

An Evaluation of the Food Desert Definition in Durham, North Carolina

by

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ABSTRACT

Urban food deserts are low-income communities located more than one mile from a vendor that supplies affordable, healthy food options. According to the USDA, 11.5 million Americans nationwide live in food desert areas. Before policymakers can effectively address food deserts, however, the parameters of food deserts need to be more clearly defined. This research challenges the two primary criteria currently used by USDA to define food deserts, distance from a grocery store and community socio-economic status, and presents new characteristics, which are vital to a redefinition. Additionally, it highlights the many barriers to accessing fruits and vegetables in low-income communities, and how these barriers can be used to more comprehensively define food deserts within the context of Durham, North Carolina. This study conducted eight focus groups in low-income communities in Durham and Chapel Hill, North Carolina to determine barriers to accessing fruits and vegetables. Additionally, this study used geospatial (GIS) analysis to locate food deserts in Durham, using the USDA's criteria. The GIS map in this study used finer scale census block data to locate food deserts. Twenty-four major barriers to accessing fruits and vegetables emerged from the data. These barriers were found through researcher memos and qualitative coding in NVivo, a qualitative analysis software. From these twenty-four barriers, fourteen criteria were created to redefine food deserts. Each criterion was chosen based on how easily a local policymaker could access the data associated with the criterion. GIS results found that food deserts, when mapped with finer scale census block level data, more narrowly located food desert communities in Durham. The fourteen criteria used to define food deserts in this study, coupled with the GIS map produced from the study, could help Durham policymakers more accurately identify food deserts and help them devise more comprehensive policy solutions to eradicate them.

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I. Introduction

Background

A study conducted by the Economic Research Service of United States Department of Agriculture (USDA) in 2009 found that “approximately 11.5 million people within the U.S. (approximately 4.1% of the total U.S. population) live in low-income areas more than one mile from a supermarket” (USDA, 2009). A “food desert” is defined as a community in which people face both lack of access to a grocery store and low socio-economic status (2009). Although lacking access to grocery stores that sell affordable healthy food, many of these food desert communities also have extensive access to cheap, unhealthy processed foods, supplied by fast food restaurants and convenient stores (Black, 2009). As a result, many of these communities also struggle with obesity (2009). Understanding the factors that govern the food desert phenomenon, therefore, is important both from the perspectives of public health and social justice. Additionally, addressing the food desert issue nationwide could potentially have large environmental ramifications in the food system at large. Fruits and vegetables, in particular, are less resource intensive than foods containing meat. According to the USGS, it takes approximately 13 gallons of water to produce one orange (USGS, 2012). Comparatively, it takes approximately 4,000-18,000 gallons to produce a third a pound of beef for a hamburger (2012). Similar differences in numbers for energy use in production of fruits and vegetables when compared to meat products can also be found in the literature. These numbers suggest that if access to healthy foods, specifically fruits and vegetables, is increased in food desert communities, while access to meat products, such as fast food hamburgers, is decreased, then less resources will be used in the production of food products for these communities throughout the U.S.

Food deserts are now more relevant than ever before. In February of 2010 the Obama Administration released a statement announcing that a major goal of the Healthy Food Financing Initiative (HFFI), a collaborative effort among the U.S. Treasury Department, U.S. Department of Health and Human Services, and the USDA would be aimed at eliminating food deserts in the U.S. over the next seven years (USDHHS, 2010). Michelle Obama has become a major advocate of the initiative with her Let's Move campaign, a campaign geared

toward combatting America's childhood obesity epidemic (LetsMove.gov, 2012). Additionally, the USDA launched the "Food Desert Locator" in 2011 (Food Desert Locator, 2012). These initiatives, among several others across the U.S., have brought the subject of food deserts to the nation's attention.

The Food Desert Definition

The term "food desert" first was found in the common vernacular in 1990's British social and health policy literature, where the term was defined as "an area of relative exclusion where people experience physical and economic barriers to accessing healthy food" (Sparks, 2009). In the years since the 1990's, the term has evolved to describe what is now a complex and multi-faceted phenomenon facing our world's low-income communities, both urban and rural. One of the most influential changes to the food desert definition occurred in the 2008 Farm Bill. The 2008 Farm Bill defined a food desert as, "an area in the United States with limited access to *affordable* and nutritious food, particularly such an area composed of predominately lower income neighborhoods and communities" (Title VI Sec. 7527) (USDA, 2009). This definition not only standardized the definition of food deserts, but it also addressed the issue of affordability. The issue of affordability is key in understanding the greater food desert issue. Andrea Sparks of the U.S. Department of Housing and Urban Development (HUD) further refined this point of affordability in her definition of food deserts in 2009. According to Sparks, food deserts are defined as "areas in which residents lack reasonable, spatial access to 1) fresh fruits and vegetables, 2) foods from all the major food groups required for a 'modest but adequate diet', and 3) food items priced competitively compared to the same item in a higher income neighborhood" (Sparks, 2009). Later in 2009 the term "food swamp" came out as a means to better convey the message of the food desert (Black, 2009). A food swamp, as it was described in Black's article, is an area with an overabundance of high calorie foods found in fast food restaurants and convenience stores and a lack of abundance of healthy food options (2009). For the purposes of this paper, I have focused solely on urban food deserts, as defined by the Healthy Food Financing Initiative (HFFI) and the Food Desert Locator (Food Desert Locator, 2012, USDHHS, 2010). The Food Desert Locator is an interactive map

created by the Economic Research Service of the U.S. Department of Agriculture, which highlights the nation's food desert areas (Food Desert Locator, 2012). According to HFFI and the Food Desert Locator, food deserts are those areas that are both "low-income" and "low-access" (2012). "Low-income" areas are defined by HFFI as those areas with "a poverty rate of 20 percent or higher OR a median family income at or below 80 percent of the area's median family income" (Food Desert Locator, 2012). "Low access" areas are defined by HFFI as those areas with "at least 500 people and/or at least 33 percent of the census tract's population residing more than one mile from a supermarket" (Food Desert Locator, 2012). Census tracts that match both the "low income" and "low access" definitions above are defined as "food deserts" in the Food Desert Locator (2012).

An Evaluation of the Food Desert Definition

In doing the research work for this paper, I found that the definition of "food deserts," as typically stated, is not clear or complete. Therefore, this paper looks to define food deserts more clearly, so that policymakers can more confidently construct policy solutions to address them.

Through my research I look to challenge the way in which food deserts are currently defined, most specifically by the USDA and HFFI, and to start a discourse that more absolutely and comprehensively describes food deserts. I look to challenge the idea that food deserts are solely defined by distance from a grocery store and community socio-economic status. In this paper I will highlight the many different barriers and facilitators to accessing healthy food, most specifically fruits and vegetables, in food desert communities, and how the barriers, in particular, can be used to more comprehensively define food deserts. From the most commonly occurring barriers in the data I developed fourteen criteria that could be used effectively in a food desert redefinition. I will also highlight how both barriers and facilitators differ for a variety of communities throughout Durham and Chapel Hill. Through GIS analysis, I will highlight Durham's food deserts at a finer scale than is available through the USDA's Food Desert Locator. This map will then be used to compare the effect of scale on locating food deserts, as defined by the USDA, in Durham. Together the GIS map and the qualitative data collected on access barriers will better

identify food deserts in Durham, as well as redefine the criteria by which food deserts in Durham are currently characterized. Ultimately, the conclusions from this study could equip the Durham community with a more effective means by which to eradicate food deserts in the near and longer term.

Research Questions

To summarize, my research will answer the following three questions:

- Where are Durham's food deserts?
- What are the barriers low-income Durham residents face when accessing fruits and vegetables in their community?
- Can these barriers be used to expand on the USDA's definition of a food desert?

II. Methods

Two principle investigators were involved in this study: Lindsey Haynes Maslow, doctoral student in health policy at the University of North Carolina in Chapel Hill and myself. A third co-investigator Dr. Lucia Leone, a postdoctoral fellow in cancer health disparities at University of North Carolina in Chapel Hill, helped to conduct a few of the interviews and focus groups as well. Lindsey and the third co-investigator were involved in this study, because our research team was awarded a grant by the Triangle University Food Studies program. The grant, a partnership between Duke University and UNC Chapel Hill, was only awarded to students from the two universities, who collaborated on research. Because Lindsey and I were both doing healthy food access studies, she in Chapel Hill and I in Durham, we decided to collaborate in order to both receive grant funding for our research. Although the GIS portion of this research only focuses on Durham, the qualitative portion is broader in scope in that it focuses both on Durham and Chapel Hill, as a result of my collaboration with Lindsey.

Qualitative Methods: Interviews and Focus Groups

Epistemology and Theoretical Perspective

My research is largely influenced by my experiences as a community activist and a recent employee of an organization that works with food deserts in Tucson, Arizona. My research is influenced by both my epistemology and perspective. My epistemology is what Dr. George Noblit of the University of North Carolina School of Education calls the “standpoint epistemology” (Noblit, 2011). This epistemology holds that I only know what I know from a position as a researcher, as a community activist, and as a white Southern woman. In addition, this epistemology holds that I am as much an actor as a researcher, in my research with food deserts (2011). Lastly my perspective walks the line between constructivism and a participatory perspective, which also affects the lens through which I see and explain my research. Constructivism perspective holds that people construct multiple realities based on their experiences, and participatory perspective holds that both realities and findings are co-created by the researcher and the researched (Clark, 2011). Due to time constraints, I could not perform this research project with a wholly participatory perspective as was initially desired. Had I pursued a study that involved a wholly participatory perspective, I would have engaged in in-depth conversations with the community members (i.e. focus group participants) as I was collecting, analyzing, and reporting the data (Clark, 2011). I analyzed all of the data in this research and reported on the results through my researcher lens. Without the input of the focus group participants, I cannot have a wholly participatory perspective, which interprets the data from the perspective of the focus group participant, as well as the researcher (2011). Conclusively, therefore, my research is limited in the benefits it can bring to the focus group participants. I do plan, however, to share my results with all the participants involved in the study at the study's end.

Tradition of Inquiry

This study is an exploratory case study. The goal of this study is designed to explore the different perceptions of stakeholders on issues of food access. This study is defined as a case study for several reasons.

Case studies are used in qualitative research when a study is bound by place and time (Creswell, 1998). My study is *bounded* by the setting of Durham and Chapel Hill in summer and fall of 2011. The *theme* for my study involves exploring the obstacles lower income communities face in accessing fruits and vegetables in their communities. Another defining factor of a case study, Creswell explains, is the collection of data about the case from multiple different sources (1998). I collected data for this study from multiple different sources, most namely interviews, focus groups, and literature reviews. Lastly Creswell mentions that case studies spend a considerable time explaining the setting of the case (1998). A large piece of my study focuses on explaining the settings of the lower income communities in the study, and explores how or how not these settings affect access to fruits and vegetables.

Method: Interviews

The goal of the qualitative portion of the study is to assess the obstacles that low-income communities, both in Durham and Chapel Hill, face when trying to access fresh fruits and vegetables within their communities. To achieve this goal my research partner and I first interviewed “key informants.” Key informants were leaders of community groups, who regularly worked with low-income communities. Some of the key informants were associated with organizations that worked directly on issues of increasing food access to fruits and vegetables within low-income communities, while others did not. Although the key informants, who did not work on issues of food access, were not as knowledgeable about food access issues, they did provide unique insight into the everyday obstacles that low-income individuals face. For this reason, we considered them key informants. Additionally, we were able to reach more communities, who were not already collaborating with organizations working to increase food access in the community by using key informants not associated with food access groups. Key informant interviews were

conducted with one or two investigators present. All key informant interviews were audio-recorded and later transcribed by Lindsey and myself. All interview questions and procedures were approved by both Institutional Review Boards at Duke University and UNC Chapel Hill. For reference to IRB-related documents please refer to Appendix A. For a reference to the interview guide used for key informant interviews, please refer to IRB documents in Appendix A. We set up key informant interviews with five community organizations in Durham and five in Chapel Hill. We compensated all key informants with a gift card to a local grocery store. Although we did not code key informant interviews, information from the interviews helped to inform the “policy recommendations” and “future steps” portion of this paper.

Key informants were also valuable, because they helped us find low-income community members to participate in our focus groups. Key informants were given flyers to pass out among community members at their organizations.

Method: Focus Groups

Once the fliers from our key informants generated sufficient interest among community members, key informants helped us set up dates and times for focus groups to be held at the various community organization locations. Originally, I wanted to set up focus groups solely in food desert communities, but this was not possible, because 1) my GIS maps were not completed by the time we were ready to set up focus groups and 2) we did not have complete control of where the focus groups were conducted. Key informants reserved community centers for focus groups. Therefore, as researchers, we did not have control in determining the location for focus groups. The data collected, however, proved to be a rich data set, even though none of the focus groups were located in official food deserts, as defined by the USDA. All focus groups were, however, located in low-income communities.

My research partner and I elected to keep focus groups below 15 participants. We found that the ideal number of participants in a focus group was anywhere between six and ten participants. All focus group questions and procedures were approved by both Institutional Review Boards at Duke University and UNC Chapel Hill. For reference to IRB-

related documents please refer to Appendix A. For reference to the focus group moderator guide please refer to IRB documents in Appendix A. We categorized focus group questions under two larger research questions: What are the obstacles to accessing fruits and vegetables in your [the focus group participant's] community? And what would be possible facilitators or solutions to increasing access to fruits and vegetables in your community? Lindsey and I were present at each focus group. Lucia, the third co-investigator, and note takers were present at a few, but not all, focus groups. In most of the focus groups, Lindsey or I moderated the group, while the other person took notes. Halfway through a focus group we would switch roles. We audio recorded each focus group. After all focus groups were completed, audio recordings of the focus groups were transcribed by a professional transcriptionist. Later Lindsey and I checked transcriptions with the audio recordings. Prior to the focus group, we gave participants a short survey to fill out, inquiring about their background information. Following the focus group, we gave participants another short survey that gauged their interest in a program that was mentioned during the course of the focus group, the "veggie-mobile." We compensated all focus group participants with a grocery store gift card to a local grocery store at the end of the focus group. In total we hosted four focus groups in various communities throughout Durham and four focus groups in communities in Chapel Hill.

Quantitative Methods: GIS

The goal of this portion of the study was to see how a map of Durham's food deserts, mapped at a finer scale, compared to the USDA's Food Desert Locator map of Durham. In order to achieve this goal, I obtained a complete list of Durham's grocery stores, and input their addresses in Google Earth to get approximate geographic coordinates. I entered the coordinates in an excel sheet and converted them to decimal degrees, so that they could be imported into ArcMap, a geospatial analysis software. I projected point locations in ArcMap. Then I imported and projected Durham city parcels. Finally, I imported a network analyst data set for Durham, so that I could perform a network analysis of the data. A network analysis is a tool used in ArcMap that can be used to define a certain area around a single point, along road networks. For example, network analyses can be used to locate fire

stations, so that any given fire station is only a five-minute drive from all the surrounding neighborhoods it services. My network analysis used a one-mile distance radiating out from each grocery store along road networks.

