investigation beyond the scope of this thesis.

Summary

Four aspects of the nutritional survey of three Hamilton food banks were considered: the seasonality and importance of fresh produce in grocery parcel contents, the variation of grocery parcel contents by household structure, and the nutrient content of grocery parcels. Overall, fresh produce contributed the

majority of vegetable and fruit servings to grocery parcels during the survey. Fresh produce had a very strong seasonal trend with the changes in non-perishable produce between spring, summer and autumn being more modest. A statistically significant increase in average vegetable and fruit content, but specifically fresh vegetable content, in grocery parcels during the local harvest season, along with a seasonal increase in the proportion of parcels meeting the goal of a three-day-supply for vegetables and fruits, indicate that fresh, locally grown produce is an important component of the dietary quality of grocery parcels at the food banks that participated in this study. Considering household structure, with the exception of the milk and alternatives group, the minimum target of a three-day-supply was generally being met and exceeded for all household structures, but “other foods” contributed substantially to the food supply provided by grocery parcels. When households’ dietary requirements were taken into account, smaller households actually received more days’ worth of groceries from the parcels than did larger households. Finally, the macronutrients analyzed (including sugar) were within the AMDR, though protein was at the low end of this range with one-fifth of parcels containing less than the lower limit. Sodium levels were consistently high when compared to the total energy provided by grocery parcels.

Key Stakeholder Interviews

Of the 13 key stakeholders interviewed, 11 spoke to the use of fresh and locally grown produce in food banks. Three of these participants were food bank clients

and three were food bank staff: Sara Collyer and Krista D'Aoust from N2N Centre and one staff member from a different food bank who requested not to be identified. Four participants provide fresh produce to food banks: Bill Wilcox from the West Highland Baptist Church Victory Garden (hereafter the Victory Garden), Juby Lee of the Hamilton Fruit Trees Project (HFTP), and Melanie Golba and Alvaro Venturelli from Plan B organic farm. Lastly, one stakeholder was a primary care physician working in a high-needs community in Hamilton.

Supply and importance of fresh and local produce at food banks

I would like to stress that doing what they can to provide a balanced, nutritious diet was important to the food bank staff who participated in interviews, and they saw the inclusion of fresh and locally grown produce as an important aspect of that. In interviews with food bank staff, I asked whether they agreed, disagreed, or had mixed feelings about four statements regarding the perceived importance of locally grown produce for food banks. Their responses affirm that fresh, locally grown produce is important in the quality and quantity of the food supply at food banks. All food bank staff told me that locally grown produce was the major component of their supply of fresh vegetables and fruits.

All three staff agreed with the statement that the local produce received is important for the food bank's ability to provide a balanced diet, evidence of its importance to the overall *quality* of food supply at the food banks. In terms of the significance of local produce to the *quantity* of food supply, both Sara and Krista from N2N Centre agreed that they rely on the amount of local produce available

as an important portion of the Centre's food supply. The third food bank staff member interviewed (from a different food bank) disagreed that local produce was an important portion of the supply at her location because, for that food bank, it is not a predictable supply. However, at that food bank, she thought that local produce could be seen as an "extra" amount on top of their regular food supply. In fact, at both food banks from which I interviewed staff, I was told that fresh produce is given out as an extra, in addition to all foods received in a grocery parcel. Also, it was mentioned that, even though allocation of other grocery parcel contents may be based on limits or guidelines, fresh produce is given out liberally, to avoid wastage. All three of the food bank staff disagreed (and did so strongly) with the statement that local produce contributes almost nothing to their food supply.

The three food bank clients also felt that the provision of fresh produce at food banks was important (largely for health reasons), and held that it is nice – but less important to them – when locally grown produce can be included. Their reasons for having these preferences are discussed further in the benefits section below. However, fresh produce was not noted as being common at food banks. When asked what kinds of foods are usually available at food banks, all three initially focused on non-perishable products. Two participants then mentioned that sometimes fresh produce is available, though one client did not feel it was "really" fresh because it was produce donated from grocery stores and past its

prime. The third client did not mention fresh produce; when I asked whether it is ever available, she said yes but that it was uncommon.

In addition to the importance of fresh produce, interview participants (including food bank staff, food bank clients, and produce providers) were asked about what fresh produce is available, where it comes from, and when it is available. Seven participants (including food bank staff and clients and food providers) commented on what produce is available or provided to food banks, and they focused on the prevalence of vegetables, with fruits being available less commonly. Local fruit is, however, provided to food banks, hot meal programs and school snack programs by some initiatives like the Hamilton Fruit Trees Project (HFTP). Additionally, Bill from the Victory Garden noted that the garden grows some herbs and garlic that are donated to food banks, soup kitchens and households with identified need.

Eight participants (including food bank staff, clients and produce providers)²¹ commented on where fresh produce at food banks comes from, or is perceived to come from. Five participants mentioned gardens – including community gardens growing plots for food banks and donations from personal plots at either community or household gardens. Donations from farms, grocery stores and individuals were each mentioned by four participants and Hamilton Food Share was mentioned as a significant source by all three food bank staff.

²¹Theresa Phair, of McQuesten Community Garden and CHH, mentioned that some community garden produce gets donated to food banks, but was not listed as an informant for this chapter because this was the only reference she made to the use of fresh, local produce in food banks.

Two participants also mentioned that organizations (schools and churches, specifically) sometimes donate fresh produce, and that some fresh produce is bought by food banks (especially for Christmas parcels).

Because local production was considered one of the major sources of fresh produce for food banks, it makes sense that “summer” or the “harvest months” were commonly cited as times of abundance of fresh produce at food banks, with some available during the winter but less so. Donations from grocery stores, or purchase by food banks for Christmas hampers would be examples of some of the sources available outside of the local harvest season. Food producers (considered together) told me that their donations to food banks spanned from late-spring to mid-autumn.

Facilitators and barriers

Key stakeholders were also asked to comment on factors that may facilitate or hinder the use of fresh and locally grown produce by food banks in Hamilton. In analyzing their responses, a distinction was made between factors influencing the *procurement* of produce by food banks (including production of the food, any processing, infrastructure, organization needed to get it to the food bank), and factors influencing the *distribution* of fresh produce once it is at food banks. The results are summarized in Table 5.4. Understandably, there is overlap between facilitators and barriers – most factors can be a facilitator when they work well but a limitation when they are not in place or do not function smoothly. For example, equipment appears as both a facilitating factor – referring to gardening

equipment used at the Victory Garden- and a hindering factor – in that Melanie and Alvaro from Plan B described equipment as a major barrier within the Hamilton Harvest project. They had experienced difficulty in accessing farming, packaging and cleaning equipment appropriate for their scale of production, which had increased to mid-sized on account of the project. As they described, our current food system is amenable to large-scale industrial production and small, artisanal farming, so equipment for medium-scale production is not readily available unless one has the funds to pay for expensive, custom-built or imported equipment (which is available from Europe where the medium-scale of farming is more prominent).

Table 5.4: Factors facilitating or hindering the use of fresh produce in Hamilton food banks

Facilitators to...	Barriers to...
<i>Supplying food banks with fresh produce [7]^a</i>	<i>Supplying food banks with fresh produce [5]</i>
<u>Infrastructure</u>	<u>Infrastructure</u>
<ul style="list-style-type: none"> • Funding • Land, seeds, equipment • Labour • Transportation to food banks 	<ul style="list-style-type: none"> • Insufficient labour (volunteers and paid skilled vegetable farm workers) • Lack of equipment (for production, packaging, cleaning, storage) • Difficulty with transportation to food banks
<u>Knowledge and Networks</u>	<u>Systemic</u>
<ul style="list-style-type: none"> • Gardening skills and horticultural knowledge • Innovative ideas (e.g. Hamilton Harvest) • Fruit Trees Project network with tree owners • Community understanding that food banks distribute fresh produce 	<ul style="list-style-type: none"> • Seasonal availability of local produce • Cosmetic expectations for produce based on grocery store standards • Public Health regulations that prevent small scale processing (compound storage barriers) • Discordant business hours between organizations • Lack of incentive for already successful farms to supply food banks • High admin costs of initiatives • High cost of fresh (compared to non-perishable) produce when purchased by food banks
<u>Key Organizations</u>	
<ul style="list-style-type: none"> • Hamilton Food Share, West Highland Baptist Church, Environment Hamilton, Volunteer Hamilton, Ontario Association of Food Banks 	

a. Numbers in brackets indicate how many key stakeholders provided feedback on that topic

Table 5.4, continued...

Facilitators to...	Barriers to...
<i>Distribution of fresh produce at food banks[8]^a</i>	<i>Distribution of fresh produce from food banks[7]</i>
<u>Infrastructure</u>	<u>Infrastructure</u>
<ul style="list-style-type: none"> • Adequate storage, display space • Volunteers and materials for repackaging • Transportation for food bank clients (car) 	<ul style="list-style-type: none"> • Storage at food bank • Storage at home for clients (freezer) • Transportation for clients (bus)
<u>Systemic</u>	<u>Systemic</u>
<ul style="list-style-type: none"> • Food banks as community partners (providers could not distribute it themselves) 	<ul style="list-style-type: none"> • Operation hours may limit ability to distribute before it perishes • Limited supply of produce
<u>Knowledge and Education</u>	<u>Knowledge</u>
<ul style="list-style-type: none"> • Providing: demos/workshops on produce processing, shopping and meal planning; recipes, Canada's Food Guide • Acceptance of fresh produce by food bank clients 	<ul style="list-style-type: none"> • Food literacy: limited knowledge of foods, cooking and processing means fresh produce may not be readily used when available
a. Numbers in brackets indicate how many key stakeholders provided feedback on that topic	

Some of these facilitators or barriers are straightforward while others warrant some elaboration and are further explained below. Transportation is a very important factor in the use of fresh and local produce in food banks – it was mentioned as a facilitator and a barrier, both to the procurement and the distribution of produce. For instance, the Hamilton Fruit Trees Project (HFTP) relies on their community partners (such as food banks) to pick up the harvested fruit and Juby noted that some partner organizations have their own means of transportation and can easily coordinate a pick-up while for others it is difficult to make transportation arrangements. The N2N Centre has a van and full time driver,

so picking up fresh produce is possible for them, while it would present more of a challenge for the other food bank from which a staff member was interviewed, as that food bank gets its food supply delivered from Hamilton Food Share. In terms of the distribution of produce from food banks, all three food bank clients interviewed had access to a car and so did not identify transportation as a barrier for themselves, but two clients did acknowledge, as did other stakeholders, that lacking transportation could be a barrier for some clients. While stakeholders did not elaborate on why transportation is a barrier for the use of fresh and local produce in particular, versus being a factor in food bank use more generally, a few inferences can be made. Since food bank staff identified fresh produce as being given out in addition to standard grocery parcels, the additional grocery volume may present an added transportation challenge for clients. Also, fresh produce can be messy if it is particularly ripe (the food bank clients did suggest that sometimes the produce available at food banks was past its prime) or not well-packed, potentially causing problems during more toilsome forms of transportation.

Knowledge and education were also considered important factors in the use of fresh produce in food banks. In addition to several stakeholders mentioning exchanging recipes and workshops or demonstrations on preserving food, Sara from N2N described a program²² run by the City of Hamilton in which trained volunteers can provide information on meal planning, healthy eating and eating on a budget. Programs or initiatives such as these were seen by stakeholders as

²² Sara did not mention this program by name, but based on her description she was referring to the Community Food Advisor Program (City of Hamilton 2010).

addressing the barrier of limited food literacy (which was identified as a challenge for much of our society, not only food bank clients).

Having food banks as community partners was identified as a facilitator particularly for the HFTP, but may be a relevant factor for other producers. As Juby described, Environment Hamilton does not have the infrastructure to store and distribute the fruit which is harvested through the project, so partnering with organizations (like food banks) which are set up to distribute food is a valuable link in getting produce from where it grows to those who would like or need it.

According to interview participants, some key infrastructure is in place, but infrastructure – especially storage and transportation – is still something limiting the use of fresh produce by food banks. While various knowledge, network or education-related factors, along with the role of partner organizations were seen as important facilitators, several systemic issues (those relating to how organizations function), that are not easily addressed by capital (as infrastructure would be), were seen as experienced or potential barriers.

Drawbacks and benefits

Few drawbacks to the use of fresh and locally grown produce in food banks in Hamilton were identified. Two key stakeholders considered limited availability of local produce a drawback; variety is limited and because fresh, local produce is perishable, non-perishables are required as a fallback source to be able to maintain the level of emergency food services required. The other drawback identified (by five stakeholders) relates to the provision of fresh produce, rather

than specifically local produce; the quality of the fresh produce was sometimes seen as unacceptable. All three food bank clients commented on having seen or received “bad” produce at a food bank. One food bank client described a visit to a food bank where fresh broccoli had been available, but said, “it didn’t look right... plus, everyone’s hands are in there.” She identified herself as a “germophobe” but said that she did not mean to put everyone else down. Still, when I asked whether everyone touching the produce was more of a concern for her at a food bank than at a grocery store, she said that it was. Another food bank client told a story about going to a food bank and seeing a big bin of corn that had been husked and was being given out to clients even though some of it was starting to get moldy. Krista from N2N said that feedback from clients about the fresh produce had been mixed, describing that some say the quality is good and others say it’s not, perhaps because it had a bruise or because organic or garden-grown produce does not always look the same as produce in grocery stores.

In line with my use of a Community Food Assessment approach, it is important to focus on assets and positive aspects in addition to needs and negative aspects in order to acknowledge and build upon existing community capacity (Pothukuchi et al. 2002, p. 13). Certainly, the key stakeholders with whom I spoke had a lot to say about the benefits of using fresh and locally grown produce in food banks. Over 40 references to these benefits were made by a total of ten stakeholders. During the analysis of these comments, four themes of benefits emerged: why fresh and local foods are important, how providing fresh and local

produce makes emergency food services more effective, how they promote equality and empowerment, and benefits outside the EFS.

Unsurprisingly, several stakeholders noted that the benefits of providing fresh and locally grown produce through food banks include the same reasons fresh and local produce are considered advantageous for any population. Four participants discussed the need for good quality, fresh produce because of a high prevalence of diet-related health problems. Also mentioned by four stakeholders was superior freshness of local produce. Individual key stakeholders also stated that the taste and quality of local produce are better, and referred to environmental benefits of avoiding long-distance food transportation.

Several other comments related to ways in which the use of fresh or locally grown produce makes emergency food services more effective. Providing a more balanced diet was discussed by seven key stakeholders; since provision of a healthy food supply is important to food bank staff and clients, this is one major way in which including fresh and local produce makes emergency food services more effective. In addition, three participants discussed the importance of fresh produce to a diversity of diets, and that having it available at food banks allows them to provide more culturally appropriate diets for their clients. The primary care physician noted that she serves many immigrants and refugees in her practice and a lack of fresh vegetables and fruits (as well as other culturally appropriate foods) is one reason some of her patients, who could benefit from their services, do not access food banks. Three stakeholders commented on how the provision of

fresh produce at food banks can help clients to stretch their food budget further. One food bank client said, “the junk food is cheaper in a grocery store than actual good food,” and “it saves a family money from having to go to the grocery store because the grocery store is pretty costly for fruits. Fruit is more expensive than vegetables.” In addition, Bill Wilcox noted that food bank clients are receiving organic produce from the Victory Garden (though this applies to some other sources too) which is priced at a premium at grocery stores.

At a more conceptual level, the provision of fresh and locally grown produce at food banks was seen as promoting what I would characterize as equality and empowerment. Four key stakeholders (including two food bank staff, one client, and one produce provider) discussed the benefit of knowing where one’s food comes from or having a “connection” to your food. Juby from the HFTP articulated that connecting locally grown produce with the EFS gives food bank clients the chance to question the sourcing of their food in a way that may often be disallowed in the EFS. Indeed, one food bank client mentioned that it is better when locally grown produce can be provided because, “at least people would know... the chemicals that are going onto the food.” Additionally, Krista from N2N Centre discussed how the provision of fresh and local foods at food banks demonstrates that value is being placed on “everyone being healthy regardless of who you are or what kinds of troubles you’re going through”.

Another important theme was that the benefits extend beyond the EFS – this was addressed by eight stakeholders (including food bank staff, one client,

fresh produce suppliers, and the primary care physician). Four comments related to building community relations, and four key stakeholders also articulated the importance of economic support for local farmers or the local economy in general. In addition, inclusion of fresh and local produce in food bank services was described by three stakeholders in a way associated to increasing food security for the community. This was illustrated nicely by Melanie and Alvaro from Plan B. Melanie began by describing the Hamilton Harvest Project:

So the idea is to bring together two ends of the food spectrum, both people who are suffering from the conventional food system: One being farmers who are suffering an income crisis and the other being low-income people who are suffering an emergency food crisis all the time.

She and Alvaro then went on to convey how the project helps build capacity (that is very much lacking, currently) for mid-scale vegetable production in the region; this is something that would be considered by many to enhance the area's food security.

Future Aspirations

Since key stakeholders had so many comments on the benefits of doing so, it is not surprising that there were also some strongly held future aspirations for inclusion of fresh and local produce in food bank services. While Chapter 6 explores the broader perceptions stakeholders had of future aspirations for a food system in which everybody can experience food security, the overall tone of the interviews gave the sense that, within the confines of discussing the current reality of the EFS, all key stakeholders would very much like to see more fresh and

locally grown produce available at food banks. As could be expected, specific suggestions for what is needed were quite varied, reflecting the diversity in roles and perspectives of key stakeholders. Specific future aspirations were categorized as related to addressing the seasonality of supply, increasing production, and increasing procurement by food banks.

Addressing limited seasonal availability of local produce was commented on by three participants including one food bank client who suggested food banks could use greenhouses or partner with other organizations who have greenhouses to increase supply, and by Bill of the Victory Garden, who expressed an interest in adding storage crops to their harvest which could be kept through the winter.

Other comments by four key stakeholders focused on a need for more production. Bill would also like to see the development of more Victory Gardens, especially “below the escarpment”, so that the food production would be more closely tied with the area of the city where the EFS is the most concentrated (see Chapter 3 and Figure 3.1). More production would also require more labour. One food bank client commented on a need for more volunteer labour, while Alvaro and Melanie from Plan B describe how it is important that initiatives like the Hamilton Harvest project rely on paid labour. They stressed the necessity of not only the funds to pay “fair wages for labour within Canada”, but of availability of workers skilled in vegetable production. In addition, Melanie and Alvaro expressed the importance of contracts and of full cost accounting, for things like equipment, to the sustained success of projects like Hamilton Harvest.

Increased procurement by food banks is another future aspiration of some key stakeholders. One food bank staff person was especially keen to do whatever is necessary to have more fresh and local produce to distribute to clients, demonstrated by several eager comments:

I thought to myself - you know we could do that. We could go into these fields that aren't being used, and why can't we pick these vegetables? I mean I'm willing to go and do it, but not everybody is willing to go and do it. ...

I think it's a great thing that they're going in and picking this fruit and teaching people how to make jams and whatnot, I think that is absolutely wonderful, you know kind of thing. And I'd love for them to come in and do it here. ...

I'd love to [have] the food banks all get together and have an education night with farmers and how can we get these partnerships going? How can we, I mean, do we have to come to your farm, do we have to pick it? If so, that's fine, we'll do it.

Additionally, one food bank client suggested it may be useful for food banks to advertise specifically for donation of fresh produce.

While the points above focus on *what* key stakeholders feel needs to be done (addressing seasonality of local sources, more production, more procurement), some were also opinionated about *how* future initiatives need to progress. Generally, they felt that future aspirations regarding the use of fresh and locally grown produce in food banks must be community-based and collaborative. The primary care provider interviewed stressed that, “communities need to find solutions to their own issues, and also they know what their needs are”, and Bill from the Victory Gardens expressed a desire to “get the people who are recipients becoming activists/participants.” One example of the expressed need for collaborative solutions is the aforementioned food bank client's suggestion that

food banks partner with organizations that have green houses. Additional references to the need for collaborative approaches to future initiatives were made by three other stakeholders.

Summary

As with the nutritional survey, the importance and supply of fresh and local produce at Hamilton food banks was one focus of the key stakeholder interviews. Local and fresh produce was considered an important part of the quality and quantity of food supply for Hamilton food bank staff interviewed, and was deemed important, but noted as uncommon, by food bank clients. The supply of fresh produce at food banks was considered mostly to consist of locally grown produce by food bank staff and was seen largely as coming from gardens, farms and grocery stores. In terms of factors that facilitate or hinder the use of fresh produce by food banks, the infrastructure needed is in place in some respects, but is still a limiting factor. Also, knowledge, networks and education were major categories of facilitators with some systemic issues remaining as barriers.

The perceived drawbacks to using fresh produce in food banks are limited; however, availability (of local produce) and perceived or experienced low quality of produce were identified as drawbacks. On the other hand, key stakeholders had a lot to say about the benefits, including why fresh and local foods are important, how they make emergency food more effective, how they promote equality and empowerment for clients, and that the benefits extend beyond the EFS. In discussing their future aspirations for the use of fresh and locally grown produce

by food banks, participants stressed the need to address the seasonality of the local supply, to increase production for food banks, and to increase procurement by food banks. It was also stressed that future initiatives must be done in a community-based and collaborative way.

Chapter Summary

The results of the nutritional survey indicate that except for high sodium levels and low inclusion of the milk and alternatives food group, average grocery parcel contents are meeting nutritional targets. However, variability in grocery parcel contents means that this adequacy is not uniformly applicable to all household structures, or throughout the EFS in Hamilton. Still, the inclusion of fresh and local produce makes an important contribution to the dietary quality of grocery parcels, increasing nutritional balance of the parcels and allowing a larger proportion of them to meet the benchmark of a three-day-supply.

In addition to these nutritional benefits of including fresh and local produce in the EFS, stakeholders identified benefits related to other aspects of food assistance and beyond the EFS, though recognized that addressing the limiting factors, drawbacks and achieving future aspirations would be valuable. The following chapter looks at the content of key stakeholders' interviews regarding the food system more broadly, considering the interconnectivity of emergency food, nutritional health and food security.

CHAPTER 6 – Results: Emergency Food within the Context of Food Security in Hamilton

Introduction

While Chapter 5 considered the use of fresh and locally grown produce in Hamilton food banks, this chapter situates that discussion within the context of food security and emergency food in Hamilton more generally. Other community and food security-focused initiatives (such as community gardens and good food box programs) are also an important aspects of this discussion. The interview content discussed here comes from interviews with all 13 key stakeholders. To recall (see also Table 4.3), three of these participants were food bank clients (whose identities are confidential) and three were food bank staff: Sara Collyer and Krista D'Aoust from Neighbour to Neighbour (N2N) Centre, and one other staff member from a (different) Hamilton food bank who chose not to be identified. Five of the participants were involved in food production: Bill Wilcox from the Victory Garden, Juby Lee of the Hamilton Fruit Trees Project (HFTP), Melanie Golba and Alvaro Venturelli, farmers at Plan B organic farm and Theresa Phair from McQuesten Community Garden City Housing Hamilton (CHH). The two other key stakeholders include a primary care physician working in a high-needs community in Hamilton and Karen Burson of Hamilton Eat Local.

Here, it is of value to revisit the concept of food security. Chapter 2 acknowledged the basis of the EFS in recognition of household food insecurity in Canada, but that the EFS does not necessarily promote food security. Community food security (CFS) - seen as expanding on the concept of household food security and recognizing the needs of communities as distinct from those of individuals or households – has an important role in Hamilton through the City's food security continuum (HPHS 2007). Here I focus on the interplay of food security and the EFS in Hamilton with respect to three aspects of food security: access to sufficient, nutritious and culturally appropriate food.

As my consideration of these topics begins by considering household or individual needs but broaden to consider the community's needs more widely, the concepts of both household and CFS should be kept in mind. Both the federal agricultural and health departments in Canada have adopted the concept of household food security as stated by the 1996 World Food Summit: "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO 1996). As with household food security, an array of definitions exist for CFS, one of the most common being Hamm and Bellows': "a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice" (2003, p. 37).

Food Security and Emergency Food – Having Enough

I began the interviews with food bank clients by asking a question often used as a screener for household food insecurity (in the measurement tool described by Bickel et al. [2000] and used by the USDA Food and Nutrition Service):

Which best describes the food eaten in your household over the past 12 months?

- a) Enough of the kinds of foods we want to eat;
- b) Enough but not always the kinds of foods we want to eat;
- c) Sometimes not enough; or
- d) Often not enough [See Appendix 4]

One stakeholder told me that she often did not have enough food (and with Type 2 Diabetes, diet is an extra challenge for her), another said sometimes she did not have enough and the third said their household had enough of the kinds of foods they wanted to eat. While all three households (*a priori*) had received groceries from a food bank in the prior 12 months (and two of the three indicated a longer history of visiting food banks), none had received meals from free hot-meal programs in the prior 12 months. Although the food security screening question alone is not considered enough to classify a household as food insecure, these responses along with the history of food bank use among these households indicate that food insecurity is likely a reality among these households.

I wanted to enquire about all key stakeholders' perceptions of the relationship between emergency food and food security. As this is a rather abstract topic, I usually probed their perceptions by suggesting a few of the concerns surrounding it – such as sustained reliance on the charitable sector for

people's food needs when the sector itself is often not supported by a long-term commitment of resources – and asked for their reactions (see Appendix 3).

As may be expected when a question outlines particular viewpoints for the participants, many key stakeholders agreed that food banks do important work but are not necessarily the answer. One food bank client said she felt okay with the fact that food banks are not just for emergencies anymore, but she (along with another food bank client and one food bank staff) wished to see governments more involved in supporting the EFS. In addition to funding food banks, several key stakeholders would like to see governments more involved in preventing food insecurity through ensuring that social assistance rates, minimum wage and the cost of living (inflation) do not leave people in a position unable to afford food.

However, Karen from Hamilton Eat Local reminds us that it is important to look beyond increased funding for the status quo. She noted that there are examples of people and organizations working past the current model, like The Stop in Toronto, which started as a food bank but has become a community food centre offering a wider range of food programs and services. She elaborated:

I think the introduction of community food centres offers an opportunity to serve a community that doesn't really need what a food bank offers, but can't plug into the existing food system or [that doesn't] want to, or there's disadvantages to it. I think a good food box and community food centre model help bridge that gap for a broader range of people.

Melanie from Plan B asserted that food insecurity is also an issue rooted in the farming sector because where farmers are suffering an income crisis their continued food production is not secure: “farmers need to get more money for the

food and people need to pay less for their food, [but] you can't possibly pay less for food than we do now. I think [we need] more creative options: CSA systems, good food box systems, different ways to get people [food].” She and Alvaro as well as Karen from Environment Hamilton all spoke about how increased support for a local food system can provide a wealth of employment opportunities, potentially addressing one cause of lack of access to sufficient food.

Juby from the HFTP and the primary care physician remind us that housing and kitchen facilities remain a problem in addressing food insecurity. In addition to ensuring affordable accommodations through rent-geared-to-income properties, Theresa (from CHH) stressed the importance of community gardens that are in place or being developed at CHH communities. Theresa sees the gardens as an invaluable tool for promoting both access to sufficient food and overall individual and community well-being. One food bank client affirmed that a geared-to-income housing community had been effective in providing education on the kind of resources that are available to help ensure she has enough food.

In summary, key stakeholders affirmed the importance of Hamilton food banks for meeting people’s food needs but that food banks are not necessarily *the* answer and suggested that they would like to see the government more involved in the EFS and in ensuring everyone’s ability to afford food. However, it was also noted that by starting from the food bank system and considering a broader scope of social services, it is possible to move beyond the status quo to a food system that could promote food security in multiple ways.

Food Security, Nutrition and Emergency Food

Access to a nutritionally healthy diet, in addition to having enough food, is another component of food security. The food bank staff members interviewed, while considering it important that everyone has access to a healthy diet, saw providing that healthy diet as a challenge and acknowledged that what is available at food banks may not always be healthy. Maintaining a healthy diet when using emergency food services was also, unsurprisingly, identified as a challenge for food bank clients or those on a low, fixed-income (by all three clients and the primary care physician interviewed). One of the food bank clients and the physician specifically noted that it is possible but takes an exceptional person who has knowledge of nutrition, great budgeting skills, can practice frugality and is able to take advantage of things like bulk buying (which requires adequate food storage and transportation), to be able to do so. The other two food bank clients did not specifically articulate that having a healthy diet is possible when relying on food banks, but did describe some of their strategies for working with what they receive at food banks. These strategies included switching products with friends and buying a small amount of desired foods (like vegetables or meat) to round out and make more palatable what was received.

Nutritional challenges associated with the EFS, though, were evident beyond the immediate perception of nutritional adequacy of foods from food banks. The primary care physician noted that she tries to take a holistic approach

to medicine with her patients (several of whom she would consider likely to have experienced food insecurity, and a good percentage of whom have visited food banks), because many of the conditions she treats are preventable or even reversible through dietary change. However, she expressed frustration with trying to do dietary counseling with her patients for a couple reasons. Most immediately, if clients are relying on food banks, hot meal programs or have a low fixed-income they are unable to access many of the foods on the “recommended sheet” for their conditions (she gave the example of almonds which are both expensive at stores and not commonly found on food bank shelves). Beyond this, she noted that there is often reluctance from patients to discuss or implement dietary change when they are seeking medical attention. Related to this, Juby from the HFTP noted that cultural acceptance of processed foods make it difficult for people to understand what is nutritionally healthy, and that health-claim labeling campaigns on processed foods are not sufficient to address the problem. Directly related to the EFS, Juby also noted the relevance of the diversion of “non-foods” into the EFS to avoid wastage: she shared a story about a staff member from a grain-processing facility who told her that if they end up with too much sugar in a batch of product, it is given to the food banks.

Despite challenges like these, it is important to note what is being done to improve the relationship between the EFS and nutritional health. The primary care physician who expressed frustration with trying to improve health conditions through dietary counseling tried to stay positive by focusing on things that are

possible and reasonable expectations for her patients. For example, she recommends increasing intake of legumes to almost everyone, and also tries to help address her patients' food needs through routes such as physician advocacy (that she can help ensure sufficient income for patients by assisting with Special Diet Allowance²³ and social assistance applications, on a number of levels) and suggesting community gardening to patients. Bill from the Victory Garden noted that projects like the garden can also help improve this relationship between emergency food and nutritional health, though they need to be implemented on a larger scale to make a significant impact. Further, Sara from N2N Centre discussed the importance of programs focused on special dietary requirements; she mentioned that one local food bank ran such a program in collaboration with The AIDS Network in Hamilton, and that she was interested in developing programs to help meet the needs of cancer patients and seniors who visit food banks.

In consideration of the relationship between nutrition and emergency food, it was noted that a nutritious diet may be possible for those visiting food banks regularly or living on a low-fixed income but doing so is certainly not easy. Particularly for those with existing medical conditions, food insecurity may make it difficult to have a health-promoting diet, especially with less nutritious foods

²³The Special Diet Allowance in the province of Ontario provides a bonus to social assistance recipients who require (as approved by a health care provider) a special diet to manage a medical condition. Because of high use of the program, it was deemed unsustainable and eligibility requirements were made stricter in 2011 (Ontario Ministry of Community and Social Services 2010).

being acceptable, promoted and diverted to the EFS. However, as discussed above, there are a variety of approaches which key stakeholders are using or have suggested for improving this relationship.

Food Security and Culture

A third identified aspect of food security, and one of particular interest to anthropology, is that of appropriateness of food available. More vaguely noted as, “to meet ...food preferences” in the FAO (1996) definition of food security, Hamm and Bellows’ definition of CFS explicitly considers “culturally acceptable” food to be a tenet of food security (2003, p. 37). In discussing why we need to consider alternatives to the food bank system, Theresa from CHH and McQuesten Community Garden pointed out that many people are not receiving culturally appropriate foods when they visit food banks. The primary care physician interviewed also highlighted that a lack of culturally or religiously appropriate foods was one reason why some of her patients do not visit food banks even when they may qualify for and benefit from doing so. While none of the food bank clients interviewed used the term “culture” in discussing food they had received from food banks, some of their comments referred to whether the food received was personally appropriate. This is apparent in suggestions that fresh produce is desired from food banks, but, when it has been available, quality was not always personally acceptable (see Chapter 5). One food bank client stressed that “it’s not as bad as everyone thinks, but it’s not good.” For example,

she (and another food bank client) expressed dissatisfaction with having received food products that were (perceived to be) expired²⁴. Another example of what I feel was an expression of lack of personal acceptability of foods received was a different food bank client describing having received, “what I’d call mystery meat because you don’t actually know what you’re getting.”