III. Analysis

Focus Group Data Analysis

This study focuses primarily on the focus group data set. I uploaded all focus group transcriptions into NVivo, a qualitative data analysis software. My research partner and I did preliminary coding on two of the focus groups. We created codes in an open coding process, based on themes that emerged from the data. Subsequently, we convened for a preliminary coding conference in which we compared codes. We combined similar codes and defined the codes in a preliminary codebook. We also discussed discrepancies in codes and code definitions during the coding conference. Please refer to Appendix B for a reference to the codebook. We used this codebook in a second round of coding to code all focus groups. If a new code was found in the data, then the researcher, who found the code, shared it with the other researcher, indicated where she found it, and how she defined it. Every time a new code was added, we recoded all focus groups with the revised codebook. After we completed the second round of coding, the codebook consisted of 54 codes.

After coding was completed, I performed all the additional analysis for this paper individually in NVivo. I exported a code summary from NVivo, containing all the codes and their frequency of occurrence in each focus group. Finally I exported a node summary report that highlighted the overall frequency of occurrence of all the codes in the data set. To perform a more complete interpretation of the data, in the coding process my research partner and I wrote memos after coding each focus group. These memos teased out prevalent themes and interesting points from the focus group transcripts. Often the prevalent themes matched with the most frequently occurring codes. Other times prevalent themes were defined by several different codes, and, therefore, were not appropriately captured by the coding report. I only used my memos for the analysis used in this paper. I divided each memo into two categories under which themes were

organized: “barriers” that inhibit access fruits and vegetables in the community and “facilitators” that could improve access to fruits and vegetables in the community.

For further analysis I grouped focus groups together based on similarities in demographic characteristics. I thought that by grouping the focus groups based on demographic similarities a richer interpretation of the data could be achieved when compared to other methods of grouping. I, therefore, grouped focus groups under the follow categories: Latino, Elderly, and Predominately African American. For clarity, I have provided the following definitions for the aforementioned categories:

Latino refers to focus groups that were made up of participants of Latino descent.

All members of the El Centro focus group were of Latino descent. The El Centro focus group is the only focus group in this category.

Elderly refers to focus groups with an average age above 60. Both of the Senior Center focus groups had average ages well above 60. The average age of the female group was 69, and the average age of the male group was 75. These focus groups were the only two groups in this category.

Predominately African-American refers to focus groups that were made up of predominately African-American participants. Five focus groups were made up of predominately African-American participants. Only the Urban Ministries focus group in this category had two participants of Caucasian descent.

All focus groups were made up of predominately low-income participants by design. Key informants directed us to low-income participants for focus groups. Additionally, we were able to see the exact income status of participants through the pre-focus group surveys implemented prior to each focus group. Pre-focus group surveys provided background and demographic information about the participants.

I compiled results from the pre-focus group surveys in Excel. For the purposes of this study, I only used the pre-focus group survey results. Post focus group surveys provided information about participants' thoughts on the veggie van program, a program designed by my research partner Lindsey. These post focus group survey results were not used for the analysis in this paper. I used simple descriptive statistics to analyze the results of pre-focus group survey data.

Lastly, once all the major barriers and facilitators to accessing fruits and vegetables were teased out of the data, I made a list of barriers. From the barriers I created a list of criterion to help better define food deserts. Barriers for the list of criterion were extracted from 1) major barriers found in individual focus group coding summary reports (i.e. barriers that occurred more than 10 times in any given focus group) 2) major barriers found in research memos and 3) barriers identified as frequently occurring barriers in the project coding summary report. Frequently occurring barriers in the project coding summary report were barriers that were coded across five or more focus groups AND were coded more frequently than average. I then created criteria from those barriers, which had data that could be easily accessed through a local, state, or federal government entity. I wanted to use criteria, which had data that any local government official could access.

GIS Analysis

I performed a network analysis to locate Durham's food deserts. The network analysis highlighted the service area radiating out one mile from each grocery store location. I created this service area layer with the assumption that people walking to grocery stores in urban settings walk along roadways. The network analysis does not account for the presence or absence of sidewalks, transit, among other factors that may be involved in an individual's route to and from a grocery store. After I ran the network analysis, I used the "select by location" tool to select parcels, or individually owned land plots, within 100 feet of the network analysis dataset and layer. The select by location tool, highlights those areas of a map that are desired. In this case, the desired areas were those parcels within 100 feet of the network analysis data set layer. The typical U.S. highway road has a width of 12 feet (Shah, 2012). If a typical highway has approximately a maximum of four lanes going in each direction, then 100 feet would encompass the width of the entire road. Therefore, parcels selected within 100 feet of the road network, would seem a reasonable estimate from which to select parcels for even the widest of roads. Once I selected parcels within 100 feet of the road network, then I created a map layer from the selection. This map layer highlighted the areas of Durham that were not in a food desert (when using the definition of distance alone). Next, I used the extract tool to create a "food

desert” layer from the data set, which highlighted only those parcels that did not include parcels of the “non-food desert” layer. This layer, however, sometimes located a food desert in a parcel adjacent to a grocery store point. This phenomenon happened as a result of doing previous selections based off the network layer, rather than the grocery store point layer. To remedy this issue, I ran the extract tool again to eliminate from the food desert layer those parcels that were within 300 feet of a grocery store point. I found that one hundred feet was not effective in eliminating these parcels from the data set. Three hundred feet, however, worked very well. Once I used this last extract tool, I created the final “food desert” layer.

The last step was to overlay the food desert layer over a base map of 2010 Census median household income data. This base map highlighted, by block group, those areas of Durham with the lowest household income, as well as those with the highest. The combination of this census map with the food desert layer highlighted those areas of Durham that are most likely to be food deserts.

IV. Results

Focus Group Results

Overview: Demographics

I used descriptive statistics to explore the demographics of all the focus groups conducted. Table 1 summarizes the results found from these statistics.

Table 1

Characteristics of Focus Group Participants, N=68		
Characteristic	Number	Percent
Age	22-94 (mean of 52)	
Gender		
Male	21	30.9
Female	47	69.1
Race/Ethnicity		
White	14	20.6
African American	46	67.7
Latino	8	11.8
Education		
8th Grade or Less	8	11.8
Some High School	11	16.2

Characteristics of Focus Group Participants, N=68		
Characteristic	Number	Percent
High School or GED	23	33.8
Trade or Beauty School	3	4.4
Some College	13	19.1
College Graduate	5	7.4
More than College	5	7.4
Household Income		
Less than \$10,000	32	51.6
\$10,000-\$19,999	18	29.0
\$20,000 - \$29,999	8	12.9
\$30,000-\$49,999	3	4.8
\$50,000 or more	1	1.6
Did not answer	6	0.01
Marital Status		
Never been married	22	32.4
Married/living with partner	19	27.9
Separated	5	7.4
Divorced	14	20.9
Widowed	7	10.3
Did not answer	1	1.2
Receive Simplified Nutritional Assistance Program (SNAP) Benefits		
Yes	31	45.6
No	37	54.4
Women, Infants, and Children program (WIC), Temporary Assistance for Needy Families (TANF), Medicaid, Work First, Other		
Yes	31	45.6
No	32	47.1
Did not answer	5	7.3

For reference to demographic results of each individual focus group, please refer to Appendix C. The majority of focus group participants were female, African American, had the equivalent of a high school education or less, and made less than \$10,000. Over 45.6% of participants received SNAP benefits, and over 45.6% received some form of government aid in the form of WIC, TANF, Medicaid, Work First, or other.

Overview: Codes

Overall, my research partner and I used 54 codes to code the focus group data. According to the node summary report, i.e. coding summary report, exported from NVivo, “cost” was the most referenced code in all focus groups. Cost was referenced 357 times. Table 2 maps out all the codes and the frequency with which I coded to them. Codes for

community gardens, farmers' markets, restaurants, and veggie van are highlighted in green, because they are "focus group question codes" derived from focus group moderator guide questions. For example, all responses given for the community garden question in the moderator guide were coded with the focus group question community garden code, as well as an additional code that better described the thought being conveyed. Yellow highlighted numbers are those codes, which occurred the most across all focus groups. Codes that qualified under this yellow highlighted category, were those codes that showed up in 5 or more focus groups AND codes that showed up more than 42 times across all focus groups. The number 42 was found by averaging all the code frequencies, excluding numbers for the community garden, farmers' market, restaurant, and veggie van codes. Numbers for these codes were associated with focus group question codes and, therefore, were excluded from the analysis.

In the more detailed analysis below I will be highlighting the major barriers and facilitators to accessing fruits and vegetables across all the focus groups. All of the codes in the below table, except for those codes highlighted in blue, could be considered either a facilitator or a barrier, given the context in which the codes were mentioned. Focus group question codes are also considered neither a barrier nor a facilitator. In the analysis, I will highlight codes predominately mentioned as either a facilitator or a barrier.

Table 2

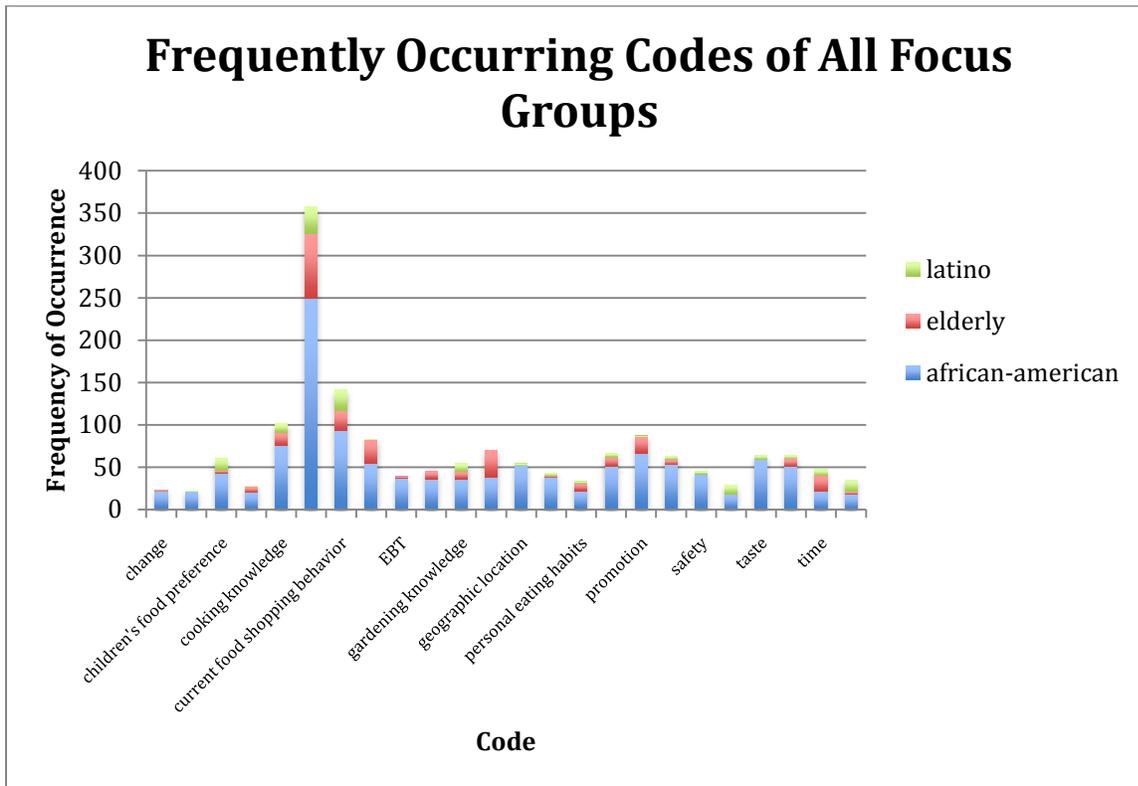
Code Summary		
Code Name	Number of Focus Groups Where Referenced	Number of References
Availability	2	12
Buying Local	5	24
Change	4	23
Child Health	5	22
Children's Food Preference	6	60
Cleanliness	5	17
Community Change	5	20
Community Garden	8	140
Community Need	8	28
Convenience	6	28
Cooking Facility	1	3
Cooking Knowledge	8	101

Code Summary		
Code Name	Number of Focus Groups Where Referenced	Number of References
Cost	8	357
Current Food Shopping Behavior	8	141
Current Produce Programs	8	83
Customer Service	2	8
EBT	6	29
Farmers' Market	8	130
Fast Food	5	35
Food Culture	4	25
Food Purchasing Past Culture	7	45
Food Safety	2	5
Gardening Knowledge	7	54
Generational Food Experience	6	70
Geographic Location	5	54
Healthy Food Stigma	4	8
Household Food Preference	3	4
Household Health	2	5
Language	1	7
Nutrition Assistance program	4	16
Nutrition Education	2	19
Nutrition Knowledge	7	43
Organic Preference	6	22
Organic Stigma	7	21
Perceived Health Benefits	8	35
Perishability	4	9
Personal Eating Habits	7	33
Personal Food Preference	7	66
Personal Health	8	32
Promotion	8	87
Quality	8	63
Restaurant	8	121
Safety	6	45
School Food	3	29
Storage	6	18
Taste	6	64
Time	8	47
Traditional Cuisine	2	10
Transportation	8	64
TROSA	1	21

Code Summary		
Code Name	Number of Focus Groups Where Referenced	Number of References
Trust	2	11
Variety	7	39
Veggie Van	8	183
Weather	4	14
Key ... = Most frequently occurring codes ... = Focus Group Question codes ... = Codes that are neither barriers or facilitators		

Figure 1 shows a further breakdown of the major barriers to accessing fruits and vegetables across all the focus groups. All of the codes in this graph were mentioned more than ten times in at least one focus group. Bars for the codes are divided according to demographic category. This division of the bars demonstrates how demographic categories compare to one another. For example, notice how safety was only a concern for the predominately African-American category when compared to other categories. In the below analysis of individual coding summary reports and memo reports, I will give a more detailed description of the barriers and where they most occurred.