Key stakeholders also connected the ideas of culture to food security beyond the EFS. Both Juby from the HFTP and the primary care physician discussed cultural acceptance of junk food as a barrier to adequate nutritional health. As something preventing adequate access to more nutritional foods, or their use, this is linked to the notion of food security. The primary care provider suggested that health care providers need to keep reinforcing nutritional education: “But I think we did it with smoking. Most people now know that smoking is bad. We’ve turned it into a cultural no-no. I think we’ve got to do the same thing with food and diet and nutrition and health promotion.” Melanie and Alvaro from Plan B discussed the need to strengthen a “culture of food” and a “culture of farming” in order to have a food system which ensures food security for all. In discussing a culture of food, Melanie mentioned using fresh produce (salad bars) in school nutrition programs to start ensuring that children are at least

²⁴ I note that this is *perceived* to be expired because many food banks observe the best practice guidelines (Food Banks Canada 2010, n.d.) of not distributing food past its “expiry” date. However, distributing and consuming food within a period beyond its “best before” date is considered acceptable if adequately stored (Food Banks Canada n.d.). When the food bank clients referred to food that is “past its expiry date” this is likely to, rather, be a “best before” date. Although providing such foods can be an accepted practice in food redistribution, it may still be unacceptable to some clients.

eating vegetables. She later expressed a desire to see more school gardens so children would learn about food production, which I also link to her assertion that we “rebuild a culture of food.” Alvaro suggested that our current lack of a culture of farming is apparent in the commonality with which farms are lost from family lineages and taken out of food production – often due to a combined lack of financial ability and lack of desire to maintain the farm, which may be rooted in the current poor financial prospects of farming.

As was briefly mentioned in Chapter 5, the availability of fresh produce was seen as having a role in the ability of food banks to provide culturally appropriate foods (this was noted by Theresa from CHH and McQuesten Garden and also Sara from N2N Centre). Theresa also linked culture to community gardening in that she has observed that gardening is particularly valuable for New Canadians as an affordable source of culturally appropriate foods (which are otherwise expensive to purchase), and as a way to experience Canadian foods and learn about other cultures. Bill from the Victory Garden, as well as Theresa, noted the role New Canadians often play in what I would consider Melanie and Alvaro’s idea of a “culture of farming”, through sharing growing skills and food knowledge with other gardeners.

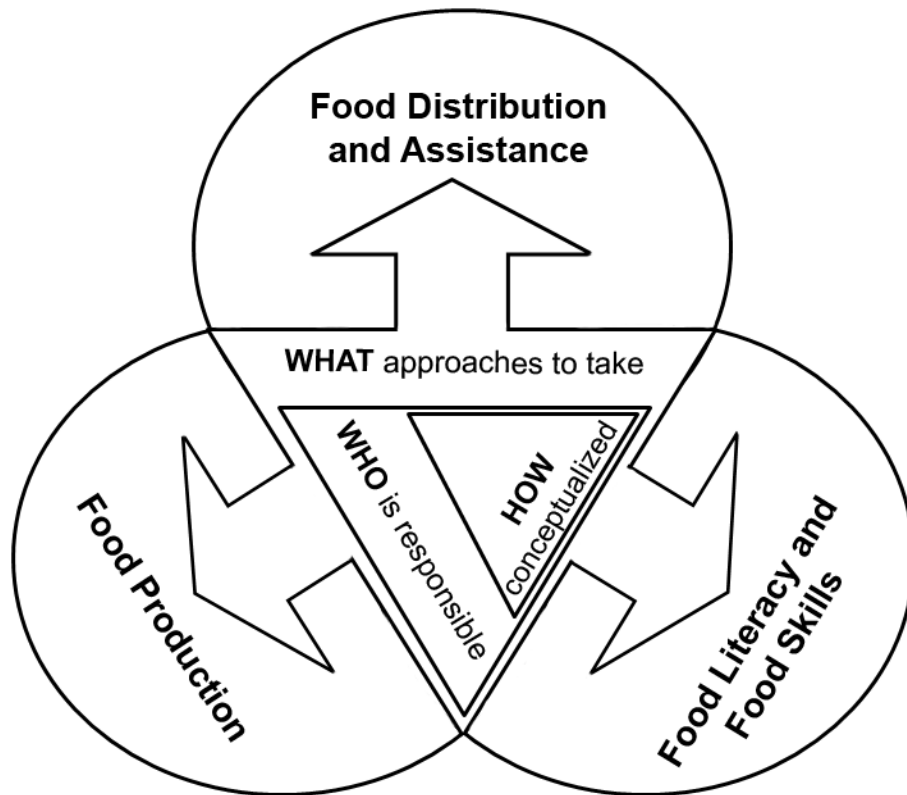
While not a novel idea, culture is important to food security in Hamilton. This is both related to the EFS (where some of the foods received by visitors may not be considered culturally or personally appropriate) and where culture may play a role in food insecurity outside of the EFS. However re-invigorating the role

of food and farming within Canadian culture may promote food *security* rather than *insecurity*. Additionally, access to fresh produce and gardening can help ensure a culturally-appropriate diet for some New Canadians and can also help to rebuild a “culture of food and farming”.

Future Aspirations

Similar to the answers I received about stakeholders’ future aspirations specifically for the use of fresh and locally grown produce in food banks (see Chapter 5), there were both conceptual approaches and specific directives mentioned when I asked key stakeholders what is needed to have a food system in which everyone can have access to enough food and a healthy diet. The conceptual aspects mentioned (concepts, key players, and approaches) are seen as overlying the specific directives identified as future aspirations for the food system (see Figure 6.1). In terms of the conceptual approaches I categorized comments as relating to *how* any future directions should be conceived, *who* were seen as the responsible parties for such future directions, and *what* approaches should be taken in future directions.

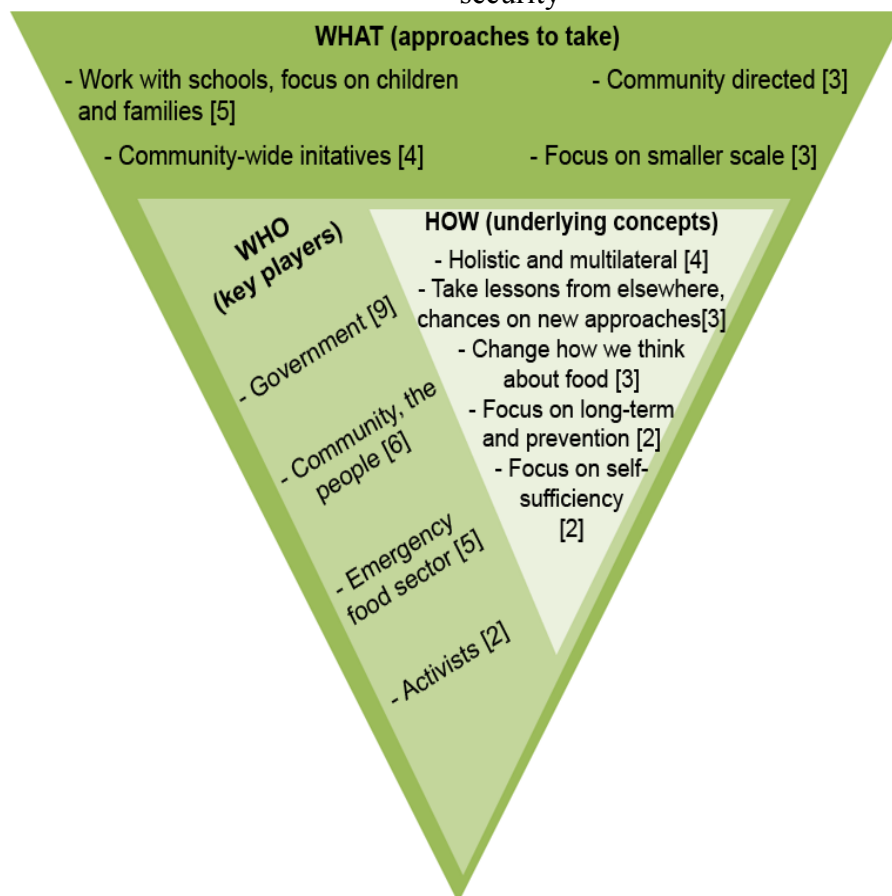
Figure 6.1: Approaches to and categories of future directions



A total of eight key stakeholders provided suggestions for how we should conceive of future directions for our food system (see Figure 6.2). Most common (mentioned by four stakeholders) was the need to focus on a holistic and integrated view of food and multilateral solutions to food system problems. Each mentioned by three stakeholders were the necessity to change the way we conceive of food, to consider what has worked in a diversity of settings, and to take chances on novel approaches to food security. In addition, a focus on the long-term picture and on prevention, and working to ensure that all people can

meet their food needs for themselves were underlying concepts discussed by two stakeholders each.

Figure 6.2: Conceptual approaches to future directions for food security



Note: Numbers in brackets indicate how many stakeholders referred to a point

While I did not specifically ask all stakeholders “who is responsible for the future of food security?”, 12 stakeholders did discuss a party or parties they felt were responsible for ensuring that our food system is adequate to meet the needs of everyone, or for some of the specific directives which they mentioned. Some stakeholders mentioned more than one, or felt different parties were

responsible for different aspects of the food system or different directives. Most commonly, key stakeholders discussed the responsibility of the government (at various levels) and communities or the people. Also mentioned as important were the roles of the EFS and food activists.

Lastly, five approaches to addressing the future of our food system were discussed by a total of seven key stakeholders. Five of the stakeholders felt it was important to work through the school system and/or focus on children and families in order to reach the next generation. Additionally, stakeholders discussed a need for community-wide initiatives (those that address the food needs of everyone rather than singling-out those identified as food insecure), a community-directed or community development approach and a focus that is not exclusively large-scale.

These concepts, key players, and approaches are seen as overlying the specific directives that were identified as future aspirations for the food system (see Figure 6.3). Future aspirations were classified into three categories: food distribution and assistance, food production, and food literacy and skills. Within each category, individual key stakeholders had various ideas about what exactly is needed. For example, one of the suggestions presented here – to revise food bank services (Figure 6.3) – is a common theme rather than a specific response repeated by multiple stakeholders. More specifically, the range of responses included suggestions to provide a greater diversity of services at food banks, to have more food banks, to have a more centralized EFS with fewer food banks but

more consistent service, to focus on a food system in which food banks will not exist and to accept that food banks will always exist but reduce the reliance on them by addressing the systemic issues contributing to food insecurity. As such, the suggestions presented are generalized in the interest of brevity and in acknowledgment that such variability indicated that further investigation would be required for more specific suggestions to be warranted.

Figure 6.3: Specific directives of the future directions for food security



Note: Numbers in brackets indicate how many stakeholders referred to a point.

Five stakeholders had the suggestion of moving forward with a community food centre, or food hub model. I did not ask stakeholders to elaborate, but through context it was assumed that some were referring to the community food centre model of The Stop in Toronto, described by Scharf et al. as “a comprehensive approach” – encompassing both an anti-poverty approach to providing food assistance and a participatory approach to food system alternatives (2010). In Milwaukee, Wisconsin, an organization called Growing Power identifies itself as a community food centre and embraces a similar, comprehensive and integrated, approach to food. In Canada, several organizations are currently working to create community “food hubs” based on a similar model, for example Just Food in Ottawa, Ontario and the Food Action Network of the Sunshine Coast, B.C. Karen from Environment Hamilton offered a valuable insight, speaking to the value of Hamilton’s already existing “neighbourhood hubs”²⁵, and to the ways in which she is working to integrate food programs into them.

A Localized Context

In relation to their suggestions for what a food system that could meet the needs of everyone would entail, I asked three of the key stakeholders to identify

²⁵The Hamilton Community Foundation defines a neighbourhood hub as “a local collaborative with a strong resident voice. It is an existing structure focused on centralized community work to reduce and prevent poverty” (2009, p. 1), and through a grant focused on poverty reduction, prevention and alleviation they have supported eight neighbourhood hubs in Hamilton.

anything they thought was unique about Hamilton that would need to be considered in realizing their visions. Their responses, in many ways, mirror some of the major themes addressed throughout interviews with all key stakeholders. They told me that we need to be mindful of high rates of poverty, a lack of food skills and of the many jobs that have been lost due to industry closures in Hamilton. However, it was seen that high use of social assistance programs provides an opportunity to access those who could benefit from food assistance and food programs. Demographically, these key stakeholders felt that it is important to consider Hamilton's increasing diversity and large student population. Specifically, it was noted that a student population means many people may be on a fixed-income but also have a demand for convenient and "on-the-go" food options such as fast food vendors.

Geographically, Hamilton was seen as well-situated in terms of proximity to both farmland and a large economic centre (Toronto), and while Hamilton has brownfields (abandoned commercial or industrial lands) which are currently seen as a liability, these were identified as having potential to be an asset if remediated for urban food growing. It was also identified that while there may exist a lack of hope in Hamilton, as a small city there is a great sense of togetherness which can be built upon, and that current "neighbourhood hubs" are beginning to foster hope in the communities they serve.

Chapter Summary

Food security has a complex relationship with the EFS in Hamilton, a relationship not likely unique to the city. In terms of access to sufficient food, food banks meet an immediate need, and while not necessarily a sustainable institution for ensuring food security, they have been demonstrated to be a potential starting point for a food security-promoting food system. In terms of the nutritional aspect of food security, using emergency food can make it challenging to have a health-promoting diet, but again this relationship is changing and diverse options for improving it have been identified. Similarly, the role of culture in food security is seen as dynamic, factor both within and beyond the EFS. Key stakeholders' future aspirations incorporate all of these aspects of food security. Underlying concepts, key players and approaches important to their visions should direct future initiatives focusing on food production, food literacy and skills, distribution and assistance. Finally, although key players may come from various levels of government or organizations, the future directions of our food system must not be imposed in a top-down manner; rather, there must be community input into what shape directives should take and what will be effective in the context of Hamilton, which holds both challenges and assets in terms of physical space, demography and social setting.

CHAPTER 7 – Discussion

Introduction

This chapter begins by addressing the question posed of the nutritional quality of grocery parcels, through the inquiry of whether grocery parcels are “adequate”. The discussion then shifts to considering how to move forward from findings regarding the nutritional quality of grocery parcels, the factors influencing the use of fresh, local produce at food banks and the relationship between using fresh produce at food banks and food security and the good food gap. I posit that to best overcome the good food gap we must build on the EFS by both working within the infrastructure of the EFS and moving beyond emergency food, and that community food centres offer a particularly attractive way to do so. Finally, this chapter offers some points warranting further consideration.

Nutritional Quality of Grocery Parcels

With respect to the nutritional value of grocery parcels, a lack of consensus on what makes a grocery parcel “adequate” means that even though all the grocery parcels modeled for this study included at least three days’ worth of energy, the availability of groceries from Hamilton’s food banks would not be nutritionally adequate *if* they reflect the overall food supply for clients’ households.

There is a documented disconnect between the originally-intended purpose of the EFS and the niche which it has come to fulfill. As a charitable response to

food insecurity, food banks were intended to be a temporary, one-time or short-term, source of food. In contradiction to this, it has come to be acknowledged that the EFS has become institutionalized in various ways, including as a more chronic source of food and supplement to social assistance (as discussed in Chapter 2). Both in key stakeholders' interviews and the preliminary planning meetings for this research, it was recognized that even though most food banks limit households to one visit per month, emergency food may comprise a larger proportion of a households' food supply if more than one food bank is visited in a month. In a study conducted in Minnesota, food bank clients reported that groceries from the food bank constituted about 25 percent of their food supply for most clients, but up to 90 percent for some clients with special circumstances (Verpy et al. 2003, p. 9). This study did not, however, consider whether the clients' remaining food supply (not supplied by food banks) complemented what was received from the food bank.

If considered only as a supplement to a household which otherwise has adequate access to the foods they require, and has the capacity to compensate for what is lacking in grocery parcels, then the grocery parcels modeled here could be considered to "adequately" meet the originally-intended purpose of the EFS. This is supported by findings that no grocery parcels contained fewer than three days' worth of total energy (Table 5.3), that parcels for various households ranged from containing an average of six to twelve days' worth of calories (Figure 5.5), and that for three of the four food groups, both the average contents constituted at

least three days' worth (Figure 5.1) and that a majority of parcels contained at least three days' worth (Table 5.1).