Figure 1



Latino Focus Group Results

Coding Summary Report – Latino Focus Group

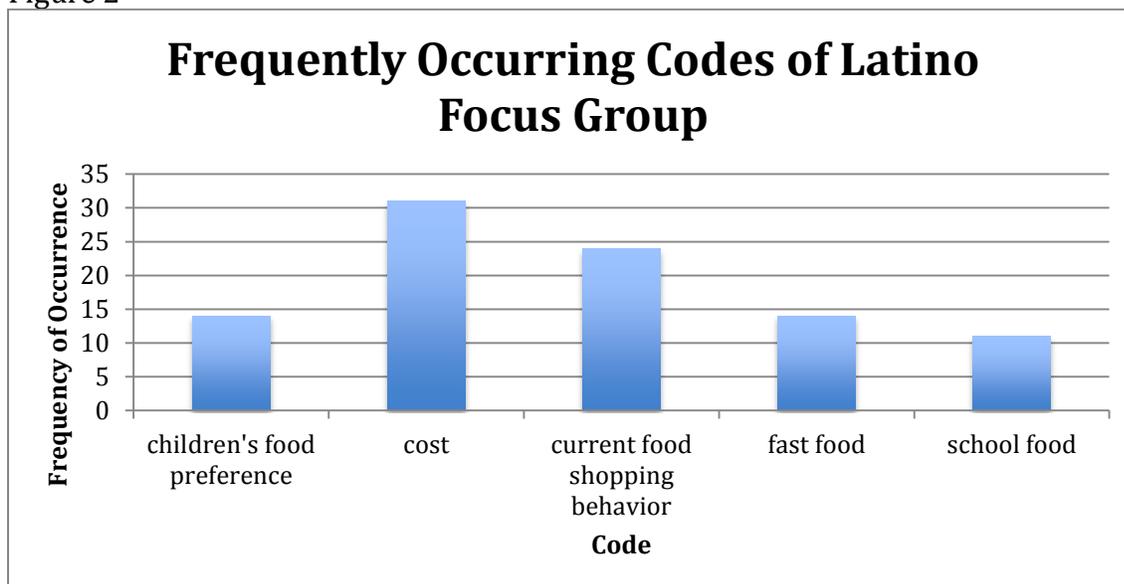
The El Centro focus group consisted of eight Latina women, between the ages of 23-55. The average age of the group was 35. Most of the women spoke Spanish as their first language. Although some of the women knew English, the focus group was conducted entirely in Spanish. My research partner and I hired a translator to conduct the focus group. We used a total of 37 codes to code the transcript. For reference to the coding summary report for El Centro, as well as all the individual focus groups please refer to Appendix D. El Centro is not located in a food desert area.

Overall, many of the themes that appeared in this focus group were unique when compared to other focus groups. Many of these unique themes were related to cultural differences between the women in the group and U.S. culture. Many of the women in the group were very knowledgeable about cooking. The women in this session had also been

involved in a nutrition class at El Centro, called PESA, for a few weeks by the time of the focus group. As a result, many of these women were fairly knowledgeable about nutrition.

According to the coding summary report exported from NVIVO, the code with the greatest frequency was "cost." This code occurred 31 times in the transcript. Other codes that showed up frequently, i.e. more than 10 times, included codes for children's food preference, current food shopping behavior, fast food, and school food. Please refer to Figure 2 for reference. This list of codes excludes focus group question codes. Of these codes four, cost, children's food preference, fast food and school food were mentioned predominately as barriers.

Figure 2



The following is a brief summary of the prevalent themes that emerged from the El Centro focus group data as laid out in the researcher memo I created after coding the transcript. This summary provides a more complete interpretation of the data, not captured by the coding summary report alone.

Memo Report – Latino Focus Group

Barriers

The most common barriers to accessing fruits and vegetables were cost, children's food preference, and language. The high cost of fruits and vegetables motivated the women in the group to shop around for lower prices. As one participant describes:

“We, at least I, use a lot of tomato and Food Lion, Kroger, and even Wal-Mart is very expensive. So you have to search, because it is too expensive” (Latino Focus Group, LFG).

Participants expressed that in addition to shopping around, they liked to visit the flea market, which generally had lower prices of fruits and vegetables that they liked. As one woman recounts:

“Yes, but I go to that one [flea market] that is far away, because it is very cheap. There I find plantains, lemons, and mangoes that are sold by boxes” (LFG).

As another woman describes,

“And also over there [at the flea market] you find different types of vegetables and fruits. There we find the guava” (LFG).

Language was another barrier for the women. Participants expressed that they were having trouble learning the names in English of the different fruits and vegetables. Some of the fruits and vegetables of the region were also new to the participants. One woman expressed difficulty in learning how to cook regional fruits and vegetables, with which she was unfamiliar:

“Something very curious happened to me, an American lady gave me one of those very long pumpkins, but the skin was very dark. She said that it was delicious. She never told me how that it was to be cooked” (LFG).

Women also described that their children's food preferences affected their consideration in purchasing more fruits and vegetables. Participants, such as this woman, expressed that her children wanted unhealthy snack foods, when they went out:

“I packed their two lunch boxes with watermelon and apple sauce and some cookies. But as soon as we entered Lincoln [a local health clinic], ‘Mommy I want potato chips,’ ‘Mommy I want potato chips’” (LFG).

Women felt that school lunches were affecting the food preferences of their children in a negative way:

“My oldest daughter is the only one that likes all of those things like pizza, hamburgers, hot dogs; maybe it is because of school. That is what they give them sometimes” (LFG).

Another participant expressed a similar sentiment:

“I do not have children, but I have a lot of friends that have children. Those that have started studying, once they get out of the house... they see McDonald’s and they tell their mothers that they want McDonalds, ‘I want french fries’ and that is after having just eaten [their lunch]” (LFG).

In the discussion about community gardens many participants expressed an interest in gardening, but found language to be a barrier. As one woman relayed her hesitancy to apply a pesticide on a garden plant:

“I bought a pesticide, I mean it was well explained and everything, but there are names that you do not know... There is nothing like someone telling you, ‘This can help you because it kills...’ [or] ‘it does not harm your body’, [or] ‘it is not harmful, but...’” (LFG).

Facilitators

The women of the Latino focus group mentioned three major facilitators: translated materials, community gardens, and gardening workshops. Participants suggested that recipes translated in Spanish would be helpful in encouraging them to purchase more fruits and vegetables. As one woman expressed, after a visit to Kroger, where she found a book of translated recipes helpful:

“The Kroger gave me some papers, and they had the pictures of what it [the vegetable] is... and they brought recipes in Spanish” (LFG).

Additionally women showed an interest both in community gardens and gardening workshops. More specifically, women of the group expressed that gardening workshops,

translated in Spanish and hosted at a cooler time of the day when the kids were at school, would encourage them to grow more vegetables at home.

Elderly Focus Group Results

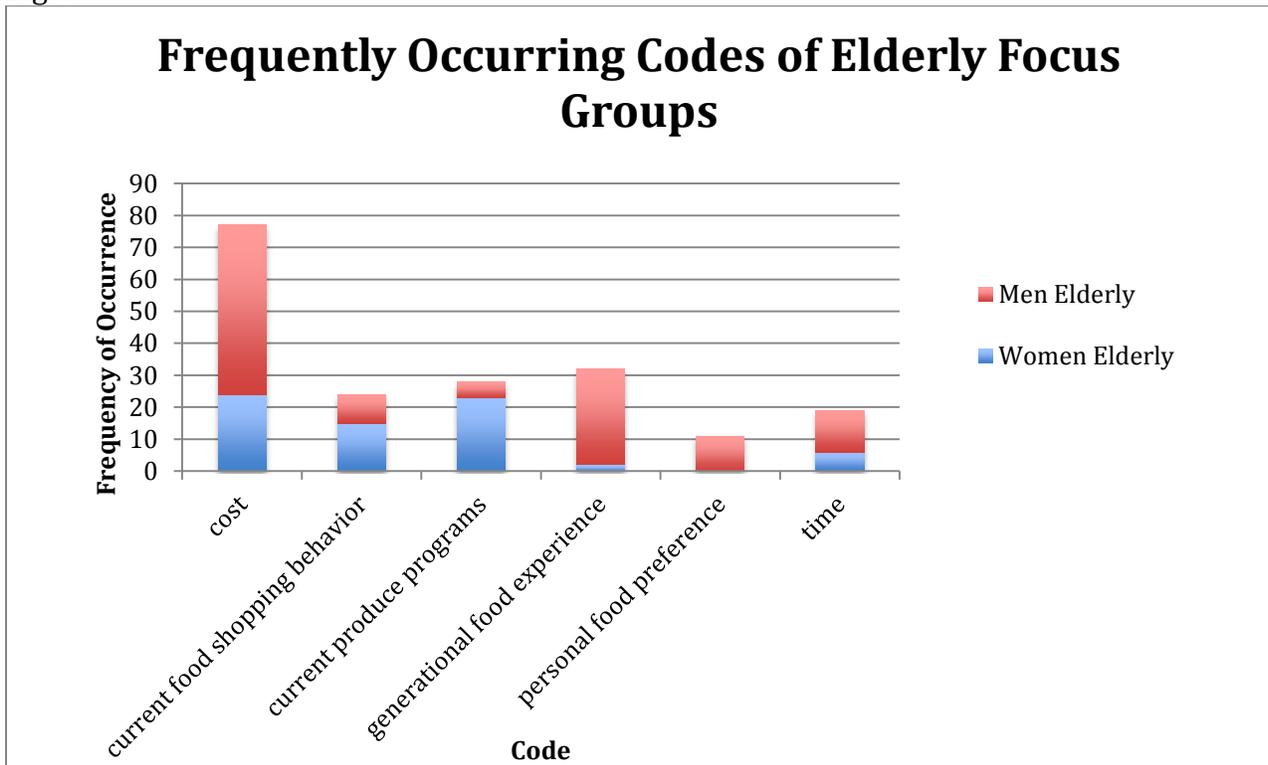
Coding Summary Report – Elderly Focus Group

My research partner and I conducted both of the focus groups that fell under this category at a senior center. One of the focus groups was an all female group, while the other an all male group. The ages of both of these groups ranged from 57-94. The average age of the male group was 75, and the average age of the female group was 69. The male group included 10 men, five who classified themselves as white and five African American. The female group included 11 women, seven who classified themselves as white and four African American. Additionally, although the senior center, where these focus groups were held, was more than one mile from a grocery store, it was not located in a low-income census block. Therefore, the senior center technically was not located in a “food desert.” The senior center at which these focus groups were conducted was not the place of residence for these participants, but rather a community center.

According to the coding summary report, cost was the most frequently occurring code. Across both focus groups cost showed up 77 times. Please refer to Appendix D for reference to the coding summary report. Please refer also to Figure 3. Other codes that showed up frequently (more than 10 times) included current food shopping behavior, current produce programs, generational food experience, personal food preference, and time. Generational food experience, personal food preference, and time were coded predominately as barriers. Current food shopping behavior and current produce programs were predominately coded as facilitators. Women in the female focus group talked about using thrifty shopping techniques, which allowed them to buy more fruits and vegetables. Women of the female focus group also shared with one another about the various produce programs in the community that made fruits and vegetables more available at affordable prices. In Figure 3 the bars for each code are divided by focus group. This division of the bars highlights the differences in barriers and facilitators between the male and female

elderly focus groups. For example, notice how generational food experience was a major barrier for the male elderly focus group but was not as major a barrier for the female elderly focus group.

Figure 3



Memo Report – Elderly Focus Group

Barriers

The most common barriers to accessing fruits and vegetables in the community voiced by the men of the male focus group were cost and generational food experience. The most common barriers voiced by women of the female focus group were cost, lack of promotion about food aid programs and sales, weather, storage, and difficulty using farmers’ market vouchers.

Generational food experience appeared to be a barrier for many of the participants of the male focus group. Two male participants mentioned that their wives used to cook for them. As they grew older, however, their wives cooked less and thus they ate less fruits and vegetables in the home. As one participant explained:

“I’m talkin’ or speakin’ of myself—the women don’t want to cook no more now. They’ll tell you right quick, we’re going out to eat, I ain’t cooking nothing, you know? So you don’t find women like my mother, my mother with fifteen meals a day, and you come home and there was always a good meal waitin’ for them. But now, your wife look at ya like, ‘I don’t feel like messin’ in no kitchen’” (Male Elderly Focus Group, MEFG).

The topic of “eating out” and not cooking in the home also came out as a recurring barrier for men in the group to accessing and cooking more fruits and vegetables in their home. As one participant explained:

“I do [go out to eat a lot]. ‘Cause I can’t cook! And it’s cheaper for me to go out and eat than to cook somethin’ at home, you know, for one or two people” (MEFG).

Participants of this group also touched on the differences in food experiences that children today have versus those of past generations. As one participant described:

“So with kids now, with kids now grewed up, they don’t eat vegetables. You know? They want French fries” (MEFG).

Participants in the women’s focus group mentioned that they had a general lack of knowledge about the food aid programs and sales available to them, so that they could access more fruits and vegetables in their community. Bad weather, particularly hot weather, also seemed to be a barrier among the women, when shopping at farmers’ markets. Women did not want to shop at an outdoor farmers’ market when the weather was hot. Additionally, storage was a barrier among the women. Participants expressed how hard it was to transport produce from one place to another, both via walking and via public transit. As one participant described:

“There’s a lot of people I’ve seen, a lot of people on the Easy Rider. So where would they put the food? That’s an excellent point. You know, because I’m just... I’m still driving, barely, but I’m still driving. So I’ve got the choice of throwing it in the trunk” (Women’s Elderly Focus Group, WEFG).

Difficulty using farmers’ market vouchers was also a barrier expressed by the women. Some of the women of the group had access to senior farmers’ market vouchers, a

food aid program that gives senior citizens the opportunity to purchase vegetables at farmers' markets, but had difficulty using the vouchers at markets. As one woman expressed:

"I don't know what your experience was, but last year, when I was TRYING to use the vouchers, I found several people that would not take them" (WEFG).

Facilitators

The men were receptive to the idea of a veggie van coming to the senior center to deliver fruits and vegetables. Two of the men suggested that the veggie van come later in the day, so that senior citizens could buy vegetables in the afternoon and take them directly home. Half of the men in the group were also receptive to the idea of community gardens as a means to introduce more fruits and vegetables into the community.

A majority of the women mentioned using thrifty shopping techniques to increase their access to fruits and vegetables, through sales and other means. Therefore, many of the women thought that better promotion of sales and food aid programs in the area would help them access more fruits and vegetables in the community.

Predominately African-American Focus Group Results

Coding Summary Report- Predominately African-American Focus Group

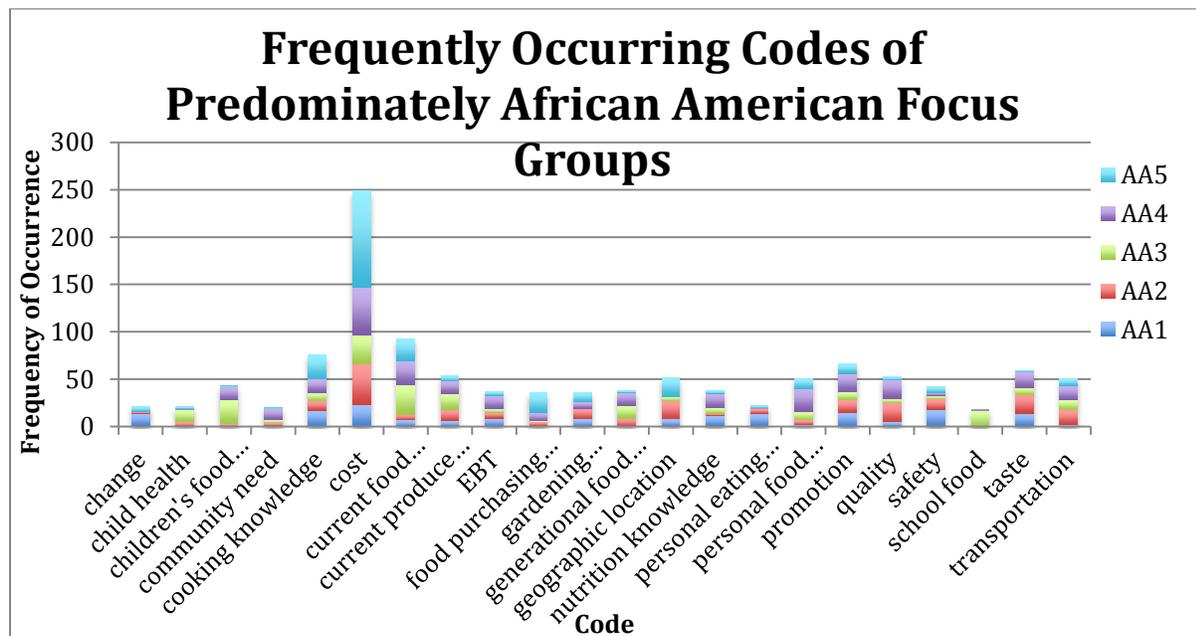
Five focus groups fell under this category. Participants in those five focus groups ranged in age from 22-67. The focus groups ranged in size from 6-10 people. Of all the focus groups in this category 37 of the 39 participants were African American and 2 of the participants were white.

None of the focus groups were located in a true food desert, i.e. more than a mile from a grocery store and in a low-income census block. Three of the focus groups were located very close to a grocery store, and the other two were within a mile of a grocery store. My research partner and I hosted two of the focus groups at the same public housing complex in Chapel Hill on different days. We hosted one of the focus groups at a drug rehabilitation community center for low-income Durham residents, another at a Durham

community center, and another at a Durham restaurant, all situated in low-income neighborhoods.

Cost again was the most common barrier among all of these focus groups. Across all focus groups the code for cost occurred 249 times. Please refer to Appendix D for reference to the coding summary report. Please refer to Figure 4 for reference to frequently occurring codes. The most frequent codes were cooking knowledge, cost, current food shopping behavior, current produce programs, geographic location, personal food preference, promotion, quality, taste, and transportation. In Figure 4 the bars for each code are divided by focus group. This division of the bars highlights the differences in barriers and facilitators among the focus groups in this category. For example, notice how school food was a major barrier in one focus group, but not shared across all focus groups. Transportation, on the other hand, was a barrier shared across all the focus groups in this category.

Figure 4



Of the above frequently referenced codes only six, child health, cooking knowledge, current food shopping behavior, current produce programs, nutrition knowledge, and gardening knowledge were predominately mentioned as facilitators. Concern about child health encouraged respondents to shop for healthier foods generally. Across all five focus

groups participants demonstrated cooking knowledge with vegetables and expressed a desire to cook more with vegetables. Cooking knowledge occurred 76 times across all groups. Similarly to other focus groups, participants shared with one another thrifty food shopping techniques and information about local produce programs that helped them purchase more fruits and vegetables. Participants of the groups in this category expressed a desire to learn more about nutrition and gardening, so as to increase access of more healthy foods in the community. The remaining codes were predominately mentioned as barriers.

The following is a brief summary of the prevalent themes that emerged from the predominately African-American focus groups as laid out in my memo report.

Memo Report- Predominately African-American Focus Group

Barriers

The topic of school food and children's food preferences came up as barriers in two focus groups. Similarly to the El Centro focus group, one of these groups mentioned how school food was affecting the food preferences of children in the community. Participants thought that school food was contributing to the dislike many children in the community had for more nutritious foods. As one participant described her son's experience with school food:

"Mainly they put some healthy stuff in the school system, my son say it don't have no taste to it, like they don't... I know you shouldn't put salt and pepper in everything, but, you could still cook it up where it have a taste where the child would be interested in eatin' it" (African-American Focus Group, AAFG).

Women in both groups talked in great detail about ways to get kids in the community eating more healthfully. Women said that "leading by example" and eating vegetables with children was a good avenue through which to get children eating more fruits and vegetables.

The topic of safety came up in two focus groups as a barrier to accessing more fruits and vegetables. Safety was brought up in both groups with regard to community gardens and a veggie van program. Participants of both groups thought that placing a community

garden in their communities would not be a good idea for fear of vandalism. One participant described the vandalism that a church community garden close by had experienced:

“People just walk by and just pick em! I mean, when they first started it was really nice. But then, you know how people that walk in the neighborhood, and they just go tear up stuff, and they’ll get... only for a reason that only they and God know” (AAFG).

Transportation was also brought up as a barrier in two focus groups. Interestingly, both of these focus groups were hosted in areas in close proximity to grocery stores. In one focus group lack of transportation options made it difficult to travel to other parts of the city to access quality produce. One participant described that, although she would like to visit the downtown Durham farmer’s market, she had no means to get there. In the other focus group two of the participants mentioned that they had trouble walking to the store or carrying groceries from the store on foot to their homes close by.

Two focus groups expressed that taste and resistance to a change in eating habits were barriers in their communities. These barriers were mentioned in response to the healthy restaurant question. Both groups were concerned about taste of the food in the healthy restaurant. Furthermore, both groups seemed to think that such a restaurant would not succeed in their communities. Some participants of one group expressed that they were used to the traditional “soul food” of the area and voiced that they would not be as welcoming to other healthier foods or healthier ways of cooking. As one participant exclaimed:

“To be honest, I’m afraid to change. If I change to healthier food, I’d probably die” (AAFG).

Other barriers that came up in focus group discussions but were not shared across multiple focus groups, i.e. two or more focus groups, were fast food, quality, and cleanliness.

Fast food was brought up by one focus group as a type of barrier to kids eating more healthy food options. As one participant described:

“You know, that’s not fair to the kids. You know, it’s really not fair, but I think a parent, now they need to stop... I mean and that fast food. Forget Burger King or Hardees, that’s why we so not healthy” (AAFG).

Quality of produce was a major barrier for one focus group. Participants of this focus group expressed concern about the quality of produce in a local produce store. The bad quality of produce, discouraged some participants from buying fruits and vegetables in the store. As one participant described:

“It’s not just that, it’s the quality of the produce that they’re puttin’ in the stores for us to eat. Yeah, so you know... it’s not readily available to us” (AAFG).

Another barrier that was mentioned in one focus group was cleanliness. The participants of this focus group had a long conversation about how cleanliness was important to them in places where they purchased food, especially in restaurant settings. As one participant described when talking about a recent experience she had in a restaurant:

“You can’t take that nasty money and think you’re gonna fix MY food!... Whoa! When... is you gonna wash your hands?” (AAFG).

Facilitators

Participants of focus groups in this category mentioned a variety of facilitators. Some facilitators were shared across three or more focus groups. These facilitators included community gardens, a veggie van program, and cooking classes. Three or more focus groups also shared, not only a demand for more fruits and vegetables in the community, but a demand for “fresh” fruits and vegetables, rather than frozen or canned fruits and vegetables. Other suggested facilitators that were shared by two or fewer focus groups in this category, included improving school food, encouraging kids to eat healthier foods by “leading by example,” and improving quality and variety of produce available in the community.

Focus Group Results: Creating Criteria for Food Desert Definition

The following table is a list of barriers, compiled from major barriers found in individual focus group coding summary reports, researcher memos, and the project coding summary report. Frequently occurring barriers of the project coding summary report are those that showed up in five or more focus groups AND occurred more than 42 times.

Table 3

Major Barriers		
Code Name	Number of Focus Groups Where Referenced	Number of References
Change	4	23
Children's Food Preference	6	60
Cleanliness	5	17
Community Need	8	28
Cost	8	357
EBT	6	29
Fast Food	5	35
Generational Food Experience	6	70
Geographic Location	5	54
Language	1	7
Nutrition Assistance program	4	16
Personal Eating Habits	7	33
Personal Food Preference	7	66
Personal Health	8	32
Promotion	8	87
Quality	8	63
Safety	6	45
School Food	3	29
Storage	6	18
Taste	6	64
Time	8	47
Transportation	8	64
Variety	7	39
Weather	4	14
Key ... = Most frequently occurring codes of the project coding summary report, which occur in five or more focus groups AND occur more than 42 times ... = Barriers that could be used as potential criterion		

I found that, of the barriers listed above, fifteen had data that could be easily accessed by a policymaker through a local, state, or federal governmental organization. These fifteen are highlighted in pink as potential criteria. Two of the fifteen, language and safety, I thought would be better used, not in the identification of food deserts, but in the formulation of policy solutions to increase access in food desert areas.

From the thirteen barriers (excluding language and safety), I fashioned the following criteria to define food deserts shown in Table 4. Household median income is a criterion used by USDA to identify food deserts. Although this criterion was not derived from the barriers found in this research, it was added to the list of criteria. Instead of including household median income at the census tract level, however, I included household median income at the finer scale census block level.

Furthermore Table 4 explains specifically from which barrier, each of the criteria was fashioned, and suggests places a policymaker could access the data for each criterion.

Table 4

Criteria for Defining Food Deserts		
Criteria	Associated Barrier	Suggested Places to Access Data
Household Median Income (Census Block Level)	N/A	U.S. Census Data (2010)
Cost of Fruits and Vegetables	Cost	Local Grocery Stores
Number of Stores That Accept EBT	EBT	State and County Health Departments; City Food and Nutrition Services
Number of Fast Food Restaurants Present	Fast Food	Local Chamber of Commerce or Economic Development Office
Length of Time There Has Been Lack of Access	Generational Food Experience	City Historical Records
Distance from Grocery Store	Geographic Location	USDA Food Desert Locator
Nutrition Assistance Programs available	Nutrition Assistance program	State and County Health Departments; City Food and Nutrition Services; Community Survey
Obesity and Diabetes Rates in the Community	Personal Health	State and County Health Departments
Success of Promotion of Nutrition Assistance Programs	Promotion	State and County Health Departments; City Food and Nutrition Services; Community Survey
Quality of Produce in Community	Quality	Local Grocery Stores; Community Survey
Feasibility of Transporting	Storage	Local Transit Authority

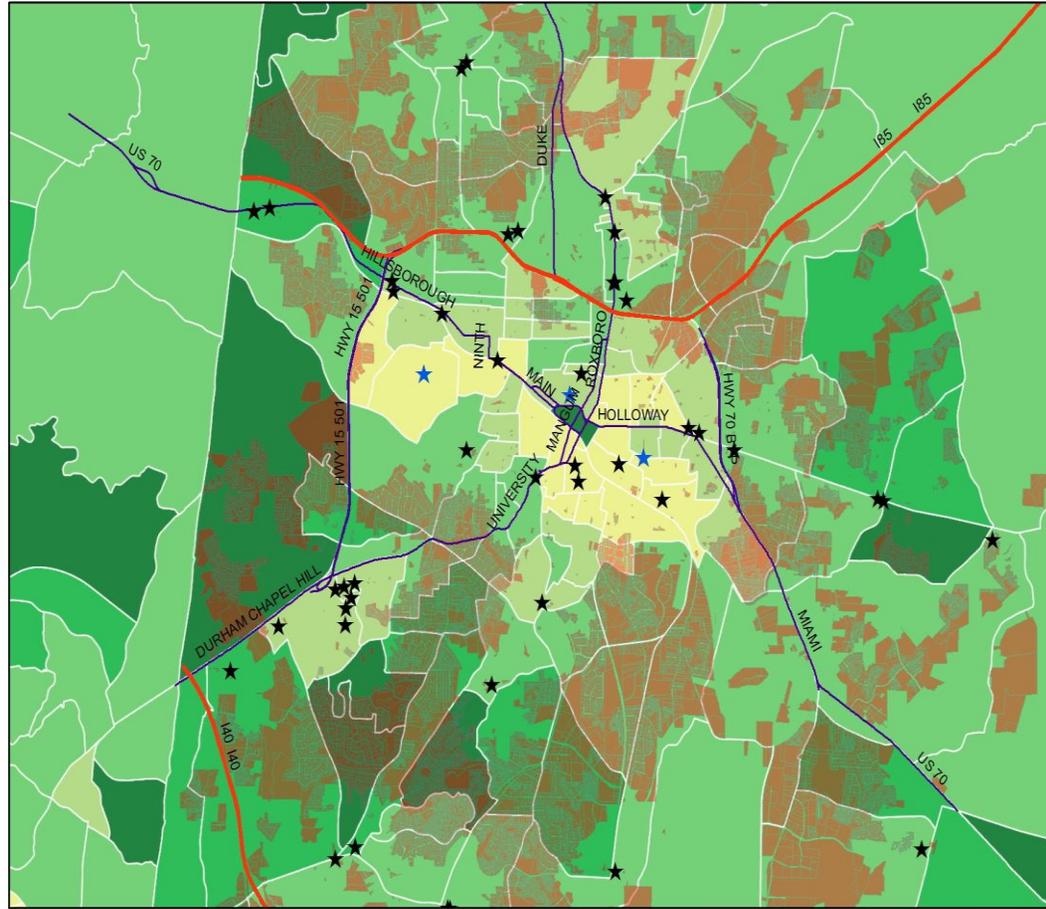
Criteria for Defining Food Deserts		
Criteria	Associated Barrier	Suggested Places to Access Data
Multiple Bags on Public Transportation		
Time it Takes to Shop for Produce in the Community	Time	Local Transit Authority; Community Survey
Mode of Transportation Available Within Short Walking Distance of Residence	Transportation	Local Transit Authority; Community Survey
Other Food Vendors and Farmers' Markets	Variety	Local Chamber of Commerce or Economic Development Office

GIS Results

Figure 5 includes the results for the GIS analysis. Parcels, individually owned land plots, highlighted in red indicate areas located more than a mile from a grocery store. Black stars are grocery store locations, and blue stars are farmers' market locations. The areas, which are colored yellow and the lightest shade of green, are the lowest income census blocks.