If, however, grocery parcels are considered representative of a household's normal dietary intake, then those modeled in this study cannot reasonably be considered "adequate": of concern were a limited amount of dairy and alternatives, seasonally-limited content of vegetables and fruit (augmented during the harvest season), high sodium content, protein content near the lower end of the recommended range and the finding that parcels for larger households were significantly less adequate than those for smaller households. Although the reality likely lies somewhere between grocery parcels acting as a small supplement to an otherwise perfectly adequate diet, and parcels representing the entire food supply for clients' households, these nutritional concerns need to be considered more carefully.

Limited dairy and alternatives

Consistent with what was documented here, Akobundu et al. (2004), Cotugna et al. (1994) and Starkey (1994) also found dairy products were the most limited food group in their nutritional surveys of food banks. Low availability of milk products and alternatives are most likely to compromise dietary levels of calcium and vitamin D. While food banks may only supply a portion of a household's food supply, even if they are visited on a monthly basis, previous studies have reported low milk consumption (Duffy et al. 2009; Starkey and Kuhnlein 2000) and low dietary calcium levels (Starkey et al. 2009) among food bank clients.

With 35.9 percent of Ontarian food bank clients reported to be under the age of 17 (Spence 2009), and since calcium is both the most abundant mineral in the body and vitally important to the development of the skeletal system (Sizer and Whitney 2003, p. 275), a lack of dairy products or alternative sources in households' food supplies is of concern.

Seasonal supply of fresh produce affects adequacy

This research has demonstrated that the inclusion of locally grown and fresh produce can influence the nutritional adequacy of grocery parcels by making them more balanced during the local harvest season. The largest component of the seasonal difference in produce available was in the amount of fresh vegetables (Figure 5.2), increasing both the average number of produce servings per parcel (Figure 5.1) and the proportion of grocery parcels meeting the benchmark of three days' worth of vegetables and fruit (p. 58). These results agree well with perceptions of food bank staff that most of their fresh produce was locally grown, and that fresh produce was important in their ability to provide a balanced diet for clients. Since a desire for more produce in the EFS has been documented (Dilinger et al. 1999; Hamilton Food Share 2010; Verpy et al. 2003), along with low vegetable and fruit consumption by those using food bank services (Spence 2009, p. 14; Starkey and Kuhnlein 2000), the capacity of localized provisioning to increase availability of fresh produce at food banks is an important finding.

Still, the study design of a seasonal nutritional survey of food banks would be useful if extended to encompass a whole year. Since the present study gathered

data only over the course of six months (the majority of which *was* part of the local harvest season), produce availability during the remainder of the year may resemble the spring levels more closely, with vegetable and fruit servings being the second most limited food group, after milk and alternatives.

In addition, it should be noted that available food supply does not directly correspond to dietary consumption. The barriers (and facilitators) to using fresh produce from food banks are relevant to this relationship (see Table 5.4). For example, the availability of storage and cooking facilities at home for perishable items and whether the produce available is something the household likes and will use were identified by stakeholders as factors which could impact dietary intake. Identification of these factors is in agreement with findings by Hoisington et al. (2002) and Wicks et al. (2006).

High sodium content

The sodium content of grocery parcels examined in this study was very frequently higher than the recommended UL for sodium, given the number of days' worth of food provided. Since high dietary sodium is known to increase bodily elimination of calcium (Sizer and Whitney 2003, p. 282), high sodium content of grocery parcels is likely to compound the problem of low dietary calcium content if clients are unable to access sufficient calcium-rich foods like dairy products or alternatives. Additionally, high sodium intake is known to be linked with a host of chronic health problems: hypertension (and hypertension-related stroke), cardiovascular disease, cerebral hemorrhage, aggravated kidney or heart

problems, and even some cancers (Peleteiro et al. 2011;Sizer and Whitney 2003, pp. 281-282). Surprisingly, despite the finding that food banks are perceived to supply highly processed, non-perishable and often unhealthy food (Dillinger et al. 1999; Wakefield 2009) previous nutritional surveys of food banks have not assessed sodium levels. As one of the novel contributions of this research, the documentation of high sodium content in grocery parcels warrants continued consideration. Future nutritional surveys of food banks (and other charitable emergency food programs) should consider the sodium content of grocery parcels to determine whether the high levels documented here are a problem in the EFS more widely.

Low protein content

The protein content of grocery parcels may also be a concern. While the average level was within the Acceptable Macronutrient Distribution Range, it was very near the lower endpoint of this range and the protein content of 20 percent of the parcels was below the recommended range. It is more likely that grocery parcels with limited protein content would be a cause for concern with protein *quality* rather than *quantity* (that is, amino acid balance – as animal proteins have the composition most similar to human requirements [Sizer and Whitney 2003, p. 194]) or vitamin B₁₂ levels. Although protein malnutrition is not as common in North America as it is internationally, protein malnutrition and insufficient vitamin B₁₂ intake have been observed in North America among infants or children raised on a vegan diet (Sizer and Whitney 2003, p. 208). However, the

estimated prevalence of insufficiency for both protein and vitamin B12 is noted to be higher in Canada among *adults and youth* in households experiencing food insecurity, rather than in the *children* in these households (Kirkpatrick and Tarasuk 2008). So, for different reasons, members of all ages of households which rely heavily on food banks may be at nutritional risk, if the protein content of grocery parcels is limited. Since the meat and dairy content of grocery parcels were observed to be limited (many of the servings of the meat and alternatives food group were alternatives, such as legumes or peanut butter), households not accessing alternative sources of these foods, which are often expensive to purchase, may be nutritionally vulnerable.

Household structure affects adequacy

Similar to two of the three previous studies which considered household structure as a factor affecting grocery parcel adequacy (Friedman 1991; Teron and Tarasuk 1999), the current study found a significant decrease in adequacy of grocery parcels as household size increased. It is recognized that this study only considered three of a multitude of possibilities of the size and structure of households visiting food banks, yet this confirmation of previous results suggests that the standard practices in many food banks may not be serving all clients as equitably as the organizations would like to be.

Summary

There are problems with trying to assess the nutritional adequacy of grocery parcels since the use of the EFS has not remained within its originally-

intended purpose and providing grocery parcels as a short-term supplement espouses a different concept of adequacy than does providing groceries which represent normal food supply. If we assume that some clients rely heavily on food banks, however, we should be concerned, in particular, with the availability of milk and alternatives, produce during the months when local harvest is not plentiful, sodium content, and protein quality of grocery parcels. This research also uncovers that grocery parcels for households with multiple members may provide a less-adequate food supply than those parcels for single individuals. It should be noted, though, and is discussed further below, that the responsibility for addressing these issues cannot be expected to lie fully with an EFS which remains a charitable model of food assistance.

Building on the EFS to Overcome the Good Food Gap

The EFS can be seen as one starting point for change within the food system at large, for overcoming the good food gap by means of integrating various aspects of food. With the EFS as a starting point, but not an ending point for change within our food system, the good food gap can best be overcome by working both within the structure of the EFS, and moving beyond the EFS. This is one of the take-home messages posed by Scharf et al. in their 2010 Metcalf Foundation Food Solutions report. In this section I elaborate on how the results of this research frame what this process might look like in Hamilton, and how it relates to the findings regarding the nutritional quality of grocery parcels.

Working within the infrastructure of the EFS...

As a social institution entrenched in our society and culture, there already exists physical infrastructure dedicated to the EFS and a social consciousness of, familiarity with and support for the sector (Poppendiek 1998; Riches 2002). As discussed in Chapter 6 (pp. 86-88), the food bank system *is* an important source of food for many households in Hamilton, regardless of whether, ideally, it *should be* the way that their food needs are met. This is also represented in other research which notes that emergency food is considered a valuable resource for many households that would otherwise (in the context of lacking a legally-enforceable right to food) go without (documented by Hobbs et al. 1993; Wicks et al. 2006).

To make the best use of social and physical infrastructure currently supporting food assistance in Canada (and Hamilton specifically), there needs to be some investment of time, energy and resources into improving the food bank system. The results of this research speak in favour of those investments which would support factors facilitating the use of fresh local produce in food banks, address its drawbacks and limiting factors and promote improved nutritional quality of groceries available at food banks.

One change in the EFS that is suggested by this research and may be within the capacity of the EFS to implement is to address the uneven nutritional adequacy of grocery parcels for variously-structured households. Although this suggestion likely requires less of an investment of time and resources than most others implied by this study, it would still require that food bank staff or external

support spend some time developing guidelines and a system for more closely matching households' needs to the groceries they receive. After the initial development, investment required by food banks to maintain this should be low and within their capacity.

Other suggestions that would improve the quality of food available through food banks are less likely to be within the capacity of the EFS to realize. Considering the nutritional limitations of grocery parcels presented above, developing guidelines or policies which increase access to dairy and alternatives, protein (in particular animal proteins), a low-sodium diet, and a more year-round supply of sufficient vegetables and fruits for households receiving groceries from food banks is warranted. However, while the supply-driven nature of the EFS makes nutritional quality a concern (Teron and Tarasuk 1999), it also limits the capacity of the sector to respond to such concerns. As pointed out by Rideout et al., the charitable EFS in Canada is an example of a benevolence-based rather than a rights-based approach to food security; focusing on a benevolence-based approach undermines a governing body's legal obligation to uphold the right to food. (2007, p. 570). During an interview, one food bank staff person told me that it would be great if food banks were required to follow nutritional guidelines in preparing grocery parcels but that if the additional resources to do so were not provided the result would be that fewer clients could receive food assistance. Along the same line, Companion (2010) reported that when recent economic conditions left U.S. food banks facing a dwindling supply, some coped by

providing less food or serving fewer clients. This challenge of balancing the quality versus quantity of food assistance is reflected in the finding of a relatively high contribution of “other foods” (those not constituting any of the four food groups, largely sweets and fats) to grocery parcels (Chapter 5).

Cotugna and colleagues affirm this tension between quality and quantity of food provided by the EFS: “Although sweets and fats are considered ‘empty calories’ from a nutrition standpoint, nevertheless they contribute energy which is important from a hunger standpoint” (1994, p. 890). In addition, Jacob describes some of the opposition raised by board members of one Californian food redistribution network at the suggestion of eliminating soda from the network’s food supply:

Some board members thought it would be paternalistic to tell hungry people we weren’t giving them soda anymore. ...It contained calories, and calories are fuel. Besides, if we didn’t give it to them they would just go out and buy it. ...

I asked what would happen if we turned away the [donations of] soda. Board members voiced concern that there would be retribution: we might be cut off from other higher-quality food donations from the same company, or company officials would be angry because they weren’t getting a tax write-off. [2004, p. 18]

While this array of responses hints at the diversity of issues that make a charitable EFS problematic, the health consequences of poor nutrition mean that a continued laissez-faire approach to the nutritional adequacy of the EFS is not acceptable. Rocan estimates that the health care costs in Canada associated with chronic diet-related illnesses remain staggering at up to \$4.6 billion (presented by Serecon

Management Consulting Inc. [2005, p. 4]) – a clear imperative for policy and practice guidelines to oblige the provision of nutritious foods through the EFS.

If food banks have a limited capacity to address some of these concerns with the food they are able to provide, and if we recognize that they do perform an important function providing food to those otherwise lacking it (regardless of the EFS's ability to address food insecurity), the responsibility must lie elsewhere. The key stakeholders interviewed for this study felt that various levels of government and communities (or the people) need to take responsibility for our collective food security (see Figure 6.2). Increased investment (of time and energy as well as money) by these groups, into emergency food may help to address some of the nutritional concerns identified in this study.

The investment of various stakeholders into the EFS could also play an important role in supporting factors which facilitate initiatives such as using fresh local produce in food bank and to address its drawbacks and limiting factors (discussed in Chapter 5, pp. 70-79). Support for this suggestion comes from the benefits, both within and beyond the EFS, that stakeholders attributed to using fresh and local produce in food banks. While nutrition and health-related benefits were a major factor within the EFS, initiatives that bring fresh and local produce into food banks were also seen as supporting community development and the local economy, a perspective supported by previous research. Poppendieck (1998) describes how organizing charitable responses to hunger often brings communities together, and Verpy et al. (2003) report that helping one's own

community was an important motivation for people to donate to food banks; these findings reflect stakeholders' suggestions in the current study that donation of fresh and local produce to food banks helps build community relations. This may apply, in particular to produce procured from community gardens, which are known to foster community development and social relationships (Armstrong 2000; Saldivar-Tanaka and Kransy 2004; Wakefield et al. 2007). In addition to building community relations, stakeholders expressed that procuring local produce for food banks could benefit local farmers and the economy, similar to results found for programs which facilitate access to farmers' markets for low-income populations (reviewed by McCormack et al. 2010 and Markowitz 2010).

In terms of what improving the EFS may look like in Hamilton, one consideration is with the noted drawbacks to the use of fresh produce at food banks. The major drawback identified in this study was a perceived or experienced lack of quality. This could suggest two things: that a more scrupulous critique of the produce to be distributed may indeed be necessary and that the perception of poor quality may not necessarily indicate compromised food quality. While other research has not specifically considered the quality of *produce* received from food banks, poor quality has been raised as a concern in general with *food* from food banks (Teron and Tarasuk 1999; Verpy et al. 2003; Wakefield 2009). In the present study, the expectation of a certain *look* for produce was also identified as a barrier to using fresh produce in food banks, and more broadly as an issue necessary to be addressed with regards to the whole food

system. Previous studies have shown that North American consumers have a high intolerance for cosmetic “defects” in produce (Bunn et al. 1990), even when seeking out foods produced outside of the conventional industrial agricultural system (Huang 1996; Yue et al. 2006), a food system in which has facilitated a focus on uniformity and cosmetic appearance of produce through new pesticide technologies as well as the influence and market integration of large food retailers (Pimentel et al. 1993).

The above discussion of some of the tension between focusing on quality versus quantity of food in the EFS highlighted some reasons why capacity to increase the quality of foods in the EFS is limited. The same factors also likely apply to produce, making the suggestion of a more scrupulous critique of fresh produce to be distributed by the EFS difficult. While staff or volunteers at food banks tend to focus on distributing as much food as possible and on avoiding discarding food “unnecessarily” (Jacob 2004; Tarasuk and Eakin 2003), the feelings of degradation and humiliation that many associate with receiving food from a food bank (Hobbs et al. 1993; Tarasuk and Beaton 1999a) may be related to such a lack of discretion.

Supporting the facilitators to both procuring and distributing fresh produce in food banks, and working to redress the barriers, would likely augment the identified benefits and ameliorate the drawbacks to it. Doing so would both require a substantial investment of funding (as infrastructural issues such as cold storage, transportation and skilled labour were identified as important [see Table

5.4]) and time or energy (since systemic or knowledge-related issues cannot be addressed by funding alone), again, probably beyond the current capacity of the EFS. As with issues of nutritional quality at food banks, some of this investment must come from outside of the sector, with government and our communities as key candidates.

It makes sense to take a realistic approach to food assistance by capitalizing on the physical and social infrastructure of the EFS which is currently passing (or perhaps which is currently failing, as it were) as Canada's response to food insecurity. Yet, the need for change within our food system on a larger scale as well as the problems with a charitable model of food assistance (including its limited capacity), indicate that improving the EFS will not be enough to overcome the good food gap. The necessity of moving beyond the EFS was held strongly by several of the stakeholders interviewed here (pp. 87-88, 98-100), in line with the positions of others practicing in or studying emergency food (such as Poppendieck 1994; Scharf et al. 2010).

...And moving beyond the EFS...

As discussed above, although stakeholders acknowledged the current value of the food bank system, many noted that food banks are not the answer to a food system which currently does not meet everyone's needs. This research suggests, then, that we ensure, through exploring other means, that those using food banks are able to access a balanced diet.

For example, several interview participants mentioned the importance of education or training workshops for food bank clients, focusing on either nutrition or budgeting. Both of these could contribute to food bank clients' recognizing what is most limited in grocery parcels and how those needs may be met. Indeed, some of the food bank clients participating in this study discussed their personal strategies for compensating for the limitations of grocery parcels. Positive responses have been reported for programs intended to increase skills and knowledge related to healthy eating among food bank clients in Hamilton (Keller-Olaman et al. 2005; Kennedy et al. 1992) and low-income groups elsewhere (Eicher-Miller et al. 2009), though the programs evaluated have not specifically been aimed at addressing nutritional shortcomings of grocery parcels. In contrast to the potential benefits of educational programs or workshops focused on food and nutrition, Wicks and colleagues (2006) report that many soup kitchen clients stressed that such programs were not effective solutions. Though soup kitchen clients are possibly a different demographic from food bank clients, their experiences are relevant: the clients felt that a lack of knowledge was not what prevented them from eating well when an overall lack of food, inadequate housing or substance abuse may be contributing to their food insecurity. These results affirm the importance, as identified by key stakeholders in the present study, of community participation for the planning and implementation of effective food assistance and educational programming.

Another potential option to redress nutritional inadequacies in emergency food assistance is recognizing the importance of food assistance programs which could complement the EFS by increasing access to what is lacking in the EFS. Programs such as food stamps, good food boxes (GFB), farmers' market vouchers and social assistance (when rates are adequate) were all identified as important possibilities by key stakeholders and can help fulfill this role by allowing clients more freedom to meet their nutritional needs in a personally and culturally appropriate way, taking into consideration what is not available in food bank grocery parcels. In the United States, food stamps are one of several national, government-supported food assistance programs, having both noted merits (Mykerezzi and Mills 2010; Perez-Escamilla et al. 2000) and limitations (Jacob 2004; Kaiser 2008). For example, Bougherara points out that in many states, the application for food stamps is more involved than that for a federal firearms permit (2010, p. 1089). In terms of addressing dietary quality for those facing food insecurity, research in France by Dallongeville and colleagues (2011) suggests that food stamp programs may be less cost-effective public policies than price incentives or information campaigns, but that the food stamps would reduce income-linked health inequality while the other options actually increase it. This is also significant in light of nutrition and health being some of the main reasons a variety of stakeholders felt the provision of fresh produce through food banks was important (Chapter 5).

The U.S. government also supports a farmers' market voucher program for women infants and children (USDA 2010b). While two similar programs have existed to a limited extent in Canada, the one provincially-supported program was cancelled in 2010 (BC Association of Farmer's Markets 2010). The one known locally-funded and administered program (in Etobicoke, Ontario) has \$15 vouchers available to households only bi-annually (Porter 2010); thus its ability to be effective in addressing food security is limited.

Currently these types of programs are generally focused on increasing fruit and vegetable intake. Several studies, albeit each with their own limitations, have determined that GFB programs (Brownlee and Cammer 2004), community kitchens (Fano et al. 2004), community gardens, food stamp and farmer's market voucher programs (reviewed by Aliamo et al. 2008; McCormack et al. 2010) can be effective in increasing produce consumption. In light of the results of the current study, and findings elsewhere, I suggest that the types of programs discussed above should be supported and made as accessible as possible, and that it makes sense to tailor them to address shortfall in nutritional adequacy of grocery parcels by including low-sodium foods, milk and alternatives and animal-sourced protein, in addition to their role in promoting access to fresh produce.

...With community food centres

While the above paragraphs highlight some initiatives which may help us move beyond a reliance on emergency food for food assistance, the findings of this study offer strong support for pursuing a community food centre (CFC)

model in Hamilton; a model which could encompass the suggestions for changes both within the food bank system and for working beyond food banks, as well as further integration of various aspects of food.

As discussed in Chapter 6 (pp. 99-100), five stakeholders articulated support specifically for a CFC model, characterized by being comprehensive or integrative. In addition, many of the values and objectives identified by stakeholders in this study (collectively) are in line with what Scharf et al. (2010) promote as the core principles of The Stop Community Food Centre in Toronto (a CFC widely considered to be succeeding), and with how these principles are practiced.

“Good food is an investment in good health” (Scharf et al. 2010, p. 24), is the core principle of The Stop that most clearly resonates with this research: this principle not only acknowledges the importance of diet in health, but is practiced through the inclusion of fresh, local, often organic food in their food bank, and through programs which increase access to healthy foods in a way that complements the food bank. It is easy to see from the above discussions of this research that this principle is reflected and valued in Hamilton.

Also, the work of The Stop acknowledges the need to “Meet people’s immediate needs, [and] meet them where they are” (Scharf et al. 2010, p. 22) by appreciating that immediate needs may include food needs (perhaps served by emergency food) but also needs for adequate housing, income, child and medical care. These types of needs were also recognized as relevant to food security by

the stakeholders interviewed here (see pp. 87-88), as was the need for food system solutions to “meet people where they are” by taking the community’s needs and directives into account so they may participate in changing their food system (described here in Chapter 5, p. 81).

In this thesis, working with schools, children and families was identified as one of the approaches considered to be important for supporting food security (Figure 6.2). This is reflected in many of the programs which are valued at The Stop for “Build[ing] knowledge and skills to grow, prepare, and advocate for good food” (Scharf et al. 2010, p. 26), several of which focus on youth. In addition to a youth-focused approach, addressing these types of knowledge and skills were also considered valuable in Hamilton (see Figure 6.3).

Considering a fourth core principle of CFCs promoted by The Stop, “Work to remake the food system” (Scharf et al. 2010, p. 28), the values and objectives of stakeholders, as expressed in this thesis, again support the desire for a CFC model in Hamilton. This principle acknowledges that “the bigger problem is that the food system itself is broken” (Scharf et al. 2010, p. 28). While this was not articulated in these words, by key stakeholders, expressions that future directions must address food-related issues in a holistic and multilateral way (Figure 6.2), considering food production, distribution, assistance and skills (Figure 6.3) over the long term (Figure 6.2) speak to a need to remake a food system in a similar way as do proponents of the CFC model. The importance that

the work of government must play in such major system changes is also recognized both by The Stop and the stakeholders interviewed here.

Finally, Scharf and colleagues' proposed model for CFCs (2010) acknowledges that although these (and other) principles are considered ubiquitously important, local context is imperative in the development of programs and services, a sentiment also valued by food system stakeholders in Hamilton (Figure 6.2). While only three stakeholders in the current study were asked what unique features of Hamilton need to be considered in planning for the future of our food system, their wealth of responses (such as Hamilton's high poverty rates and abundance of brownfields; see Chapter 6, pp. 100-101) suggest that community stakeholders may be invaluable in shaping the future of food in Hamilton.

The Introduction to this thesis set up the view of using fresh, local produce in food banks as a point of integration between food production, food assistance and nutritional health promotion. The nutritional and non-dietary benefits of this (as presented in Chapter 5, discussed above) speak to its success in beginning to overcome the good food gap. Working within, but also moving beyond, the EFS, in particular through the CFC model holds promise as a way to continue working to overcome the good food gap in Hamilton.

Points to Ponder

The results of this research suggest a number of avenues for further investigation, some of which have been mentioned in the above discussion. In addition, I would like to highlight three directions which would complement the research undertaken for this thesis: more in-depth qualitative investigation to inform policy or practice guidelines, consideration of apparent contradictions in the perceived importance of fresh produce at food banks, and extension of the seasonal consideration of food banks supplies to a full year.

With respect to the interviews conducted, because a maximum diversity, purposive sampling method was used to capture a broad range of perspectives, the results of the interviews did not reach a point of “theoretical saturation”.

According to Neuman and Robson, the point of theoretical saturation, “where no new themes or information emerges” (2009, p. 140), can be used as an endpoint to data collection. While further semi-structured interviews with key stakeholders in Hamilton’s food system may have produced novel data, I suggest that the current results reasonably stand as a point of re-direction. To direct the development of policy or practice guidelines, a more structured investigation with a larger sample would likely be desired, and results from the interviews conducted here provide a very reasonable starting point from which to identify key topics and important factors for such an investigation.

While much literature suggests that fresh produce is perceived to be uncommon at food banks (Algert et al. 2006; Engler-Stringer and Berenbaum

2007; Friedman 1991; Irwin et al. 2007; Jacob 2004; Starkey 1994), the present study did not find this to be the case at the food banks surveyed in Hamilton, where 57 percent of the produce servings were fresh vegetables and fruits. The food bank staff who were interviewed felt that fresh produce (perceived as overwhelmingly locally-produced) was either relied on as a portion of the food bank's food supply, or considered an "extra" but still important to the dietary quality of groceries available. However, this view was not shared by the food bank clients interviewed who found fresh produce to be limited at food banks. These apparent contradictions – between previous research and this study and between the staff and clients of food banks – would be another interesting avenue for future research.

Finally, the consideration in this study of grocery parcels over the spring, summer and autumn was based on the assumption that locally grown produce would display stronger seasonality over the local growing season than other foods. Still, other factors do contribute to seasonal variations in supply at Hamilton food banks. Since donations are a major source of the food banks' supply, seasonal changes in donations are likely to affect the supply of non-perishables at the same time as local production influences the supply of fresh produce. For example, during preliminary planning meetings for this study, I was told that some organizations or institutions (schools, clubs, etc.) which solicit donations for food banks tend to be less active during the summer months, and that autumn tends to elicit an increase in donations in preparation for the holiday

season. The appearance of seasonal trends in the non-produce food groups and in different types of produce (although not all trends were statistically significant) demonstrate that seasonal variation in food banks' supplies occurs for reasons other than the seasonal harvest of local produce. The seasonal variation in food banks' supplies of non-perishables was not studied in detail as part of this research, nor were the sources of fresh produce tracked (to confirm the assumption above regarding the seasonality of local produce) though these would be relevant avenues for future investigation. Again, a full-year nutrition or food survey of food banks would help elucidate these trends.

Chapter Summary

Given their capacity, level of support, and original intention, food banks are doing at least as well as could be expected in providing food. Through such initiatives as those increasing the availability of fresh produce during the harvest season, food banks are able to improve their ability to fulfill the food needs of their clients. However, as some clients have come to rely on food banks as a more sustained source of food, grocery parcels are likely more than a supplement to an otherwise adequate food supply, and some households may not have the capacity to adequately compensate for the limitations of grocery parcels. If considered as reflective of clients' overall food supply, grocery parcels would not be adequate: those modeled in this study contained limited servings of milk and alternatives, seasonally-limited availability of produce (though this was augmented during the

summer and early autumn), had a relatively high sodium content but low protein content, and were less nutritionally adequate the larger the clients' household.

As a social institution entrenched in our society and culture, there already exists physical infrastructure dedicated to the EFS and a social consciousness, familiarity and support for the sector. To make the best use of the infrastructure currently supporting food assistance in Canada (and Hamilton specifically), there needs to be some investment of time, energy and resources into improving the food bank system. Specifically, this research supports the promotion of factors that would facilitate the ability to offer fresh, local produce at food banks and that would improve the dietary quality of provided by food banks.

In considering how the use of fresh and local produce in food banks relates to the broader picture of food security and the good food gap in Hamilton, the EFS can be seen as one starting point for change within the food system at large, for overcoming the good food gap by means of integrating various aspects of food through community food centres. To an extent, this integration of the food system has begun through such initiatives such as the increasing use of fresh and local produce in food banks. At the same time, to truly overcome the good food gap, we must look beyond the EFS by also investing our time, energy and resources into the development of programs and services that aim to develop a just, sustainable, rights-based food system. This may include programs or services at community food centres that complement what food is available at food banks,

but also support food production, food literacy food skills, advocacy and action on larger issues of food system change and the unequal distribution of resources.

It is recognized that not all the recommendations made are reasonable for a municipal scale of responsibility, but that the City and residents of Hamilton may still actively participate in directing change on smaller or larger scales.

CHAPTER 8 – Conclusions

Introduction

From considering the good food gap in Canada – that is, the structural barriers, based in narrowly focused public policies and jurisdictionally disconnected objectives and outcomes, to a just, sustainable food system that meets the diverse needs and ensures the food security of all food-system stakeholders – this thesis addressed three specific aims regarding the use of fresh and locally grown produce in food banks in Hamilton, Ontario. Below, I review the most salient findings and points of discussion regarding each specific aim and address the significance of this research in terms of the ecological approach taken, its potential for application and proposed future directions.

Specific Aim One: *To analyze the nutritional value of food available from Hamilton food banks and how grocery parcel contents change over a local growing season.*

The major seasonal trend observed in grocery parcels was an increase in the vegetables and fruits group (which was limited prior to the harvest season), particularly a rise in the average days' worth of fresh vegetables provided. It was determined that the inclusion of fresh and locally grown produce influences nutritional adequacy of grocery parcels in Hamilton by making them more

balanced and allowing more parcels to meet the benchmark of at least three days' worth of groceries. Across the seasons and household structures, the milk and alternatives group was the most limited in grocery parcels, with the majority of parcels containing less than three days' worth. While the average macronutrient contents of grocery parcels were within the recommended guidelines, protein content was near the lower end of that recommendation, and the sodium content (the only micronutrient analyzed) of most grocery parcels was relatively high. Although food banks have a reputation of providing processed and unhealthy food, the formal documentation of this high sodium content is a novel finding. Also, in agreement with previous studies, grocery parcels for single individuals were found to be significantly more abundant than those for multi-person households. Lastly, the disconnect between the intention that food banks should be for a single-use or short-term emergency, and the reality that for many houses they are a more sustained source of food makes drawing conclusions on the "adequacy" of parcels problematic.

Specific Aim Two: *To identify factors influencing the use of fresh and locally grown produce in Hamilton food banks including: perceived importance, benefits, drawbacks, barriers, facilitators, and future aspirations.*

The barriers and facilitators to using fresh produce in food banks which were identified by key stakeholders are important to understanding the relationship between the EFS and the food system more broadly and the

relationship between produce availability and its use by food bank clients.

Infrastructure, knowledge and networks were the major categories of factors influencing the procurement and distribution of fresh produce by food banks, many particulars being a facilitator in some ways and a barrier in others. Most stakeholders expressed a desire to see more fresh produce available through the EFS in the future, which would require that some of the limiting factors be addressed to ensure a more adequate and consistent supply.

In addition to the benefits identified through the nutritional survey, this research identified benefits of using fresh and local produce that apply outside of the EFS – specifically as regards community building and supporting the local farming economy. However, many clients have long-reported negative experiences and associations with the EFS and the use of fresh produce, and when quality does not meet their expectations, this may re-affirm these perceptions. Alternatively, the use of fresh and local produce may be associated with equality and empowerment for clients and as a starting point for moving from the current model of food assistance to a more socially just and sustainable food system.

Specific Aim Three: *To understand how the use of fresh and locally grown produce in food banks relates to food security and food system integration in Hamilton.*

Acknowledging the important role that the EFS currently plays in providing food to a number of households, as well as the physical and social

capital which have been invested into it as an institution, nutritional concerns with grocery parcels should be addressed through improvements to the food bank system. While clear benefits to the inclusion of fresh and locally grown produce in the EFS are noted in this study, it may also be argued that the time, effort and capital used to develop the EFS through initiatives such as providing fresh and local produce, only further entrench a problematic, charity-based model by diverting resources from advocating for and developing a more just and sustainable food system which practices a rights-based approach to food security.

So while providing fresh, local produce at food banks may work towards the integration of local food production, food assistance, and promotion of nutritional health, improving the food bank system will not be enough to overcome the good food gap. Key stakeholders discussed a number of qualities and values they see as important to the future of a successful food system that promotes food security. They also expressed the potential value of programs such as good food boxes, food stamps, farmers' market vouchers, household and community gardening, which may complement what is currently available to clients of food banks. Building from the EFS, particularly through the model of community food centres which may integrate these and other food programs with advocacy and action on the good food gap, can be an effective way to ensure our food system will meet all of our food security needs.

Significance to the Ecological Approach

In Chapter 2, I set up this study in the context of considering how the EFS – as a social and cultural response to food insecurity – structures dietary outcomes for those provided through this system. Even though many grocery parcels were meeting their nutritional targets, it must be noted that the EFS as a response to food insecurity is not, in relation to diet, a particularly effective response – there exists plenty of room for improvement in the average dietary quality of grocery parcels and the variability of parcel contents mean some parcels are not meeting the targets, and that not all households are receiving equivalent assistance.