Figure 5

Areas Located More Than One Mile From a Grocery Store in Durham, North Carolina



Legend

2010 Median Household Income

- \$84,001 to \$375,000
- \$70,001 to \$84,000
- \$41,001 to \$70,000 (Mean: \$55,265)
- \$27,001 to \$41,000
- \$0 to \$27,000
- Zero Population

- ★ farmers' markets
- ★ supermarkets

- Interstates
- US Highways
- >1mi from a store

0 3,050 6,100 12,200 18,300 24,400 Feet

Parsons 2012

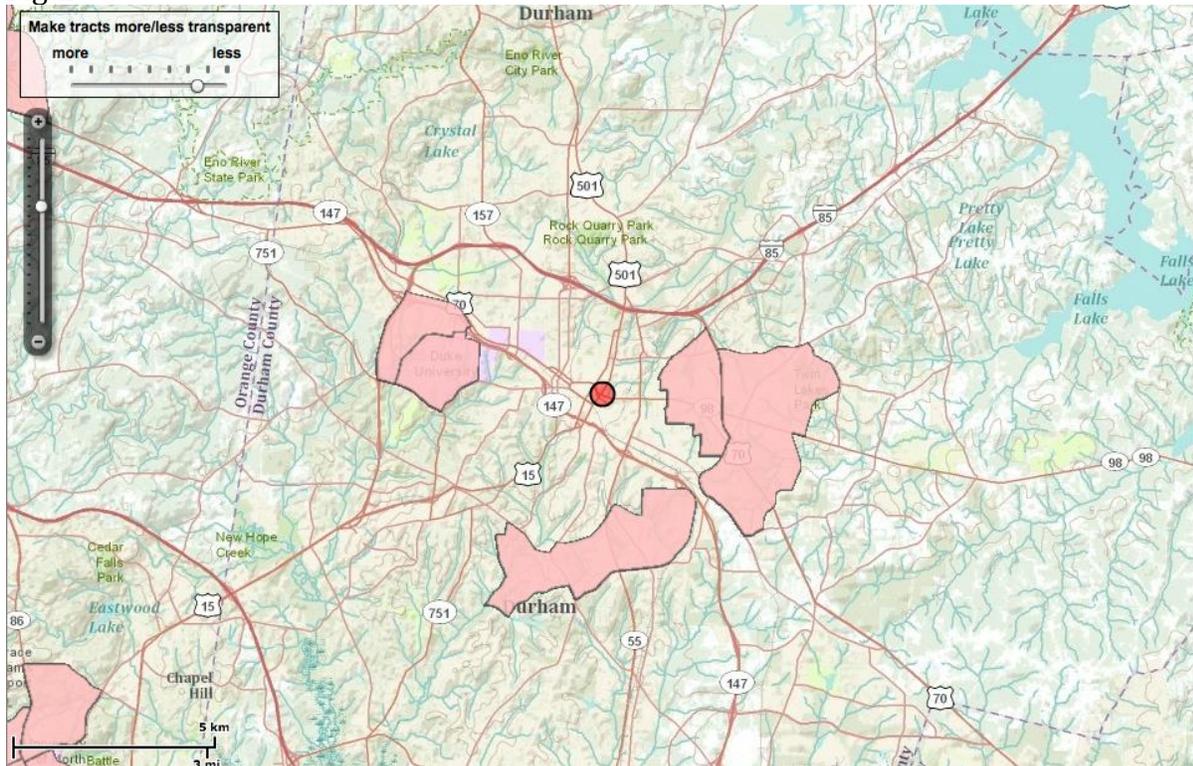
NAD_1983_StatePlane_North_Carolina

Areas that are highlighted in red and overlap with low-income census blocks are what the HFFI would consider actual food deserts. “Low-income” areas are defined by HFFI as those areas with “a poverty rate of 20 percent or higher OR a median family income at or below 80 percent of the area’s median family income” (Food Desert Locator, 2012). According to the U.S. Census Bureau, the Durham area has a median household income of \$46,972 (U.S. Census Bureau, 2012). A household income that is eighty percent of the median household income of the area would be \$37,577.60. Therefore, census blocks that are colored yellow and the lightest shade of green would most likely be considered “low-income.”

Consequently, those areas that are yellow or light green and are overlapped with red parcel data are the actual food deserts of Durham, as defined by HFFI (Food Desert Locator, 2012). Small areas, located in the Northeast and Southwest areas of Durham city proper would be considered food deserts. Another food desert shows up on the far west side of the city near Duke’s campus as well.

The results of this map were compared to the Food Desert Locator map of Durham (Figure 6).

Figure 6



The Figure 6 Food Desert Locator map does not use finer scale census block data, rather it uses 2010 census tract data. Inherently, therefore the Figure 6 map will not be as accurate as the map produced from my analysis (Figure 5). Despite the lack of fine scale, however, the two maps can be compared to identify similarities as well as differences. The Food Desert Locator map highlights food deserts in the Northeast and Southwest corners, similarly to the Figure 5 map. The Food Desert Locator map also highlights a food desert on the West side of the city, similarly to the Figure 5 map. The Food Desert Locator map highlights a large portion of Duke University as a food desert. College students generally do not make more than 80% of an area's median household income per year, and therefore, a college campus not located near a grocery store would technically be considered a food desert, as defined by the USDA. Other college campuses, such as UNC Chapel Hill, were identified as food desert areas as well by the Food Desert Locator. By taking into consideration the location of college campuses when locating food deserts, researchers can more accurately locate food deserts in the community.

Although the maps are similar in many ways, the matter of scale makes a significant difference. The finer scale data of Figure 5 would be more beneficial to local officials when considering policy solutions to food desert issues.

V. Discussion

Summary of Findings Across All Focus Groups

Facilitators

Demand for more affordable fruits and vegetables was present in all the communities surveyed. Additionally, in seven of the focus groups a more specific demand for “fresh” fruits and vegetables (rather than frozen or canned) was made obvious. In this context, I speak of demand more simply in terms of preference. Economically speaking, however, demand for healthy food in food desert communities is a more complex a concept. In their article, “An Economic View of Food Deserts in the United States,” Bitler and Haider more comprehensively define demand for healthy food in food desert communities (2011). Demand, according to Bitler and Haider’s research, is influenced by three factors: income, price, and preference (Bitler and Haider, 2011). Further economic research would need to be conducted to truly gauge demand in the communities surveyed in this study.

Across all of the focus groups cooking knowledge was present. Many times “cooking knowledge” showed up as a frequently occurring code (occurring more than 10 times). Although cooking knowledge was considered both a barrier and facilitator code, it most often was mentioned as a facilitator. Many men and women in the focus groups struck up lengthy, detailed conversations about dishes they knew how to cook at home. Existing cooking knowledge within these communities could serve as a community asset when designing programs and policies that increase access to fruits and vegetables in these areas. Although many of the participants possessed knowledge of cooking fruits and vegetables, sometimes these ways of cooking may have not been the most “healthful.” As two participants described when explaining how soul food was cooked,

P1: "It's like soul food is not measured. You just PUT it in there. It's all you do. MORE is tastier!... All the salt and..."

P2: "More cholesterol, salt and sugar...it's got a better taste!" (AAFG)

This reality provides an opportunity for implementing cooking classes or other policy measures that expand upon the existing cooking knowledge in these communities, so as to encourage more healthful cooking.

Additionally, across all focus groups most participants expressed a general knowledge of which types of foods were healthy and which were not. "Perceived health benefits" was the code under which we coded statements about health benefits of healthy foods. This code appeared 35 times across all eight focus groups. Although I did not compare the "truth" of these "perceived health benefits" to literature in the health sciences, many of these perceptions matched with commonly held beliefs about healthy food and fruits and vegetables. For example, many of the comments coded as "perceived health benefits" spoke to the nutrients available in fruits and vegetables and the health benefits of eating fruits and vegetables, including weight reduction and lowering cholesterol. The presence of a general knowledge about the health benefits of healthy foods and fruits and vegetables is important when considering policy solutions that increase access to healthy foods in these communities. As Bitler and Hayden suggest, assessing existing knowledge about healthy foods is important to consider before moving forward with demand-side policy solutions that address increasing healthy food access in food desert communities (Bitler and Hayden, 2011).

Barriers

The barriers to accessing fruits and vegetables in low-income communities varied greatly across each individual focus group. When categorized according to demographic data, there were some similarities in barriers expressed across focus groups in the predominately African-American category. Because the Latino category only consisted of one focus group this distinction could not be made. The focus groups of the elderly category, unlike the predominately African American category, did not share many similarities. The differences in gender roles assumed by people of an older generation may have been the reason that the two groups in the elderly category were dissimilar. Many of

the elderly men even alluded to these gender roles, and how these gender roles affected the consumption of fruits and vegetables in the household.

Across all focus groups, cost was by far the largest barrier to accessing fruits and vegetables in low-income communities. The fact that cost was the largest barrier is not surprising given the high cost of fruits and vegetables relative to other food products in many grocery stores throughout the U.S. (Pollan, 2008). As research suggests “energy-dense diets,” which are lower in nutritional value, are cheaper for the consumer than more nutrient-rich foods, such as fruits and vegetables. (Andrieu and Darmon, 2006). In the U.S. this phenomenon is highly attributable to subsidies that favor processed foods over fruits and vegetables. (Pollan, 2008). As some research suggests, social safety nets, such as the Supplemental Nutrition Assistance Program, the Supplemental Nutrition Assistance Program for Women, Infants, and Children, among others, could be used to increase demand for healthy foods and fruits and vegetables among low-income individuals (Bitler and Haider, 2011).

The largest barriers to accessing fruits and vegetables in the Latino focus group were cost, language, children food preference, school food and fast food. Some of these barriers matched the barriers found in a similar study conducted in rural North Carolina. This study found that decreased consumption of fruits and vegetables among Hispanic focus group participants was attributed to high cost, as well as the lack of familiarity with fruits and vegetables of the region (Yeh and et. al, 2008). Many of the participants in the Yeh study spoke fondly of fruits and vegetables they ate in their home countries, and were unsure of how to prepare fruits and vegetables with which they were unfamiliar in the U.S. (2008). Similarly in this study many of the Latina focus group participants expressed longing for fruits and vegetables of their home country. Many of the participants also wanted to learn about the fruits and vegetables of this region, but were deterred from doing so due to the language barrier. Many of the participants of this group mentioned that recipes and labels that had been translated to Spanish were helpful. Other focus group participants mentioned that they liked to shop at the nearby flea market, which sold fruits and vegetables, similar to the ones they used to eat in their home country. Many of the participants expressed liking shopping at the flea market also, because the vendors were

Latino. Shopping at the flea market made for more easy conversation and a relaxed environment. In the Yeh study excessive advertisement of fast food made purchasing healthful foods more difficult as well (2008). Although advertising was not mentioned in the focus group for this study, fast food was mentioned. Many of the participants expressed that the abundant presence of fast food restaurants made consuming fruits and vegetables more difficult in the home. Children often preferred fast food, and therefore the Latino families ate more fast food overall. Where the two studies differ, however, is on the subject of school food. School food overwhelmingly had a large influence over the way Latino families of this study ate.

The largest barriers in the elderly focus groups were cost, generational food experience, time, and personal food preference in the male focus group and cost, lack of promotion about food aid programs and sales, weather, storage, and difficulty using senior farmers' market vouchers for the female focus group. Cost was the only barrier that was shared between the two groups. Because many of the participants of this group lived alone or with a spouse, they did not cook as many fruits and vegetables in the home. Among the men, eating out was a social event, and, therefore they enjoyed eating out as opposed to eating at home. Additionally, the men claimed that their wives were not cooking as much in the home, although the majority of the male participants did not live with a partner. The men of this group also expressed a great interest in gardening. Many of the men, in fact had an existing knowledge of gardening. Community gardens, therefore, may be a way to increase access of fruits and vegetables among elderly men.

Among the female group participants, however, most of who lived alone, cooking at home appeared to be quite common. Many of the barriers above speak to barriers to shopping for fruits and vegetables. For elderly women, therefore, community or policy solutions, which work to better disseminate information about food aid programs and sales would be highly favored. The issue of storage came up with regard to transportation. Policy solutions, therefore, that transport the elderly community to and from the grocery store may be a means to address this issue. Such a policy solution would require a means of public transit that allows for the storage of multiple bags of groceries per person. This policy solution could apply for all of the demographic groups.

The largest barriers in the predominately African American focus groups, according to researcher memos were school food and children food preference, safety, transportation, taste, fast food, quality, and cleanliness. Other barriers that appeared in the code summary reports were: resistance to change in eating habits, other community needs/obstacles, stores' or venues' lack of acceptance of EBT, lack of gardening knowledge, generational food experience, geographic location in relation to a grocery store, lack of nutrition knowledge, personal eating habits, personal food preference, and lack of promotion of food aid programs. Similarly to the Yeh study, geographic location in relation to a grocery store proved to be an obstacle to accessing fruits and vegetables among African Americans (2008). None of the other barriers found in this study, however, were resonated in the Yeh study. In the Yeh study the primary most barriers among African Americans, in addition to geographic location, were lack of time, convenience, and advertising of unhealthy foods (2008).

Other Major Findings

Although all of the communities surveyed in this study were located outside of food desert areas, they still expressed trouble accessing fruits and vegetables in their neighborhood. This significant finding could have profound implications on the way that food deserts are defined in the future.

The food desert areas in Durham mapped by the USDA Food Desert Locator roughly matched food desert areas that were mapped with finer scale data at the census block level. Food deserts, when mapped with the finer scale census data set, were found in the Northeast, Southeast, and far western areas of the city.

Implications and Policy Recommendations

Redefining Food Deserts

Although the USDA's definition takes into account the issue of affordability it still falls short in addressing the many issues of food deserts. The USDA is aware of this fact and alludes to these shortcomings in the introduction of its Report to Congress in 2009 (USDA, 2009). Ploeg and his research team, the authors of the report, remark that the

absolute standards that exist for concepts such as poverty or food insecurity lack for food deserts (2009). As Bitler and Haider mention in their economic analysis of food deserts, this lack of absolute standards could have profound ramifications for moving forward on policy solutions that work to eliminate food deserts (Bitler and Haider, 2011).

Policymakers are less likely to address an issue that does not have clearly defined parameters. Ultimately, this reality makes refining the definition of food desert all the more important and necessary.

In an effort to better refine the definition of “food desert,” I propose a new way of thinking about the term. I recommend that the following criteria be used to define and identify food deserts:

Table 5

Criteria for Defining Food Deserts
Criteria
Household Median Income (Census Block Level)
Cost of Fruits and Vegetables
Number of Stores That Accept EBT
Number of Fast Food Restaurants Present
Length of Time There Has Been Lack of Access
Distance from Grocery Store
Nutrition Assistance Programs available
Obesity and Diabetes Rates in the Community
Success of Promotion of Nutrition Assistance Programs
Quality of Produce in Community
Feasibility of Transporting Multiple Bags on Public Transportation
Time it Takes to Shop for Produce in the Community
Mode of Transportation Available Within Short Walking Distance of Residence
Other Food Vendors and Farmers' Markets

These criteria could help to more strategically locate and define food desert areas. Each criterion could exist along a scale. Those communities which rate on the low-end of the scale for each criterion would be considered the food deserts in need of more immediate policy intervention. Further criteria could also be used to help determine the type of

programs that would be successful to use in food desert areas. These criteria could include: predominate food culture of the community, past generational food experience of the area (prior to the flight of grocery stores or food vendors from the area), predominate language of the area, and crime rates (to determine the likelihood of success of a community garden).