From both the nutritional survey and interviews, it can be concluded that the inclusion of fresh and local produce makes an important contribution to the dietary quality of grocery parcels, a positive response within the EFS system. Consistent with an ecological model that recognizes interconnectivity, the benefits of providing fresh and local produce through the EFS are seen to extend more broadly than just for the clients receiving grocery parcels. Still, within the use of fresh and local produce by the EFS, it is perceived that response to the limiting factors, drawbacks and future aspirations would be beneficial. The tension expressed through this study in relation to the role of the EFS as part of a larger food system also suits the ecological model considered. This relationship is influenced by many factors and is dynamic and will continue to change and adapt in response to the strongly-held values and future directions of those involved.

Future Directions

Because the scope of this research was broad, rather than focused and in-depth, further investigation may, indeed, be warranted concerning several aspects of the study. Research into food availability (such as the current nutritional survey) would be well-complemented by approaches considering similar questions but using dietary data or nutritional status indicators for EFS clients. Studies which include tracking the sources for fresh produce at food banks could confirm the importance, proposed here, of the role of local produce. Also, it would be valuable to further our understanding of the seasonal variations in both fresh and non-perishable supplies at food banks (and to confirm the documented high sodium levels) by conducting surveys over the course of a full year.

I identified this study's qualitative results as a reasonable position from which to identify key findings for further investigation, recognizing that the development of evidence-based policy or practice guidelines likely values a more in-depth understanding of relevant topics. Given the suggestion that community food centres are an attractive option for both improving the food bank system and moving beyond emergency food, seeking stakeholder feedback on this model would be one such future direction.

Anthropological investigation, having a history of holistic and integrated perspectives, continues to have much to offer our understanding of food assistance and its role in a food system responding to a good food gap.

REFERENCES CITED

- Agriculture and Agri-Food Canada. 1998. *Canada's Action Plan for Food Security (1998): In response to the World Food Summit plan of action*. Ottawa, ON: prepared by a Joint Consultative Group.
- Agriculture and Agri-Food Canada 2009. Spending on food and beverages. *Canadian consumers*. <http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1170942402619&lang=eng#n2>. Accessed 4 July 2011.
- Akobundu, U.O., N.L. Cohen, M.J. Laus, M.J. Schulte, and M.N. Soussloff. 2004. Vitamins A and C, calcium, fruit, and dairy products are limited in food pantries. *Journal of the American Dietetic Association* 104: 811-813.
- Algert, S.J., A. Agrawal, and D.S. Lewis. 2006. Disparities in access to fresh produce in low-income neighbourhoods in Los Angeles. *American Journal of Preventative Medicine* 30(5): 365-370.
- Aliamo, K., E. Packnett, R.A. Miles, and D.J. Kruger. 2008. Fruit and vegetable intake among urban community gardeners. *Journal of Nutrition Education and Behaviour* 40: 94-101.
- Allen, P. 1999. Reweaving the food security safety net: Mediating entitlement and entrepreneurship. *Agriculture and Human Values* 16: 117-129.
- Anderson, M.D., and J. T. Cook. 1999. Community food security: Practice in need of theory? *Agriculture and Human Values* 16: 141-150.
- Apparicio, P., M.-S. Cloutier, and R. Shearmur. 2007. The case of Montréal's missing food deserts: Evaluation of accessibility to food supermarkets. *International Journal of Health Geographics*. doi: 10.1186/1476-072X-6-4
- Armstrong, D. 2000. A survey of community gardens in upstate New York: Implications for health promotion and community development. *Health and Place* 6: 319-327.
- Baker, L., P. Campsie, and K. Rabinowicz. 2010. Menu 2020: Ten good food ideas for Ontario. A *Metcalf food solutions* report. Toronto, ON: George Cedric Metcalf Charitable Foundation.
- BC Association of Farmer's Markets. 2010. The farmer's market nutritional and coupon project. <http://www.bcfarmersmarket.org/ind/fmncp.htm>. Accessed 20 May 2011.

- BC Ministry of Agriculture and Lands. 2006. B.C.'s food self-reliance: can B.C.'s farmers feed our growing population?
http://www.agf.gov.bc.ca/resmgmt/Food_Self_Reliance/BCFoodSelfReliance_Report.pdf. Accessed 27 January 2011.
- Beaulac, J., E. Kristjansson, and S. Cummins. 2009. A systematic review of food deserts, 1966-2007. *Preventing Chronic Disease* 6(3).
http://www.cdc.gov/pcd/issues/2009/jul/08_0163.htm. Accessed 4 July 2011.
- Biberstein, R., and M.-J. Daalderop. 2008. *The good food box: A manual*, 2nd edition. Toronto, ON: FoodShare Toronto.
- Bickel, G., M. Nord, C. Price, and W. Hamilton. 2000. *Measuring food security in the United States: Guide to measuring household food security*. Alexandria, VA: Office of Analysis, Nutrition and Evaluation, Food and Nutrition Service.
- Bodor, J.N., D. Rose, T.A. Farley, C. Swalm, and S.K. Scott. 2008. Neighbourhood fruit and vegetable availability and consumption: the role of small food stores in an urban environment. *Public Health Nutrition* 11(4): 413-420.
- Bougherara, D., G. Grolleau, and N. Mzoughi. 2010. How to make promises without having to fulfill them: An application to the food stamp program (SNAP) and rebate schemes. *Journal of Economic Issues* 44(4): 1085-1093.
- Borre K., L. Ertle, and M. Graff. 2010. Working to eat: Vulnerability, food insecurity and obesity among migrant and seasonal farmworker families. *American Journal of Industrial Medicine* 53: 443-462.
- Brownlee, M. and A. Cammer 2004. *Assessing the Good Food Box*. Saskatoon, SK: Community – University Institute for Social Research, University of Saskatchewan.
- Bunn, D., G.W. Feenstra, L. Lynch, and R. Sommer. 1990. Consumer acceptance of cosmetically imperfect produce. *Journal of Consumer Affairs* 24(2): 268-280.
- Canada's National Farmers' Union. 2010. *Losing our grip: How a corporate farmland buy-up, rising farm debt, and agribusiness financing of inputs threaten family farms and food security (or, "Serfdom 2.0")*. Saskatoon, SK: Canada's National Farmers' Union.

- Canadian Association of Food Banks. 2003. Something has to give: Food banks filling the policy gap. *The Canadian Association of Food Banks Submission to the Standing Committee on Finance 2003 Pre-Budget Consultations*. Toronto, ON: Canadian Association of Food Banks.
- Cash, S.B., E.W. Goddard, and M. Lerohl. 2006. Canadian health and food: The links between policy, consumers, and industry. *Canadian Journal of Agricultural Economics* 54: 605-629.
- Che, J., and J. Chen. 2001. Food insecurity in Canadian households. *Health Reports* 12(4): 11-22.
- City of Hamilton. 2010. Community food advisor program. <http://www.hamilton.ca/HealthandSocialServices/PublicHealth/Nutrition/CommunityFoodAdvisors.htm>. Accessed 10 July 2011.
- City of Hamilton 2011a. Ontario Disability Support Program – caseloads: May 2011. *Hamilton community wellness indicators*. <http://www.hamilton.ca/CityDepartments/CorporateServices/FinanceBudgetTaxes/CommunityWellness.htm>. Accessed 28 June 2011.
- City of Hamilton 2011b. Ontario Works – caseloads: May 2011. *Hamilton community wellness indicators*. <http://www.hamilton.ca/CityDepartments/CorporateServices/FinanceBudgetTaxes/CommunityWellness.htm>. Accessed 28 June 2011.
- Companion, M. 2010. Constriction in the variety of urban food pantry donations by private individuals. *Journal of Urban Affairs* 32(5): 633-646.
- Cotugna, N., C.E. Vickery, and M. Glick. 1994. An outcome evaluation of a food bank program. *Journal of the American Dietetic Association* 94: 888-890.
- CyberSoft Incorporated. 2003. NutriBase IV Clinical Nutrition Manager, version 4.71. Phoenix, AZ.
- Dallongeville, J., L. Dauchet, O. de Mouzon, V. Réquillart, and L.-G. Soler. 2010. Increasing fruit and vegetable consumption: a cost-effectiveness analysis of public policies. *European Journal of Public Health* 21: 69-73.
- Daponte, B.O., G.H. Lewis, S. Sanders, and L. Taylor. 1998 Food pantry use among low-income households in Allegheny County, Pennsylvania. *Journal of Nutrition Education* 30(1): 50-57.

- Derrickson, J.P., M.M.E. Widodo, and L. Jarosz. 1994. Providers of food to homeless and hungry people need more dairy, fruit, vegetable, and lean-meat items. *Journal of the American Dietetic Association* 94: 445-446.
- Dillinger, T.L., S.C. Jett, M.J. Macri, and L.E. Grivetti. 1999. Feast or famine? Supplemental food programs and their impacts on two American Indian communities in California. *International Journal of Food Sciences and Nutrition* 50: 173-187.
- Duffy, P., C. Zizza, J. Jacoby, and F.A. Tayie. 2009. Diet quality is low among female food pantry clients in eastern Alabama. *Journal of Nutrition Education and Behavior* 41: 414-419.
- Edwards-Jones, G. 2010. Does eating local food reduce the environmental impact of food production and enhance consumer health? *Proceedings of the Nutrition Society* 69: 582-591.
- Eicher-Miller, H., A.C. Mason, A.R. Abbot, G.P. McCabe, and C.J. Boushey. 2009. The effect of food stamp nutrition education on the food insecurity of low-income women participants. *Journal of Nutrition Education and Behavior* 41: 161-168.
- Engler-Stringer, R., and S. Berenbaum. 2007. Exploring food security with collective kitchens participants in three Canadian cities. *Qualitative Health Research* 17: 75-84.
- Environment Hamilton. 2011. Hamilton local food directory [electronic directory and map]. <http://www.environmenthamilton.org/food/>. Accessed 26 June 2011.
- Fano, T.J., S.M. Tyminski, and M.A.T. Flynn. 2004. Evaluation of a collective kitchens program: Using the population health promotional model. *Canadian Journal of Dietetic Research and Practice* 65: 72-80.
- FAO (Food and Agricultural Organization of the United Nations). 1996. Rome declaration on world food security, World Food Summit. Rome, Italy: FAO.
- Food Banks Canada 2010. *Safe food handling standards*. Toronto, ON: Food Banks Canada.
- Food Banks Canada n.d. *Best before and expiry dates*. Toronto, ON: Food Banks Canada.

- Freeman, B. 2001. *Hamilton: A people's history*. Toronto, ON: James Lorimer & Company Ltd. Publishers.
- Friedman, B.J. 1991. Urban and rural food agencies provide adequate nutrition to the hungry. *Journal of the American Dietetic Association* 91: 1589-1591.
- Gardner, J., K. Slingerland, and P. Fisher. 2004. Ontario Ministry of Agriculture, Food and Rural Affairs factsheet: What you should know about fruit production in Ontario. <http://www.omaf.gov.on.ca/english/crops/facts/04-045.htm>. Accessed 2 July 2011.
- Gibson. 1990. *Principles of nutritional assessment*. New York, NY: Oxford University Press.
- Glover, T.D. 2004. Social capital in the lived experiences of community gardeners. *Leisure Sciences* 26: 143-162.
- Gottlieb, R., and A. Fisher. 1996. Community food security and environmental justice: Searching for a common discourse. *Agriculture and Human Values* 3(3): 23-32.
- Green Venture. 2010. Hamilton community garden directory [electronic directory and map]. <http://www.naturallyhamilton.ca/community-gardening-hamilton>. Accessed 26 June 2011.
- Greger, J.L., A. Maly, N. Jensen, J. Kuhn, K. Monson, and A. Stocks. 2002. Food pantries can provide nutritionally adequate food packets but need help to become effective referral units for public assistance programs. *Journal of the American Dietetic Association* 102(8): 1126-1128.
- Guthman, J. 2008. Bringing good food to others: investigating the subjects of alternative food practice. *Cultural geographies* 15: 431-447.
- Hamelin, A.M., J.P. Habicht, and M. Beaudry. 1999. Food insecurity: Consequences for the household and broader social implications. *Journal of Nutrition* 129(2): 525S-528S.
- Hamilton Community Foundation. 2009. TPT II: Building strong communities. Hamilton, ON: Hamilton Community Foundation.
- Hamilton Economic Development Office. 2010. *Economic Development Strategy*, executive summary. Hamilton, ON: City of Hamilton.

- Hamilton Food Share. 2007. Frequently asked questions.
<http://www.hamiltonfoodshare.org/about-us/food-share-faq.htm>. Accessed 27 June 2011.
- Hamilton Food Share. 2010. *Hamilton hunger count 2010*. Hamilton, ON: Hamilton Food Share.
- Hamilton Partners in Nutrition (n.d.) Find a school near you.
<http://maps.partnersinnutrition.ca/list> Accessed 28 June 2011.
- Hamm, M.W., and A.C. Bellows. 2003. Community food security and nutrition educators. *Journal of Nutrition Education and Behaviour* 35: 27-43.
- Hampl, J.S., and R. Hall 2002. Dietetic approaches to US hunger and food insecurity. *Journal of the American Dietetic Association* 102(7): 919-926.
- Harris, J.E., P.M. Gleason, P.M. Sheean, C. Boushey, J.A. Beto, and B. Bruemmer. 2009. An introduction to qualitative research for food and nutrition professionals. *Journal of the American Dietetic Association* 109: 80-90.
- Health Canada. 2007a. *Income-related household food security in Canada: Canadian Community Health Survey Cycle 2.2, nutrition (2004)* Ottawa, ON: Office of Nutrition Policy and Promotion Health Products and Food Branch.
- Health Canada. 2007b. *Eating well with Canada's Food Guide*. Ottawa, ON: Health Canada.
- Health Canada. 2007c. *Eating well with Canada's Food Guide: What is a Food Guide serving of...grain products*. Ottawa, ON: Health Canada.
- Health Canada. 2007d. *Eating well with Canada's Food Guide: What is a Food Guide serving of...milk and alternatives*. Ottawa, ON: Health Canada.
- Health Canada. 2007e. *Eating well with Canada's Food Guide: What is a Food Guide serving of...meat and alternatives*. Ottawa, ON: Health Canada.
- Health Canada. 2007f. *Eating well with Canada's Food Guide: What is a Food Guide serving of...vegetables and fruits*. Ottawa, ON: Health Canada.
- Health Canada. 2010. Dietary reference intakes tables. *Dietary reference intakes*.
<http://www.hc-sc.gc.ca/fn-an/nutrition/reference/table/index-eng.php>. Accessed 20 November 2010.

- Health Canada. 2011. Household food insecurity in Canada in 2007-2008: Key statistics and graphics <http://www.hc-sc.gc.ca/fn-an/surveill/nutrition/commun/insecurit/key-stats-cles-2007-2008-eng.php#fn-np1>. Accessed 27 June 2011.
- Hendrickson, M.K., H.S. James, and W.D. Heffernan. 2008. Does the world need U.S. farmers even if Americans don't? *Journal of Agriculture and Environmental Ethics* 21: 311-328.
- Hinrichs, C.C. 2000. Embeddedness and local food systems: notes on two types of direct agricultural market. *Journal of Rural Studies* 16(3): 295-303.
- Hinrichs, C., and K.S. Kremer. 2002. Social inclusion in a Midwest local food system project. *Journal of Poverty* 6(1): 65-90.
- Hobbs K., W. MacEachern, A. McIvor, and S. Turner. 1993. Waste of a nation: Poor people speak out about charity. *Canadian Review of Social Policy* 31: 94-104.
- Hoisington, A., J. Armstrong Shultz, and S. Butkus. 2002. Coping strategies and nutrition education needs among food pantry users. *Journal of Nutrition Education and Behaviour* 35: 326-333.
- Hoisington, A., M.M. Manore, and C. Raab. 2011 Nutritional quality of emergency foods. *Journal of the American Dietetic Association* 111: 573-576.
- HPHS (Hamilton Public Health Services). 2007 *community food continuum: Stages to address food security*. Hamilton, ON: City of Hamilton
- HPHS. 2010. Nutritious food basket: Report BOH10024 to the Mayor and Board of Health Members. City of Hamilton Agendas, Minutes, Reports & Video: Board of Health. <https://www.hamilton.ca/CityDepartments/CorporateServices/Clerks/AgendaMinutes/BoardOfHealth/2010/September27BoardofHealthAgenda.htm>. Accessed 21 February 2011.
- HPHS. 2011. *Food access guide 2011*. Hamilton, ON: City of Hamilton.
- Huang, C.L. 1996. Consumer preferences and attitudes towards organically grown produce. *European Review of Agricultural Economics* 23: 331-342.
- IBM Corporation. 2010. IBM SPSS Statistics, version 19.0. Armonk, NY.