Further research needs to be done to better assess if these criteria are genuinely effective in identifying and defining true food deserts. I propose these criteria as a means to better define food deserts in more absolute terms so that policymakers can better devise policy solutions that eradicate food deserts. I present the criteria along a sliding scale, so as to push a systems-think approach to the issue of food deserts. Currently, food deserts are not thought about in terms of a systems-think approach, because they are only identified based on two criteria. By using a multitude of different criteria that address the different aspects of food deserts, food desert communities can be more accurately located and defined. A community that falls on the low-end of the scale of all the above criteria, for example, may be considered a food desert in need of urgent policy intervention, but a community that falls in the middle of the scale may still be considered a food “insecure” community. Communities falling along this scale could include the full spectrum of socio-economic classes. For example, it is possible that some middle and upper class neighborhoods may fall toward the low end of the spectrum on all other criteria. There is in fact one criterion on the scale that most of U.S. society would struggle with: the cost of fruits and vegetables. No matter where an individual lives in the U.S., she will always pay more for fruits and vegetables when compared to other food items in the grocery store. Additionally, these set of criteria do not take into account school food and children’s food preference, which were two barriers that showed up frequently across all focus groups. These two barriers are not easily quantifiable, but need to be taken into consideration when thinking of policy solutions. Both cost of fruits and vegetables and school food are policy issues ultimately controlled at higher levels of the policy world. However, they need not be forgotten when devising a comprehensive policy approach to eradicating food deserts. Policymakers and community leaders will only go so far if they continue isolating out food deserts, placing grocery stores in them, and feeling their work is done. First, placing a grocery store in a food desert is not necessarily a cure-all. Secondly, food deserts

are intricately connected with greater issues of food insecurity (i.e. the lack of availability and access to foods in the community), as well as with the communities that surround them. A systems-think approach will more effectively and comprehensively address the many issues of food deserts.

Policy Recommendations

I created the following policy recommendations from barriers and facilitators that arose from the various focus groups. I chose to include the following recommendations, because they speak well to some of the larger barriers expressed by the groups.

Latino Community

For participants of the Latino focus group, and potentially for members of the Latino community at large in Durham, the following recommendations may help increase access to fruits and vegetables, as well as increase fruit and vegetable consumption: translation of food labels and recipes to Spanish, inclusion of more Hispanic vendors at farmers' markets, and school nutrition programs that encourage more fruit and vegetable consumption among children.

Elderly Community

Policy solutions that cater more to the "eating out" behavior of older men, may be most helpful for members of the elderly community. Community gardens also were popular among participants of the elderly focus group and may be a way to increase access of fruits and vegetables, especially among elderly men of the community.

African-American Community

A few policy or community solutions could address the obstacles to accessing fruits and vegetables faced by African American communities in Durham and Chapel Hill. Changes in school nutritional programs and school food could have a large impact on the consumption of more fruits and vegetables in low-income African American communities. Additionally, the presence of clean grocery stores with a wide variety of quality produce could increase

fruit and vegetable consumption. More transportation options that allow for the easy transport of groceries from one place to another could also be fashioned as a policy solution. Although many of the participants of the African American groups liked the idea of a community garden, they feared that it would get vandalized. For this reason personal gardens were favored. The idea of workshops that taught gardening techniques was well liked by members of this group, as well as members of the Latino group. Trust was also an issue for some of the participants in the African-American focus groups. One focus group mentioned that if a community garden were to be successful in the community, community members needed to “know what they were going to get out of it” from the beginning. This reality is important to consider when thinking about community gardens as a policy solution. Other policy solutions for low-income African American communities could be increasing acceptance of EBT at stores located in the community, increasing the number of whole food vendors in the community, and better promotion of food aid programs.

Mapping Food Deserts: The USDA Food Desert Locator

The criteria used by the USDA Food Desert Locator fall short in accurately locating food deserts in many ways. For example, the Food Desert Locator does not factor in college campuses, cemeteries, or sidewalk routes when locating food deserts. These factors, among others, will need to be taken into account to more accurately locate food deserts in future discourse. Fortunately, the USDA has already realized the shortcomings of their map and has attempted to do finer scale mapping accounting for the aforementioned factors, among other factors, in producing more comprehensive maps for the New York City, Indianapolis, New Orleans, Salt Lake County, Brazos Valley, and Portland areas (USDA, 2009). Unfortunately, such fine scale, comprehensive mapping at the national level would take too much time and resources for the USDA to accomplish. Finer scale, more comprehensive mapping, therefore, is a place where researchers in cities across the U.S. can play a more active role.

Further Research

Only once further research has been done with the aforementioned criteria can the criteria then be used in the design of a policy tool to identify food desert areas. Further research can also be done to address the supply side of the equation, as Bitler and Haider suggest (Bitler and Haider, 2011). Appropriate supply side criteria could take into account property values, overhead costs, among other factors, for potential grocers looking to locate in a food desert community. These criteria could also be weighted on a scale. If it appears that supply side factors are not in favor of locating a grocery store in an area, then financial community incentives could be considered.

Other research would also need to be done to expand on this body of research. Yeh's study and this study look at communities both in the rural and urban settings of North Carolina, but neither of these data sets can be extrapolated to the greater North Carolina region (Yeh, 2008). Both studies were qualitative in nature and used focus groups. Survey research could be helpful in extrapolating to the greater urban and rural communities of North Carolina.

Further research could also be done using the key informant data set collected from this study. There was valuable information in this data set, but it was too much information to include in this project analysis. Potential policy solutions and recommendations gathered from key informant interviews, however, were recorded in Appendix E.

Limitations

Although the data was made more reliable by the presence of two primary investigators collaborating on the project, it still involved researcher bias. Secondly, some inconsistency existed in the way my research partner and I conducted the study. Not all of the groups were separated into all-male or all-female groups. Separation of gender may have controlled for some variables. Overall, there were two mixed gendered groups, five all-female groups, and one all-male group. Additionally, an equal number of focus groups was not present in each demographic category. One focus group was in the Latino category, two in the elderly category, and five in the predominately African American

category. An additional limitation was present in the mapping of the food deserts. The only complete grocery store list that was available from the city was a list of meat markets. To my knowledge, most, if not all, of these markets also sold fruits and vegetables. However, this gap in the research could also be a limitation. Additionally, I could have taken into consideration other factors in the GIS analysis that I did not. These factors include sidewalk data, public transportation data, among others. All of these additional factors could have been taken into account to more accurately map food desert areas of Durham. Unfortunately, due to time constraints I did not take into consideration these factors. Lastly, my map also makes assumptions about road width that may have slightly altered food desert output.

VI. Conclusion

Food deserts need to be better defined along a continuum of severity using a wider set of criteria. This study recommends a number of possibilities. Without a more refined definition with more clearly defined parameters, the issue of food deserts will continue to be a convoluted and difficult issue to tackle. Communities and policymakers alike will benefit from a redefinition. The criteria proposed in this research more clearly defines food deserts and encourages applying a systems-think approach to food deserts. At a more local level the findings of this research can better enable local policymakers in both Durham and Chapel Hill in tackling the many issues of food deserts.

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APPENDIX A

Examining Real and Perceived Food Deserts in Orange and Durham Counties in North Carolina

REQUEST FOR SCREENING FOR EXEMPTION

Sarah Parsons
Master of Environmental Management
Nicholas School of the Environment
Faculty Advisor
Dr. Charlotte Clark

A. Investigator and Project Information

(Add more lines as needed for multiple investigators.)

Project Title: Examining Real & Perceived Food Deserts in Orange and Durham Counties in NC

Investigator: Sarah Parsons

Status: Faculty Graduate Student Other: _____

Department/School: Master of Environmental Management/Nicholas School of the Environment

E-mail: sep30@duke.edu Phone: 678-637-6042

Faculty Advisor for Graduate Students and Post-Doctoral Researchers:

Dr. Charlotte Clark

E-mail: cclark@duke.edu Phone: 919-684-3159

Source of Funding: Triangle University Food Studies Kenan Biddle Student Award (\$1000)

(If research is externally funded, submit a copy of the application or the award.)

Proposal/Grant Number for Federally-Funded Research: _____

Research Site: Durham and Orange Counties

B. Assurances
(Original signatures are required)

Investigator(s) Assurance:

I affirm the following:

1. The research will not be initiated until written approval is secured from the IRB. **(Note: Approval will not be provided unless certification to conduct research with human subjects is current for the investigator(s), and if the investigator is a student, the advisor's certification is also current.)**
2. I will conduct this study as described in the approved protocol. If any changes are anticipated, I will contact the IRB staff prior to implementing the changes. I will contact the IRB staff immediately if any of the following events occur: unanticipated problems involving risks to subjects, protocol deviations, or findings during the study that would affect the risks or benefits.

Sarah Parsons
Investigator

5/6/11
Date

Faculty Advisor Assurance (Required for Graduate Student or Post-Doctoral Research):

I affirm that I have reviewed and approved the research plan of the student(s). I assume responsibility for (1) ensuring that student researchers are aware of their responsibilities as investigators, and (2) that the IRB will be immediately informed in the event of unanticipated problems involving risks to subjects, protocol deviations, or findings during the study that would affect the risks or benefits of participation.

Advisor

Date

=====
===

For IRB use only

APPROVAL: _____ Date _____
IRB Member or Human Subjects Program Director

C. Category of Research Activity

Categories of Eligible Research Activity:

Please select the exemption category that applies to your protocol. If the protocol includes any research activity with human subjects not specifically exempted under one or more of the exemption criteria, IRB review is required and the *Request for Protocol Approval* form must be used (<http://www.ors.duke.edu/forms/request-protocol-approval>).

The categories are listed in the order most often used by researchers in the social and behavioral sciences. Sponsors may want you to identify the federal number for the category used to exempt your research so the numbers are supplied at the end of each category.

___ (1) Research conducted in established or commonly accepted educational settings, involving *normal educational practices*, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.



x (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), *survey procedures*, *interview procedures*, *observation of public behavior*, **unless** the information is obtained and recorded in such a manner that the human subjects can be identified, directly or through identifiers linked to the subjects; **and** any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

___ (3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), *survey procedures*, or *observation of public behavior* that is not exempt under item (2) above; **if** the human subjects are *elected or appointed public officials or candidates for public office*; **or** federal statute(s) require without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

___ (4) Research involving the study of existing data, documents, records, pathological specimens, or diagnostic specimens is exempt **if** these sources are publicly available, **or** if the information is recorded by the investigator in such a manner that the subjects cannot be identified directly, or through identifiers linked to the subjects. *The secondary analysis of pre-existing data requires the use of a separate form. Please go to <http://ors.duke.edu/Research-with-Human-Subjects/forms>.*

___ (5) Research and demonstration projects which are conducted by or subject to the approval of Department or Agency heads, and which are designed to study, evaluate, or otherwise examine methods and procedures of *public benefit or service programs*. (For example, a study of identifiable welfare data.)

___ (6) Taste and food quality evaluation and consumer acceptance studies, **if** wholesome foods without additives are consumed, **or** a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or an agricultural chemical or environmental contaminant at or below the level found to be safe, by the

FDA or approved by the EPA or the USDA.

D. Project Description

Research Description:

1. Research Design

PURPOSE

The purpose of this study is to better understand the factors that promote or inhibit fruit and vegetable consumption among lower income individuals in food desert areas of Orange and Durham Counties in North Carolina. Data collected will be used to help design future research and/or programs to promote healthy eating and increase access to fruit and vegetables in these areas.

Background

The term “food desert” first started becoming popular when the British government’s social and health policy literature in the 1990’s defined food deserts as “areas of relative exclusion where people experience physical and economic barriers to accessing healthy food¹.” In the years since the 1990’s the term has evolved to describe what is now a complex and multi-faceted phenomenon facing our world’s low income urban communities. In a paper written by Andrea Sparks of the U.S. Department of Housing and Urban Development (HUD) urban food deserts are defined as “areas in which residents lack reasonable, spatial access to 1) fresh fruits and vegetables, 2) foods from all the major food groups required for a ‘modest but adequate diet’, and 3) food items priced competitively compared to the same item in a higher income neighborhoodⁱ.”

Many of the nation’s cities and rural areas have food deserts, and Durham, North Carolina is no exception. There are several local non-profit organizations, who have been working for years to service Durham’s food desert areas. Among the most popular of these non-profits are NEEM² (Natural Environmental Ecological Management) and SEEDS (South Eastern Efforts Developing Sustainable Spaces)³, two organizations that work to develop urban community gardens, which provide produce for communities in need. The Durham community can further its capacity in addressing issues of food deserts by designing programs that improve and facilitate the existing collaborative efforts among stakeholder groups. This research will help highlight these areas of improvement, so that organizations working with food deserts in Durham can further their efforts.

SUBJECT PARTICIPATION

There are two parts to this study: key informant interviews and focus groups surveys. In the key informant interviews. Participants of key informant interviews will include researchers and members of local community organization that provide services and/or advocate for low-income community members. This will include both governmental (e.g., social services), non-profit, and advocacy groups. Specifically, we

¹ Sparks, Andrea, Neil Bania, et. al. “Finding Food Deserts: Methodology and Measurement of Food Access in Portland, Oregon.” National Poverty Center and USDA Economic Research Service Conference. January 2009. http://www.npc.umich.edu/news/events/food-access/sparks_et_al.pdf.

² NEEM. Natural Environmental Ecological Management. <http://neemtree.org/>.

³ SEEDS. South Eastern Efforts Developing Sustainable Spaces Inc. <http://www.seedsnc.org/>.

will identify individuals within these organizations who are most able to speak to the food access needs of lower income populations in Orange and/or Durham Counties (i.e., key informants). Key informants will be invited to participate in a 30-minute interview that will be designed to help better inform focus group questions. Please refer to **Appendix A** for key informant interview guide. We will identify up to 10 organizations which serve low-income populations. Across all organizations we will interview 10-20 key informants. Participants of focus groups will include individuals who use the services of the organizations with which key informants are affiliated. A total of eight focus groups will be conducted. Four focus groups will be conducted in the city of Durham. Where it is possible, focus groups will be split up into male and female groups. Some integrated male and female groups, however, may be conducted as well. Two of these focus groups will be all male and two will be all female. Four focus groups in the town of Chapel Hill will also be conducted with this structure. Each focus group will last approximately one hour. Questions about the experiences of focus group members living in food desert areas will be asked. Please refer to **Appendix B** for focus group guide. At the beginning of each focus group participants will be asked to fill out a short survey to gather background information on each individual. Please refer to **Appendix C** for pre-focus group survey. Following the focus group members of the focus group will be given a post-focus group survey that gauges their interest on a new veggie-mobile program that is being designed by the Community Nutrition Partnership of Chapel Hill⁴. Please refer to **Appendix D** for post-focus group survey.

Identifiable Data

There will be no identifiable data used for this study. Only the first names of participants will be used during the informant interviews and focus group sessions. After interviews and focus groups, all participants will be given pseudonyms for data analysis and presentation.

2. Subject Selection

Subject Population

Our subject population for key informant interviews will consist of members of local community organization that provide services and/or advocate for low-income community members. This will include both governmental (e.g., social services), non-profit, and advocacy groups. Specifically, we will identify individuals within these organizations who are most able to speak to the food access needs of lower income populations in Orange and/or Durham Counties (i.e., key informants).

Our subject population for focus group interviews will consist of individuals who use the services of the organizations with which key informants are affiliated.

Recruitment

Recruitment of key informants will be done by identifying organizations in the area that work with issues of food access in food deserts in Orange and Durham counties. Once organizations are identified those individuals in the organizations that can speak most relevantly to issues of food access will be recruited for interviews.

Recruitment of focus group members will be done by organizations with which the key informants are associated. The individuals these organizations recruit for focus groups

⁴ Community Nutrition Partnership. <http://nutritionpartnership.blogspot.com/>. Retrieved on May 6, 2011.

will be individuals that use the services of these organizations. Key informants and the organization with which they work will be given a flyer to help with recruitment.

Please see **Appendix E** for flyer.

3. Informed Consent

Please see **Appendix F** for Informed Consent Forms. A copy of this Informed Consent Form will be presented to and signed by individuals of both key informant interviews and focus group interviews.

APPENDIX A: Key Informant Interview Guide

Introduction

Thank you for agreeing to participate in this interview. Researchers at UNC and Duke are working with different community groups to better understand the food needs of lower income families and individuals in Chapel Hill. We want to use this research to help inform future programs and improve access to healthy food for people of all incomes. We are talking with you because you are aware of the challenges faced by lower income people. We need your help to identify barriers to accessing healthy affordable food in our community. In addition to you, we will be conducting interviews with individuals from several other community organizations.

We will be taking notes, but we want to make sure that we get everything that you say right. Are you okay with us audio-recording this interview?

Before we start, I want you to know that there are no *right* or *wrong* answers. You are the expert here, so please share any information that you think might be helpful. If you want to tell me something, but you do not want it recorded, please let me know and I will stop the tape. This interview will last about 1 hour; if you need to take a break, we can do so at any time.

Are you ready to begin the interview?

Intro Questions

1. What is the mission of your organization?
2. What types of services does your organization offer?
Who are these services available to?
3. Overall, what do you think are the biggest health concerns of the people that you work with?
Probe: How much of a concern is access to healthy food?
4. What keeps people from being able to eat healthy?
5. What resources are available to help people who have limited access to healthy food?
 - a. How easy or difficult is it for people to use these resources?
 - b. What other resources would be helpful?

Program Questions

Next I want to tell you about some ideas which local organizations have had for increasing access to healthy food among lower income individuals. I would like you to share your thoughts about these programs and ideas about how they might help people in our community.

1. The Carrboro Farmer's Market now accepts credit, debit and EBT cards (also known as SNAP or Food Stamps). For a limited time, EBT users, they are offering \$2 in tokens to be used at the farmers market for every \$1 of their benefits that they use.

- a. How much interest would the people served by your organization have in this program?
 - b. What changes would need to happen for people to easily use this resource?
Probe: Longer hours, different days, different location, better transportation?
2. In addition to the farmer's market some people have suggested the idea of a **veggie-mobile** that would deliver bags of fresh, local and organic fruits and vegetables to different schools and community organizations such as [Dobbins]. One plan was to have people can sign-up to purchase bags of produce each week. The bags could be ordered in advance, but payment would not be due until the food is picked up. Each week there would be different fruits and vegetables in the bag, but everyone who gets a bag would get the same thing. This will allow us to keep the cost lower than if everyone just picked what they wanted to use each week.
- a. How much interest would the people served by your organization have in this program?
 - b. Would you be interested in working with the Community Nutrition Partnership to bring the veggie-mobile to your organization?
3. In addition to fresh food, we also have some ideas for improving access to prepared foods. One idea is to have a restaurant that serves healthy, local and organic meals at prices similar to fast food restaurants (such as McDonalds for KFC).
- a. How much interest would the people served by your organization have in this program?
 - b. What issues should we consider in developing this idea?
4. **Ask only if they are not a current Cooking Matters Site**
 Lastly, many organizations offer free nutrition or cooking classes (EFNEP, Cooking Matters).
- a. How much interest would there be in a cooking and nutrition class at your organization?
 - b. Would you be interested in working with CNP to bring Cooking Matters to your organization?
If yes: Which classes would there be the most interest in: teen classes, adult classes, family classes, kids classes, or teen parent classes?
5. Is there anything we haven't talked about that you think would be useful for promoting nutrition and health among the people you serve?

If interested in starting the Veggie-mobile program:

1. How often would one person generally come to [organization]?
2. Are there certain events or specific times when more people would be there?
3. Would we be able to use this space to assemble bags? Sell bags? Give cooking demos? Is this space inside or outside?
4. What would be the best way to collect orders? Is there someone at your organization that could help with this?
5. How would you recommend promoting this program at your organization?

Closing Questions:

1. Is there anything else you would like to share with us?
2. Is there anyone else that you think we should talk to?

Thank you so much for participating in this interview!

APPENDIX B: Focus Group Interview Guide

Focus Group Moderator's Guide

Introduction

Introduce team members and roles.

Thank you for agreeing to participate in this focus group. Researchers at UNC and Duke are working with different community groups to better understand the food needs of families in Orange and Durham Counties. We want to use this research to help inform future programs and improve access to healthy food. We need your help to identify barriers faced by people in this community to purchasing and eating healthy food. In addition to this discussion, we will be conducting focus groups at several other community organizations.

The session should last about [45 minutes/ an hour and a half]. At the end of that time you will receive a check for [\$15/\$25] for your time. Feel free to help yourself to refreshments at any time.

Everything we say here today is confidential. We will only be using first names on the recording. Individual names or answers will not be shared with anyone. Only a summary of all the focus groups we are doing will be used. We also ask that you do not talk about what people in this group say today to anyone outside the group. What is said in the room should stay in the room. Can everyone agree to this? As researchers, we commit to keeping confidential the information you share with us. However, we can't control what happens outside of the group. If there is anything that you don't want known outside the group, don't talk about it in the discussion. If you have something you want us to know but don't want to talk about in the group, I will stay around after the group and will be happy to talk with you privately.

Please feel free to share your ideas and opinions even if they are different from others. All views and ideas are important. There are no right or wrong answers. We would like to get as many different points of view as we can. Since this is a group discussion you do not have to wait for me to call on you to speak, but please try to speak one at a time. If everyone starts talking at once I may ask you to stop so that we can hear everyone on the tape recorder.

Do you have any questions about participating in this group?

We would like to tape record the discussion today to make sure we don't miss any of your comments. We take notes but often they are not as complete as when we tape the discussion. Is that OK with everyone? Any objections? If you want to make a comment that you don't want recorded, just tell us that and we'll turn off the tape and re-start it when you finish making your comment. Is that OK? (Check for nods, agreement) Try to speak up so the tape recorder picks up your answers.

In front of you is a Participant Information Sheet. I also ask that you fill this out and return it to me before we start.

TEST TAPE AND START RECORDING

Focus Group Questions

To help our note taker, I am going to ask you all for your first and last initial.

Icebreaker Questions (5 min)

1. What's your favorite fruit or vegetable?
2. Why do you eat fruits and vegetables?
Probe: General health, weight management

Attitude Questions (30 minutes):

1. Are you able to buy and prepare as many fruits and vegetables as you would like for yourself or your family?
 - a. What makes it harder?
 - b. What would make it easier?
Probe: Distance, knowledge of how to prepare foods, cooking equipment
2. Where do you most often buy fresh F&V?
 - a. Why do you buy F&V at this location?
 - b. What is most important to you when choosing F&V?
Probe: How important is it that your produce be from North Carolina farms?
How important is it that your produce be organic or grown without chemical or pesticides?
3. Would you like to see more options in your community for purchasing fresh F&V?
 - a. What types of programs would help you to eat more F&V?

Programming Questions (45 minutes):

Next I want to tell you about some ideas which local organizations have had to help people buy more fruits and vegetables. I would like you to tell me how you think people in your community would respond to these programs.

6. The Carrboro Farmer's Market is a group of farmer's and producers who sell fresh fruits, vegetables and other food directly to consumers. Last year the **Carrboro Farmer's Market** started accepting credit, debit and EBT cards (also known as SNAP or Food Stamps).
 - a. How much interest would the people in your community have in purchasing food at the Carrboro farmer's market?
Probe: Why would they like it? Why would they not like it?
 - b. What would make it more likely for people to use the Farmer's market?
Probe: Longer hours, different days, different location, better transportation?
7. In addition to the farmer's market some people have suggested the idea of a **veggie-mobile** that would deliver bags of fresh, local and organic fruits and vegetables to

different schools and community organizations such as [Dobbins]. One plan was to have people can sign-up to purchase bags of produce each week. The bags could be ordered in advance, but payment would not be due until the food is picked up. Each week there would be different fruits and vegetables in the bag, but everyone who gets a bag would get the same thing. This will allow us to keep the cost lower than if everyone just picked what they wanted to use each week.

- a. How much interest would the people in your community have in a veggie-mobile at [this site] or another? **Probe:** Why would they like it? Why would they not like it?
 - b. What would make it more likely for people to use the Veggie-mobile? **Probe:** Having recipes, cooking demos, being able to select the produce you got
8. Community Gardens provide shared space for people to grow fruits and.
- a. How much interest would the people in your community have in using a community garden if one was set up in your community?
 - b. What would make it more likely for people to use the community garden?
Probe: location, gardening lessons, cost of use, tools or plants provided
9. In addition to fresh food, we also have some ideas for improving access to prepared foods. One idea is to have a restaurant that serves healthy, local and organic meals at prices similar to fast food restaurants (such as McDonalds for KFC).
- a. How much interest would the people in your community have in a healthy fast food restaurant?
Probe: Why would they like it? Why would they not like it?
 - b. What would make it more likely for people to go to the restaurant?
Probe: healthy version of familiar foods, location
10. Are there other ideas that you have for helping people to eat more fruits and vegetables or other healthy foods?
11. What is the best way to promote the farmer's market, veggie-mobile or restaurant in your community?
12. Is there anything else you would like to share with us?

Thank you for taking the time to participate in this focus group. We greatly appreciate your answers. Before you leave, I would like you to fill out a short survey regarding the veggie-mobile idea that we discussed. When you are finished please give your survey to [note taker] and s/he will give you your gift card.

APPENDIX C: Pre-Focus Group Survey

Please answer the following questions before we begin the focus group discussion:

1. What is your age? ____

2. How many children (under age 18) do you have living in your household? ____

3. What is the highest grade of school or amount of college you have completed? (check one)

Eighth grade or less

Some high school

High school graduate or GED

Trade or beauty school graduate

Some college

College graduate

More than college (some post graduate, post graduate, or professional degree)

4. What is your marital status? (check one)

Married or living with a partner

Never been married

Divorced

Separated

Widowed

2. Which of the following best describes your yearly household income? (check one)

less than \$10,000

\$10,000 - \$19,999

\$20,000 - \$29,999

\$30,000 - \$49,999

\$50,000 or more

5. Do you consider yourself: (choose only one)

Black or African American

White/European American (not Hispanic or Latino)

Hispanic/Latino

Native American

Asian/Pacific Islander

Multi-racial

Other: _____ (please specify)

6. Have you or anyone in your household received SNAP Benefits (i.e. Food Stamps or EBT) in the past 12 months? Yes No

7. Have you or anyone in your household received government assistance of any kind in the past 12 months? (WIC, TANF, Medicaid, Work First, Other) Yes No

APPENDIX D: Post-Focus Group Survey
Veggie-Mobile Survey

Here is how the **Veggie- mobile** would work:

- It would deliver bags of fresh produce to schools and community organizations such as [Dobbins].
- People could sign-up each week to buy bags of fruits and vegetables from the **Veggie-mobile**.
- The bags could be ordered ahead of time and paid for when they were picked up.
- Each week there would be different fruits and vegetables in the bag, but everyone who gets a bag would get the same produce.
- Ordering in advance and giving everyone the same thing would allow us to keep the cost lower than if everyone just picked what they wanted to buy each week.

Please tell us what you think about having a veggie-mobile come to your community.

1. If the veggie-mobile were to come to your community, how likely would you be to use it to buy fresh fruits and vegetables?
 Very Likely Somewhat Likely Somewhat Unlikely Very Unlikely
2. What would be the most convenient location for you to pick up Fruits and vegetables from the veggie-mobile?
 [Location at which survey is distributed]
 My church or place of worship which is called: _____
 My child's school which is called: _____
 Other: _____
3. What type of payment would you be willing to use to buy fruits and vegetables from the Veggie-mobile? (check all that apply)
 Cash Check Credit or Debit Card
 WIC vouchers EBT Card Other: _____
4. How much would you be willing to spend each week on fresh, locally-grown, organic fruits and vegetables?
 \$5 or less \$10 \$15 \$20 or more
5. What days would be best for you to pick up fruits and vegetables? (put a check the box next to all of the times that would work for you)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Daytime	Daytime	Daytime	Daytime	Daytime	Morning	Morning
Evening	Evening	Evening	Evening	Evening	Afternoon	Afternoon

Thank you for taking the time to complete this survey!

APPENDIX E: Flyer for use by Key Informants for Recruitment



**Are you interested in eating healthier?
Do you want to see more healthy food options in our
community?**

We want to hear what you think!

Join us for a focus group discussion. Researchers at the University of North Carolina at Chapel Hill and Duke University are working together with local community organizations to understand the best ways to bring more healthy food to our community.

Focus Group Info:

- Anyone age 18 or older who is a member of [organization name] can participate
- Focus Groups will last [45/90] minutes
- You will receive a [\$15/\$25 Gift Card for participating].

**Don't have time for a focus group?
You can take a 5-minute survey instead**

Please contact [Organization's Key Informant Name] at [email] or [phone number] for more information or to sign-up for a focus group or to take a survey.

This study was approved by the University of North Carolina Internal Review Board, study #XXXX.



Appendix F**Consent For Focus Group
Masters Project: Examining Real and Perceived Food Deserts in Orange and Durham
Counties of North Carolina
Duke University Nicholas School of the Environment and Earth Sciences**

This letter is to invite your participation in a focus group session that is part of a research project at Duke University for my masters project working with food deserts in Durham. My name is Sarah Parsons, and I am working to earn a master's degree at Duke's Nicholas School of the Environment and Earth Sciences. Over time, I hope to interview a number of members of the Durham and Orange County communities. The purpose of this research is to locate food deserts in Durham and Orange Counties and learn how best to provide them with access to local healthy produce.

Each session will be a conversation between myself, my colleague Lindsey Haynes-Maslow from the University of North Carolina Chapel Hill, other members of the community in which you live, and you, and will require at most two hours of your time. During the interview, you will be asked to share your opinions. No right or wrong answer exists to any of the questions asked during the interview, and the researcher is not hoping to hear any particular answer from you. Results from this focus group session (along with other focus group sessions and interviews) will help to gain insights on food deserts in Durham and Orange County.

Although I do not anticipate that any questions will request information you might consider sensitive or confidential, I do want to provide you with the following information about how I will treat the information you provide. I will assign everyone a gender-consistent pseudonym. Your name and contact information are contained in a database that only I have access to, and that is password protected. The raw data (transcribed interview) will be known only to the researcher, and will not be shared with anyone else.

With your permission, the discussion will be audio taped. The tape will be used to assist me in writing a report about the discussion. Again, no one but myself and my colleague will have access to the audio tape. Your participation in this interview is purely voluntary. You are free to refuse to respond to any question and to discontinue your participation at any time during the interview.

If you choose to participate you will be provided a small compensation of \$25 in the form of a gift certificate to a local grocery store.

If you have any questions about this meeting, please contact Sarah Parsons by phone at (678) 637-6042 or by email at sep30@duke.edu. You may also contact her major professor, Dr. Charlotte Clark, if you wish at cclark@duke.edu. If you have any questions about your rights as a research participant, please contact the chair of the Human Subjects Committee at (919) 684-3030. If you agree to this interview, please sign below and indicate whether or not you permit the discussion to be audio taped.

Sarah Parsons

I have read the information in this consent form and have been given the opportunity to discuss it and ask questions.

- I allow the discussion to be audio taped
 I do not allow the discussion to be audio taped

Print Name: _____
Sign Name: _____ Date: _____

Consent For Personal Interview
Masters Project: Examining Real and Perceived Food Deserts in Orange and Durham
Counties of North Carolina
Duke University Nicholas School of the Environment and Earth Sciences

This letter is to invite your participation in a personal interview that is part of a research project at Duke University for my masters project working with food deserts in Durham. My name is Sarah Parsons, and I am working to earn a master's degree at Duke's Nicholas School of the Environment and Earth Sciences. Over time, I hope to interview a number of members of the Durham and Orange County communities. The purpose of this research is to locate food deserts in Durham and Orange Counties and learn how best to provide them with access to local healthy produce.

Each interview will be a conversation between myself, my colleague Lindsey Haynes-Maslow from the University of North Carolina Chapel Hill, and you, and will require at most one hour of your time. During the interview, you will be asked to share your opinions. Results from this interview (along with other interviews) will help to gain insights on food deserts in Durham and Orange County.

Although I do not anticipate that any questions will request information you might consider sensitive or confidential, I do want to provide you with the following information about how I will treat the information you provide. Your name and contact information are contained in a database that only I have access to, and that is password protected. The raw data (transcribed interview) will be known only to the researcher, and will not be shared with anyone else. I may use quotes gathered from this interview and other personal key informant interviews when I write the report summarizing my findings. If you are not comfortable with having your name or organization identified with a quote, please feel free to inform me, and I will keep your name and organization in confidentiality when reporting my findings from these discussions.

With your permission, the discussion will be audio taped. The tape will be used to assist me in writing a report about the discussion. Again, no one but myself and my colleague will have access to the audio tape. Your participation in this interview is purely voluntary. You are free to refuse to respond to any question and to discontinue your participation at any time during the interview.

If you choose to participate you will be provided a small compensation of \$40.

If you have any questions about this meeting, please contact Sarah Parsons by phone at (678) 637-6042 or by email at sep30@duke.edu. You may also contact her major professor, Dr. Charlotte Clark, if you wish at cclark@duke.edu. If you have any questions about your rights as a research participant, please contact the chair of the Human Subjects Committee at (919) 684-3030. If you agree to this interview, please sign below and indicate whether or not you permit the discussion to be audio taped.

Sarah Parsons

I have read the information in this consent form and have been given the opportunity to discuss it and ask questions.

I allow the discussion to be audio taped

I do not allow the discussion to be audio taped

Print Name: _____

Sign Name: _____ Date: _____

**APPROVAL from IRB
August 17, 2011**

Protocol : [A0615] Examining Real and Perceived Food Desserts in Orange and Durham Counties in North Carolina

Researcher(s) :

Charlotte Clark(Advisor)

Sarah Parsons(Graduate Student Researcher)

Anniversary Date : 5/22/2012

Your request to amend the exemption has been approved.

As noted in the approval of your research, it is essential that you:

- Submit additional requests to amend the protocol if further revisions to the research are anticipated. The form, Request to Amend an Exemption, may be submitted via email. No signatures are required. The form can be found at <<http://www.ors.duke.edu/Research-with-Human-Subjects/forms>>.
- Notify the IRB immediately at lorna.hicks@duke.edu if there are any unanticipated risks to subjects or deviations from the research procedures described in the protocol. In accordance with Duke policy, retain all research data, including signed consent forms.

August 5, 2011

Protocol : [A0615] Examining Real and Perceived Food Desserts in Orange and Durham Counties in North Carolina

Researcher(s) :

Charlotte Clark(Advisor)

Sarah Parsons(Graduate Student Researcher)

Anniversary Date : 5/22/2012

Your request to amend the exemption has been approved.

As noted in the approval of your research, it is essential that you:

- Submit additional requests to amend the protocol if further revisions to the research are anticipated. The form, Request to Amend an Exemption, may be submitted via email. No signatures are required. The form can be found at <<http://www.ors.duke.edu/Research-with-Human-Subjects/forms>>.
- Notify the IRB immediately at lorna.hicks@duke.edu if there are any unanticipated risks to subjects or deviations from the research procedures described in the protocol. In accordance with Duke policy, retain all research data, including signed consent forms.

May 22, 2011

Protocol : [A0615] Examining Real and Perceived Food Desserts in Orange and Durham Counties in North Carolina

Researcher(s) :

Charlotte Clark(Advisor)

Sarah Parsons(Graduate Student Researcher)

Anniversary Date : 5/22/2012

Your *Request for a Screening for Exemption* has been approved.

Exempt research does not require continuing review; however, you will be contacted at one-year intervals to ask if the research is still active. We encourage you to let us know when the research has been completed. Write to us at ors-info@duke.edu.

When conducting research approved as exempt, it is essential that researchers:

- Submit proposed changes to the IRB for review. The form, Request to Amend an Exemption, may be submitted via email. No signatures are required. The form can be found at <<http://www.ors.duke.edu/Research-with-Human-Subjects/forms>>.

There are two possible outcomes of the review of the request:

1. The proposed changes are such that the research no longer qualifies for exemption. You will be asked to submit a *Request for protocol Approval:Expedited Review or Full*

Review.

2. The proposed changes do not change the status of the research as exempt. If this is the case, you will receive an Exemption Amendment Approval notice when the amendment is approved.

- Notify the IRB immediately at lorna.hicks@duke.edu if there are any unanticipated risks to subjects or deviations from the research procedures described in the protocol.

Retain all research data, including signed consent forms, for at least five years, as required by Duke's Data Retention Policy.

APPENDIX B

Codebook 10/19/2011

Code	Definition
Availability	How frequently participants are able to access to food; Not having ready access to fruits and vegetables is an obstacle (B) or (F)
Buying Local	Buying or supporting local produce
Change	Participants directly mentioned unwillingness to change eating behavior or diet because of taste or other factors. Unwilling to change; difficulty to change the way participants eat or cook. (B) or (F)
Children's food preference	Mentions child's preference for specific foods, this includes likes and dislikes (B) or (F)
Child health	Issues relating to child health, i.e., caring for the overall needs of the child; consideration of child in purchasing fruits and vegetables. (B) or (F)
Cleanliness	Cleanliness of store in which produce is sold; the overall appearance of the store and/or food (B) or (F)
Community change	Participants directly mention a type of change related to food access in their community
Community garden	Any mention or response to community gardens -- places where people can grow and harvest gardens (T)
Community needs	Needs voiced for the community, such as voicing that there are lot of elderly people in the community (B) or (F)
Convenience	Convenience in location, time it takes to shop, and in cooking (B) or (F)
Cooking facility	Having a place to store, prepare, and cook foods; this also refers to a lack of cooking facility (B) or (F)
Cooking knowledge	Knowledge or lack of knowledge on how to prep, assemble, prepare, and cook produce (B) or (F)
Cost	Cost of fruits and vegetables (whether expensive or inexpensive) as barrier or facilitator to purchasing (B) or (F)
Current food shopping behavior	How participants currently shop for food; encompasses all current behaviors that act as obstacles or facilitators to purchasing fruits and

Code	Definition
	vegetables (B) or (F)
Current produce programs	A program that increases access to F&V in the community (B) or (F)
Customer service	Facilitator to buying from the Veggie Van (B) or (F)
EBT	Food outlet accepting or not accepting EBT cards (B) or (F)
Farmer's Market	Mention about farmer's market; positive or negative (T)
Fast food	Refers to when a participant mentions fast food, either a positive or negative, i.e., fast food prices, marketing, taste, healthiness, ect. (B) or (F)
Food culture	Refers to when participant mentions ways of cooking and the foods cooked in different culture; also refers to what countries call certain food and/or dishes.
Food purchasing past culture	Reference to how they used to purchase produce (road side stands, vegetable man, local farm stands)
Food safety	Reference to food safety – i.e., preparing and storing, meats, dairy, fruits and vegetables. (B) or (F)
Gardening knowledge	Expresses knowledge of growing and/or harvesting food (B) or (F)
Generational food experience	Food experience changes over time, i.e., grandparents, parents, kids preference change (B) or (F)
Geographic Location	Overall distance to and from food outlet (whether walking, biking, or driving) (B) or (F)
Healthy food stigma	Participants mentions the negative associations of healthy food perceived among their community members (i.e., taste, price, ect.,) (B)
Healthy restaurant	Talking about a healthy fast-food restaurant (T)
Household food preference	Mentions household's preference for specific foods, this includes likes and dislikes (does <i>not</i> include children) (B) or (F)
Household health	Issues relating to feeding the family, taking care of family members, and caring or the overall needs of the family; consideration of family health in purchasing fruits and vegetables (does <i>not</i> include children) (B) or (F)

Code	Definition
Language	Mentions language as a barrier to cooking and eating more fruits and vegetables in the community (mostly only mentioned in latina focus group) (B) or (F)
Nutrition education	Participants expresses a need for or interest in nutrition education (B) or (F)
Nutrition assistance programs	Refers to WIC, SNAP, Senior Farmer's Market; ability to qualify for state/federal nutrition assistance programs (B) or (F)
Nutrition knowledge	Participant expresses knowledge about nutrition (B) or (F)
Organic preference	Expresses like or desire to buy/consume organic foods
Organic stigma	Participants mentions the negative associations of organic food perceived among their community members (i.e., taste, price, ect.,)
Perceived health benefits	Eating F&V because they are perceived to benefit overall health
Perishability	Consideration of how long the item will keep once purchased, i.e., produce spoiling too quickly (B) or (F)
Personal eating habits	Participants directly mentioned what they eat currently (not necessarily what they want to eat--this would coded as food preference) (B) or (F)
Personal food preference	Mention of what a participant wants to eat, or wishes they could eat (refers to taste, wanting to eat more healthy, ect.) (B) or (F)
Personal health	Personal health issues, such as diabetes, etc., mentioned by participants that either encourage or dissuade purchasing fruits and vegetables (B) or (F)
Promotion	How to promote a food access program within the community, such as the Veggie Van, community garden, healthy restaurant, EBT, SNAP, WIC (B) or (F)
Quality	Refers to the produce's freshness, appearance (bruised), and smell (B) or (F)
Safety	Feeling safe when traveling to or from a food outlet, and during the shopping process (B) or (F)

Code	Definition
School food	Participant refers to school food -- positive or negative; i.e., taste, quantity, nutrition value, cost, ect. (B) or (F)
Storage	Ability to appropriately store F&V in a given space (i.e., shopping bags on bus, refrigerator, buying in bulk) (B) or (F)
Taste	Taste -- whether good or bad -- refers to how the food is perceived by the participant (B) or (F)
Time	Refers to individuals personal schedule, or a food outlet schedule (B) or (F)
Traditional cuisine	Mention of traditional cooking; "traditional" refers to what the greater literature describes as traditional predominately Southern cuisine dishes (i.e., ham hocks, chitlins, collard greens)
Transportation	Car, bus, bike, or walk -- any mode of transportation to and from place to buy fruits and vegetables (can be facilitator or barrier) (B) or (F)
TROSA	Refer to TROSA grocery store – positive or negative comments about the grocery store's presence in the community, quality of food, pricing, and/or convenience.
Trust	Knowing and trusting the person you are buying produce from, i.e., farmer, grower, seller (B) or (F)
Variety	Variety of different types and size of fruits and vegetables; having have the opportunity to choose what you want (B) or (F)
Veggie Van	Talk about the Veggie Van (T)
Weather	Weather affecting a person's ability to travel to and from food outlet (B) or (F)

Key

(B) or (F) = Barrier or Facilitator code, depending on context

(T) – Topical code

APPENDIX C

Demographics

Key

- Senior Center- Female = Senior Female Focus Group
- Senior Center – Male = Senior Male Focus Group
- AA 1, AA 2, AA 3, AA 4, AA 5 = Predominately African American Focus Groups
- Latino = Latino Focus Group

Focus Group	Sex	Age	How many adults (ages 18 or older) live with you	How many children (under age 18) live with you	What is the highest grad of school you have completed	What is your marital status	What is your yearly household income	What do you consider yourself	Have you/household receive SNAP in the past 12 mos	Have you/household received govmt assistance in past 12 mos
Senior Center - Female	F	59	1	0	Some high school	Divorced	less than 10,000	African American	Yes	--
Senior Center - Female	F	75	1	0	Some college	Never been married		White	no	no
Senior Center - Female	F	74	2	0	College graduate	Divorced	less than 10,000	African American	no	no
Senior Center - Female	F	59	2	0	Some college	Married/living with partner	10,000-19,999	White	no	No
Senior Center - Female	F	57	2	0	High school/GED	Married/living with partner	30,000-49,999	African American	No	No
Senior Center - Female	F	75	2	0	More than college	Divorced	20,000-29,999	White	Yes	Yes
Senior