- Irwin, J.D., V.K. Ng, T.J. Rush, C. Nguyen, and M. He. 2007. Can food banks sustain nutrient requirements?: A case study in southwestern Ontario. *Canadian Journal of Public Health* 98(1): 17-20.
- Izumi, B.T., S.N. Zenk, A.J. Shulz, G.B. Mentz, and C. Wilson. 2011. Associations between neighborhood availability and individual consumption of dark-green and orange vegetables among ethnically diverse adults in Detroit. *Journal of the American Dietetic Association* 111: 274-279.
- Jacob, D. 2004. The fine art of feeding the hungry. *Gastronomica: The Journal of Food and Culture* 3(4): 14-20.
- Jerome, N.W., G.H. Pelto, and R.F. Kandel. 1980. An ecological approach to nutritional anthropology. In *Nutritional anthropology: Contemporary approaches to diet and culture*, ed. N.W. Jerome, R.F. Kandel, and G.H. Pelto, 13-45. Pleasantville, NY: Redgrave Publishing Company.
- Kaiser, L. 2008. Why do low-income women not use food stamps? Findings from the California Women's Health Survey. *Public Health Nutrition* 11(12): 1288-1295.
- Keller-Olaman, S.J., V. Edwards, and S.J. Elliot. 2005. Evaluating a food bank recipe-tasting program. *Canadian Journal of Dietetic Research and Practice* 66: 183-186.
- Kennedy, A., J. Sheeshka, and L. Smedmore. 1992. Enhancing food security: A demonstration program for emergency food centre providers. *Journal of the Canadian Dietetic Association* 53: 284-287.
- Kirkpatrick, S.I., and V. Tarasuk. 2008. Food insecurity is associated with nutrient inadequacies among Canadian adults and adolescents. *Journal of Nutrition* 138(3): 604-612.
- Kirkpatrick, S.I., and V. Tarasuk. 2009. Food insecurity and participation in community food programs among low-income Toronto families. *Canadian Journal of Public Health* 100(2): 135-139.
- Klesges, L.M., M. Pahor, R.I. Shorr, J.Y. Wan, J.D. Williamson, and J.M. Guralnik. 2001. Financial difficulty in acquiring food among elderly disabled women: Results from the women's health and aging study. *American Journal of Public Health* 91(1): 68-75.

- Kortright, R., and S. Wakefield 2010. Edible backyards: A qualitative study of household food growing and its contributions to food security. *Agriculture and Human Values*. doi: 10.1007/s10460-009-9254-1
- Lal, R. 2007. Anthropogenic influences on world soils and implications to global food security. *Advances in Agronomy* 93: 69-93.
- Larsen, K., and J. Gilliland. 2008. Mapping the evolution of 'food deserts' in a Canadian city: Supermarket accessibility in London, Ontario, 1961-2005. *International Journal of Health Geographics*. doi: 10.1186/1476-072X-7-16
- Maxwell, S. 1996. Food security: A post-modern perspective. *Food Policy* 21(2): 155-170.
- McCormack, L.A., M. Nelson Laska, N. I. Larson, and M. Story. 2010. Review of the nutritional implications of farmer's markets and community gardens: A call for evaluation and research efforts. *Journal of the American Dietetic Association* 110: 399-408.
- McCullum, C., E. Desjardins, V.I. Kraak, P. Ladipo, and H. Costello. 2005. Evidence-based strategies to build community food security. *Journal of the American Dietetic Association*. 105(2): 278-283.
- McIntyre, L., S.K. Connor, and J. Warren. 2000. Child hunger in Canada: Results of the 1994 National Longitudinal Survey of Children and Youth. *Canadian Medical Association Journal* 163 (8):961-965.
- Markowitz, L. 2010. Expanding access and alternatives: Building farmers' markets in low-income communities. *Food and Foodways* 18(1): 66-80.
- Meares, A. 1999. People at the centre of urban livestock projects. In *For hunger-proof cities: Sustainable urban food systems*, ed. M. Koc, R. MacRae, L.J.A Mougeot, and J. Welsh, 90-94. Ottawa, ON: The International Development Research Centre.
- Melchior, M., A. Caspi, L.M. Howard, A.P. Ambler, H. Bolton, N. Mountain, and T.E. Moffitt. 2009. Mental Health Context of Food Insecurity: a Representative Cohort of Families with Young Children. *Pediatrics* 124(4): E564-E572.
- Mendes, W. 2008. Implementing social and environmental policies in cities: The case of food policy in Vancouver, Canada. *International Journal of Urban and Rural Research* doi:10.1111/j.1468-2427.2008.00814.x

- Metcalf Foundation. 2010. Metcalf food solutions reports released.
<http://www.metcalffoundation.com/story.php/?id=167>. Accessed 26 May 2011.
- Mooi, E., and M. Sarstedt. 2011. *A concise guide to market research: The process, data, and methods using IBM SPSS Statistics*. New York, NY: Springer.
- Moran, E.F. 2008. *Human adaptability: An introduction to ecological anthropology*, 3rd ed. Boulder, CO: Westview Press.
- Morse, J.M., and L. Richards. 2002. *Readme first for a user's guide to qualitative methods*. Thousand Oaks, CA: Sage Publications, Inc.
- Murray, D.M., S.P. Varnell, and J.L. Blitstein. 2004. Design and analysis of group-randomized trials: A review of recent methodological developments. *American Journal of Public Health* 94: 423-432.
- Mykerezzi, E., and B. Mills 2010. The impact of food stamp program participation on household food insecurity source. *American Journal of Agricultural Economics* 92(5): 1379-1391.
- Neuman, W.L., and K. Robson. 2009. *Basics of social research: Qualitative and quantitative approaches*. Toronto, ON: Pearson Education Canada.
- Norman, G.R, and D.L. Streiner. 1994. *Biostatistics: The bare essentials*. St. Louis, MO: Mosby – Year Book, Inc.
- Ontario Association of Food Banks. 2010. Community harvest Ontario.
http://oafb.convio.net/site/PageServer?pagename=ch_home. Accessed 26 June 2011.
- Ontario Ministry of Community and Social Services. 2010. *2009 Annual report, Auditor General*. Official reports of debate for May 5th, 2010. Toronto, ON: Standing Committee on Public Accounts.
- Ontario Ministry of Community and Social Services, 2011a. Ontario Disability Support Program caseload May 2011. *Social assistance in Ontario: Reports*.
<http://www.mcass.gov.on.ca/en/mcass/programs/social/reports/index.aspx>. Accessed 29 June 2011.

- Ontario Ministry of Community and Social Services. 2011b. Ontario Works caseload May 2011. *Social assistance in Ontario: Reports*. <http://www.mcass.gov.on.ca/en/mcass/programs/social/reports/index.aspx>. Accessed 28 June 2011.
- Peleteiro, B., C. Lopes, C. Figueiredo, and N. Lunet. 2011. Salt intake and gastric cancer risk according to *Helicobacter pylori* infection, smoking, tumor site and histological type. *British Journal of Cancer* 104: 198-207.
- Pelto, G.H., A.H. Goodman, and D.L. Dufour. 2000 The biocultural perspective in nutritional anthropology. In *Nutritional anthropology: Biocultural perspectives on food and nutrition*, ed. A.H. Goodman, D.L. Dufour, and G.H. Pelto, 1-9. Mountain View, CA: Mayfield Publishing Company.
- Pelto, G.H., P.J. Pelto, and E. Messer, ed. 1989. *Research methods in nutritional anthropology*. New York, NY: United Nations University Press.
- People's Food Policy Project. 2011. Resetting the table: A people's food policy for Canada. <http://peoplesfoodpolicy.ca/> Accessed 12 July 2011.
- Perez-Escamilla, R., A.M. Ferris, L. Drake, L. Haldeman, J. Peranick, M. Campbell, Y.-K. Peng, G. Burke, and B. Bernstein. 2000. Food stamps are associated with food security and dietary intake of inner-city preschoolers from Hartford, Connecticut. *Journal of Nutrition* 130: 2711-2717.
- Phipps, S. 2003. The impact of poverty on health: A scan of research literature. In *Poverty and health: CPHI collected papers*. Ottawa, ON: Canadian Institute for Health Information.
- Pimentel, D., C. Kirby, and A. Schroff. 1993. The relationship between "cosmetic standards" for foods and pesticide use. In *The pesticide question: Environment, economics and ethics*, ed. D. Pimentel, and H. Lehman, 85-105. New York, NY: Routledge, Chapman & Hall, Inc.
- Pinstrup-Anderson, P. 2009. Food security: Definition and measurement. *Food Security* 1: 5-7.
- Poppendieck, J. 1994. Dilemmas of emergency food: A guide for the perplexed. *Agriculture and Human Values* 11(4): 69-76.
- Poppendieck, J. 1998. *Sweet charity? Emergency food and the end of entitlement*. New York, NY: Penguin Putnam Books.

- Porter, Catherine. 2010. Farmers' market vouchers help poor eat farm fresh. The Toronto Star, July 7. <http://www.thestar.com/>. Accessed 16 May 2011.
- Pothukuchi, K., H. Joseph, H. Burton, and A. Fisher. 2002. *What's cooking in your food system? A guide to community food assessment*. Venice, CA: Community Food Security Coalition.
- QSR International Pty Ltd. 2009. NVivo 8, version 8.0.332.0. Doncaster, Victoria, Australia.
- Radimer, K.L., C.M. Olson, and C.C. Campbell. 1990. Development of indicators to assess hunger. *Journal of Nutrition* 120: 1544-1548.
- Ricciuto, L.E., and V.S. Tarasuk. 2007. An examination of income-related disparities in the nutritional quality of food selections among Canadian households from 1986-2001. *Social Science and Medicine* 64: 186-198.
- Riches, G. 1986. *Food banks and the welfare crisis*. Ottawa, ON: The Canadian Council on Social Development.
- Riches, G. 2000. Reaffirming the right to food in Canada: The role of community-based food security. In *For hunger-proof cities: Sustainable urban food systems*, ed. M. Koc, R. MacRae, L.J.A Mougeot, and J. Welsh, 203-207. Ottawa, ON: The International Development Research Centre.
- Riches, G. 2002. Food banks and food security: Welfare reform, human rights and social policy. Lessons from Canada? *Social Policy and Administration* 36(6): 648-663.
- Rideout, K., G. Riches, A. Ostry, D. Buckingham, and R. MacRae. 2007. Bringing home the right to food in Canada: Challenges and possibilities for achieving food security. *Public Health Nutrition* 10(6): 566-573.
- Rose, D., and V. Oliveira. 1997. Nutrient intakes of individuals from food-insufficient households in the United States. *American Journal of Public Health* 87(12): 1956-1961.
- Rose, D., and R. Richards. 2004. Food store access and fruit and vegetable use among participants in the US Food Stamp Program. *Public Health Nutrition* 7(8): 1081-1088.

- Saldivar-Tanaka, L. and M.E. Kransy. 2004. Culturing community development, neighbourhood open space and civic agriculture: The case of Latino community gardens in New York City. *Agriculture and Human Values* 21: 399-412.
- Scharf, K., C. Levoke, and N. Saul. 2010. In every community a place for food: The role of the community food centre in building a local, sustainable and just food system. A *Metcalf food solutions* report. Toronto, ON: George Cedric Metcalf Charitable Foundation.
- Serecon Management Consulting Inc. 2005. *Canadian food trends to 2020: A long range consumer outlook*. Ottawa, ON: Agriculture and Agri-Food Canada.
- Sizer, F., and E. Whitney. 2003. *Nutrition: Concepts and controversies*, 9th edition. Toronto, ON: Wadsworth/Thompson Learning, Inc.
- Slocum, R. 2006. Anti-racist practice and the work of community food organizations. *Antipode* 38(2): 327-349.
- Spence, A. 2009. *Ontario hunger report 2009: Living with hunger*. Toronto, ON: Ontario Association of Food Banks.
- Starkey, L.J. 1994. An evaluation of emergency food bags. *Journal of the Canadian Dietetic Association* 55(4): 175-178.
- Starkey, L.J., K. Gray-Donald, and H.V. Kuhnlein. 1999. Nutrient intake of food bank users is related to frequency of food bank use, household size, smoking, education and country of birth. *Journal of Nutrition* 129: 883-889.
- Starkey, L.J., and H.V. Kuhnlein 2000. Montreal food bank users' intakes compared with recommendations of Canada's Food Guide to Healthy Eating. *Canadian Journal of Dietetic Practice and Research* 61(2): 73-75.
- Statistics Canada. 2007. *Hamilton, Ontario: 2006 community profiles, Catalogue no. 92-591-XWE*. Ottawa, ON: Statistics Canada.
- Statistics Canada. 2009. *Food in Canada, Catalogue no. 16-201-X, 11-46*. Ottawa, ON: Statistics Canada.
- Tarasuk, V. 2001. A critical examination of community-based responses to household food insecurity in Canada. *Health Education and Behavior* 28: 487-499.

- Tarasuk, V.S., and G.H. Beaton. 1999a. Household food insecurity and hunger among families using food banks. *Canadian Journal of Public Health* 90(2): 109-113.
- Tarasuk, V.S., and G.H. Beaton. 1999b. Women's dietary intakes in the context of household food insecurity. *Journal of Nutrition* 129: 672-679.
- Tarasuk, V., and N. Dachner. 2009. The proliferation of charitable meal programs in Toronto. *Canadian Public Policy* 35(4): 433-450.
- Tarasuk, V., and J.M. Eakin. 2003. Charitable food assistance as symbolic gesture: an ethnographic study of food banks in Ontario. *Social Science and Medicine* 56: 1505-1515.
- Tarasuk, V., and J.M. Eakin. 2005. Food assistance through "surplus" food: Insights from an ethnographic study of food bank work. *Agriculture and Human Values* 22: 177-186.
- Teron, A.C., and V.S. Tarasuk. 1999. Charitable food assistance: What are food bank users receiving? *Canadian Journal of Public Health* 90(6): 382-384.
- Trigger, B.G. 1994. The original Iroquoians: Huron Petun, and Neutral. In *Aboriginal Ontario: Historical perspectives on the First Nations*, ed. E.S. Rogers, and D.B. Smith, 41-63. Toronto, ON: Dundurn Press Ltd.
- USDA (United States Department of Agriculture). 2010a. Dietary guidelines for Americans 2010, 7th ed. Washington, DC: U.S. Government Printing Office.
- USDA. 2010b. WIC Farmers' Market Nutrition Program. <http://www.fns.usda.gov/wic/WIC-FMNP-Fact-Sheet.pdf> Accessed 18 May 2011.
- USDA. 2011a. Commodity Supplemental Food Program. <http://www.fns.usda.gov/fdd/programs/csfp/>. Accessed 27 June 2011.
- USDA. 2011b. Supplemental Nutrition Assistance Program. <http://www.fns.usda.gov/snap/>. Accessed 27 June 27.
- USDA. 2011c. Women, Infants, and Children. <http://www.fns.usda.gov/wic/>. Accessed 27 June 2011.
- Verpy, H., C. Smith, and M. Reicks. 2003. Attitudes and behaviours of food donors and perceived needs and wants of food shelf clients. *Journal of Nutrition Education and Behaviour* 35: 6-15.

- Wakefield, S. 2009. Community food security in Hamilton: Perspectives from the Campaign for Adequate Welfare and Disability Benefits meeting. In Minutes, Community Food Security Stakeholder Committee, Wednesday March 4, 2009. Hamilton, ON: City of Hamilton.
- Wakefield, S., F. Yeudall, C. Taron, J. Reynolds, and A. Skinner. 2007. Growing urban health: Community gardening in south-east Toronto. *Health Promotion International* 22(2): 92-101.
- Walker, R.E., C.R. Keane, and J.G. Burke. 2010. Disparities and access to healthy food in the United States: A review of food deserts literature. *Health and Place* 16: 876-884.
- Wehler, C.A., R.I. Scott, and J.J. Anderson. 1992. The Community Childhood Hunger Identification Project - a model of domestic hunger demonstration project in Seattle, Washington. *Journal of Nutrition Education* 24(1): S29-S35.
- West Highland Baptist Church. n.d. Victory Garden. <http://westhighland.org/gardenministriesp617.php>. Accessed 26 June 2011.
- Wicks, R., L.J. Trevena, and S. Quine. 2006 Experiences of food insecurity among urban soup kitchen consumers: insights for improving nutrition and well-being. *Journal of the American Dietetic Association* 106: 921-924.
- Wilkins, R., J.-M. Berthelot and E. Ng. 2002. Trends in mortality by neighbourhood income in urban Canada from 1971 to 1996. *Supplement to Health Reports*, 13. Ottawa, ON: Statistics Canada.
- Willows, N.D, and V. Au. 2006. Nutritional quality and price of university food bank hampers. *Canadian Journal of Dietetic Research and Practice* 67: 104-107.
- Winne, M., H. Joseph, and A. Fisher. 1997. *Community food security: A guide to concept, design, and implementation*. Venice, CA: Community Food Security Coalition.
- Winne, M. 2008. *Closing the food gap: Resetting the table in the land of plenty*. Boston, MA: Beacon Press.
- WHO (World Health Organization). 2003. *Diet, nutrition and the prevention of chronic disease, WHO Technical Report Series, no. 916*. Geneva: WHO.

WHO. 2004. *Global strategy on diet, physical activity, and health*. Geneva: WHO.

Yue, C., F. Alfnes, and H.H Jensen. 2006. *Discounting spotted apples: Investigating consumers' willingness to accept cosmetic damage in organic produce*. Ames, IA: Centre for Agricultural and Rural Development, Iowa State University

Zhao, J.Z., Q.S. Luo, H.B. Deng, and Y. Yan. 2008. Opportunities and challenges of sustainable agricultural development in China. *Philosophical Transactions of the Royal Society B-Biological Sciences* 363 (1492): 893-904.

APPENDIX 1 – Other Foods and Combination Foods

Assignment of grocery parcel contents as “other foods” for analysis

Food	Amount considered a single serving
Apple toaster strudel	1 strudel (112 g)
Cake/cupcake	35 g, ½ cupcake (compare to whole grain muffin as a grain products in CFG ^a)
Candy, fudge	30 g
Candy, hard	5 candies
Candy, chocolate-coated	1 package (32 g)
Canola oil	15 mL
Cereal bar	1 bar
Chicken broth, liquid	250 mL
Chicken broth, dehydrated	8.5 g (250 mL prepared)
Coleslaw with dressing	63.4 g (as per product label)
Condiment (e.g. relish, margarine, mayonnaise, jam or jelly)	1 Tbsp
Cookies	30 g (amount of 1 cracker serving in CFG)
Croissant, butter	½ croissant
Drink mix, simulated juice	250 mL prepared
Gelatin dessert (Jell-O/other)	1 cup prepared (4 servings per box)
granola bar	1 bar
Gravy, canned	30 g
Macaroni and cheese salad	75 g (as per product label)
Muffins, non-whole grain	35 g, ½ muffin (compare to whole grain muffin as a grain products in CFG)
Pickle, dill	65g
Potato chips or snack mix	30 g (amount of 1 cracker serving in CFG)
Pudding	1 snack cup or 119 g prepared
Sauces (e.g. BBQ sauce)	50mL
Scones	1 scone
Soup, dehydrated	15.75 g (250mL prepared)
Spread (e.g. table syrup, frosting)	2 Tbsp
Processed cheese and cracker snack pack	1 pack

a. CFG = Canada’s Food Guide (see Health Canada 2007b-f)

Assignment of grocery parcel contents as “combination foods” for analysis

Food	Food group equivalences used
Baked beans/sweet sauce, 100 mL	75 mL beans; 25 mL sauce*
Baked beans/tomato sauce, 100 mL	75 mL beans; 25 mL tomato
Beefaroni entrée, canned, 100 g	33 g pasta; 33 g meat; 33 mL tomato
Chicken à la king, canned, 100 mL	25mL meat; 25 mL veg.; 25 mL pasta;
Chicken/sauce entrée, frozen, 1	2 sv. meat; 1 sv. ^a sauce*
Chilli with beans, canned, 100 g	33 g meat; 33 g bean; 33 g veg.
Fruit punch, 10% juice, 100 mL	10 mL juice; 90 mL drink mix*
Macaroni/cheese dinner, 100g dry	75 g pasta; 25 g powdered milk
Pizza, cheese, small (8 slices)	6 sv. bread; 1 sv. veg.; 2.5 sv. cheese
Pizza, pepperoni, small (8 slices)	6 sv. bread; 1½ sv. meat; 1 sv. veg.; 2.5 sv. cheese
Pizza, Hawaiian, small (8 slices)	6 sv. bread; 1½ sv. meat; 1 sv. veg.; 0.8 sv. fruit; 2.5 sv. cheese
Pocket sandwich, beef/cheese, 1	2 sv. bread; 1 sv. meat; 1 sv. dairy
Pocket sandwich, pizza, 1	2 sv. bread; ½ sv. meat; ⅓ sv. tomato; 1 sv. cheese
Ramen noodles, dried, 30 g	1 sv. grain
Salad, beet and onion, ½ cup	1 veg.
Sandwich, turkey/Swiss/veg., 1	2 sv. bread; 1 sv. meat; 1 sv. veg.; 1 sv. cheese
Shepherd's pie entrée, 100g	33 g meat; 33 g potato; 33 g veg.
Shrimp penne entrée, 1 (226.7g)	76 g shrimp; 76 g pasta; 76 g veg.
Side dish, packaged, 30g dry	1 sv. grain
Soup, cream of veg., 100mL	25 mL milk; 25 mL veg.
Soup, cream of meat, 100mL	25 mL milk; 25 mL meat
Soup, lentil or bean, 100mL	50 mL beans
Soup, meat and grain, 100mL	25 mL meat, 25 mL grain
Soup, meat and veg., 100mL	25 mL meat, 25 mL veg.
Soup, minestrone, 100mL	25 mL beans; 25 mL veg.
Soup, veg., 100mL	33 mL veg.
Pasta/meatballs, canned, 100mL	33g pasta; 33g meat; 33 mL tomato
Pasta/tomato sauce, canned, 100mL	50 mL pasta; 50 mL tomato

* Indicates “other foods”. In general, a clear division - as either an other food or a combination of food groups - was preferred, but for these there seemed a very clear combination of a food group and an other food, warranting a few exceptions.

a. “Sv.” indicates servings as determined by Canada’s Food Guide (Health Canada, 2007b-f).

APPENDIX 2 – Households' Estimated Dietary Requirements

Household food group requirements used for calculating minimum days' equivalence (MDE)

Requirement for...	Grain Products	Meat & Alternatives	Vegetables Fruits	Milk & Alternatives
Male, age 31-50 ^a	8	3	8	2
Female, age 31-50 ^a	6	2	7	2
Girl, age 8	4	1	5	2
Boy, age 14	7	3	8	3
Family A (male and female adults, boy, girl)	25	9	28	9
Family B (female adult, girl, boy)	17	6	20	7
Family C (male adult)	8	3	8	2

Notes:

Requirements are based on the lower end of the range recommended in Canada's Food Guide (Health Canada 2007b)

- a. An adult age of 41 years was assumed (as the mid-point of the 31-50 range) for nutrient requirement calculations, where necessary

Acceptable Macronutrient Distribution Ranges (AMDR)

	Carbohydrates (% of energy)	Protein (% of energy)	Fat (% of energy)	Added sugars (% of energy) ^a
AMDR Ages 4- 18	45 -65 %	10 – 30 %	25 – 35 %	No more than 25 %
AMDR Ages 19+	45 -65 %	10 – 35 % ^b	20 – 35 % ^b	No more than 25 %

Notes:

- a. A Tolerable Upper Intake Level has not been set for added sugars; this is a recommended maximal intake

- b. AMDR for adults used for analysis since these encompass the ranges for children

Data Source: Health Canada 2010, p. 13

Estimated nutrient requirements for hypothetical family structures

Requirement for...	Calories *(kcal) ^b	Protein (g) ^c	Carbohydrates (g) ^d	Fat (g) ^e	Sugar (g) ^f	Sodium (mg) ^g	Sodium Density (mg/1000 kcal) ^h
Male, age 41 ^a	2148	56.0	130	83.6	134.3	2300	1071
Female, age 41 ^a	1714	45.6	130	66.7	107.1	2300	1342
Girl, age 8	1232	19.0	130	47.9	77.0	1900	1542
Boy, age 14	1958	51.9	130	76.1	122.4	2300	1175
Family A (male and female adults, boy, girl)	7052	172.5	520	274.3	440.8	8800	1248
Family B (female adult, girl, boy)	4904	116.5	390	190.7	306.5	6500	1325
Family C (male adult)	2149	56.0	130	83.6	134.3	2300	1071

Notes:

- a. An adult age of 41 years was assumed (as the mid-point of the 31-50 range used in Hamilton's Nutritious Food Basket [HPHS 2010]) for nutrient requirement calculations
- b. Estimated Energy Requirement (EER; Health Canada 2010, p. 3)
- c. Estimated Average Requirements (EAR; Health Canada 2010, p. 12)
- d. Recommended Dietary Allowance (RDA; Health Canada 2010, p. 12)
- e. Upper limit of Acceptable Macronutrient Distribution Range (AMDR; Health Canada 2010, p. 13)
- f. Recommended maximal intake of 25 % of energy, for added sugars (see above)
- g. Tolerable Upper Intake Level (UL) for sodium (2010, p. 11)
- h. Author's calculation based on UL for sodium and EER

APPENDIX 3 –Interview Guide: Food Bank Staff

1. Info about participant

- a. Can you tell me about the community you serve and how your role relates to their food needs? How long have you been in this role?
- b. Were you previously involved in the local food system or nutritional health? How and for how long?

2. Sources and uses of fresh and local produce

- a. Can you tell me a little about how this food bank operates?
- b. What are your sources of locally grown produce?
- c. What about sources of other fresh produce that isn't necessarily grown locally?
- d. How is fresh produce used in this food bank? (*i.e. Does it replace non-perishable products? Is it an extra that doesn't change the other foods given out?*)

3. Value of fresh/locally grown produce for food supply

- a. Would you say that the total amount of fresh produce that you get is significantly more than if you were to consider just the local sources? [*If yes, repeat b and c for all fresh food first, and then for just local food. If no then ask about locally grown food only*]
- b. For this food bank, how important would you say that fresh produce is as a source of food? Please explain why.
- c. To follow up on this topic, I would like to read you four statements about the use of local produce in your food bank. Please indicate your reaction to each – do you agree, disagree, or have mixed feelings?
 - *We rely on the amount of locally grown produce available as an important portion of our food supply (either we can buy less or we just have more because of it).*
 - *The locally grown produce we receive is important for our ability to provide balanced meals/snacks because fruits and vegetables are otherwise limited.*
 - *It is nice “extra”, but we must still rely mostly on our “regular” food supply.*
 - *It contributes almost nothing to our food supply.*

4. Non-food value of locally grown produce

- a. Are there any reasons why you would rather have fresh produce than having similar non-perishables? Are there any reasons why you might prefer having the non-perishables over the fresh produce?
- b. Now, if you consider specifically locally grown produce are there any reasons that you would prefer using it as opposed to imported fresh produce? Are there any reasons you would prefer the imported produce over what is available as locally grown produce?

5. Barriers and facilitators to including fresh and locally grown produce in programs/services

- a. What are some of the factors which are necessary for including fresh produce in your services, and that are currently in place here (so things that *facilitate* using fresh produce)?
- b. What are some of the factors (or barriers) which currently make it more difficult to include fresh produce in your services here, or limit you from including more fresh produce?

Now I have a few questions where I am going to explain what some people may think or feel about an issue and then I'd like to hear your reaction, okay?

6. The emergency food sector and food security

On any given day, food banks are doing something important by providing groceries and meals to those who need them. But sometimes, people think that it isn't very good to have charitable programs like food banks or free meal programs take care of people's food needs. This is because these charitable programs can make it look like hunger is being "taken care of" but the programs may not have stable long-term resources for doing their work. And also, sometimes people think that the government should be responsible for making sure people have enough to eat, and when it is charitable or community groups doing it instead the government is being "let off the hook".

- a. What do you think about this issue?
- b. What would be the best way for us to make sure everyone has enough to eat?

7. The emergency food sector and nutritional health

Recently, we have been hearing a lot about high rates of obesity and chronic diseases like heart disease and diabetes, and how eating a balanced diet is an important part of staying healthy. Unfortunately, many of the foods we are told are healthy are also expensive. Processed foods and foods that are high in sugar and fat may be more affordable when money is tight. When someone gets groceries from a food bank or gets free meals from a hot meal program they don't have much choice in what they eat. And the food bank or hot meal programs may not have much choice in it either, because many of their groceries are donated.

- a. What do you think about trying to eat a healthy diet when money is tight for someone, or if they are using food banks or hot meal programs?
- b. What do you think would be the best way for us to make sure everyone can eat a healthy, balanced diet?

8. Alternatives or future directions

What would you like to see, and what do you see as possible (perhaps in 15 years), if we had a food system that worked well and met everybody's needs?

APPENDIX 4 –Interview Guide: Food Bank Clients

1. Info about participant/household food supply

- a. Can you tell me a little bit about yourself (maybe whether you're from the area and how long you've been in Hamilton?) Just so I can ask the questions correctly, may I ask whether you live alone or with other people?
- b. Which of these statements best describes the food eaten in your household in the last 12 months:
 - Enough of the kinds of food (I/we) want to eat
 - Enough, but not always the kinds of food (I/we) want;
 - Sometimes not enough to eat
 - Often not enough to eat
- c. In the past 12 months, have you or someone in your household, received groceries from a food bank?
- d. In the past 12 months, have you or someone in your household, received a free meal from a hot meal program?

2. Opinions about fresh and local produce

- a. When you go the grocery store, would you normally choose fresh fruits and vegetables or canned, or frozen, if any? Why is that your preference?
- b. Do you prefer fruits and vegetable that are grown locally, ones that are imported, or do you have no preference? Why is that your preference?
- c. *[If participant reports no preference for b.]* Recently there has been a lot of interest and talk about “eating locally”. Things like farmer’s markets and gardening are being promoted. Do you think there are any benefits to eating locally produced foods? *[If yes, what are they? If no, why is it still promoted?]*

3. Household food production

- a. Do you grow or produce any of your own food? *[If no, skip to question 4]*
- b. How important are these foods for your household food supply?
- c. I’m going to read four statements that someone could make about food they produce for their household and how it contributes to their food supply. If you think about the food you produce, do you agree, disagree, or have mixed feelings about each?
 - I/we need less “other groceries” than normal because of the food I/we produce myself/ourselves.
 - I/we eat a more healthy diet because of food that I/we produce.
 - It is a little something extra, but I/we still rely mostly on my/our “regular” food supply.
 - It contributes almost nothing to my/our food supply.

- d. Aside from the food produced though [methods mentioned], are there any other benefits to doing [methods mentioned]?
- e. Are there any negative aspects of doing [methods mentioned]?
- f. Have you ever thought about using [methods mentioned] as an economic or business opportunity?

4. Sources of and opinions about emergency food

- a. What kinds of food are usually available from food banks? When somebody gets groceries from a food bank, where does that food come from?
- b. Does it matter whether food banks have fresh fruits and vegetables versus canned or frozen? Why or why not?
- c. Does it matter whether the fruits and vegetables at food banks are grown locally versus imported? Why or why not?

5. Barriers and facilitators

- c. Are there any things (any factors) that make it easier for you when the food banks are giving out fresh produce?
- d. Are there any reasons it becomes more difficult to use a food bank when there is fresh produce given out?
- e. How could these problems be fixed? Do you have any ideas about how food banks could or should get more locally grown food (or fresh produce)?

6. The emergency food sector and food security

- a. What are the common reasons some people have difficulty having enough to eat, or getting the types of foods they prefer?
- b. What do you think would be the best way for us to make sure everyone has enough to eat?

7. The emergency food sector and nutritional health

- c. Do you think it's possible to eat a healthy diet when money is tight for someone, or if they are using food banks? Why/Why not?
- d. If it is possible, what kind of things does someone have to do to make it work?
- e. What do you think would be the best way for us to make sure everyone can eat a healthy, balanced diet?

APPENDIX 5 – Analysis of Interview Content

Tree Note Organization Used to Analyse Interview Content with NVivo Software

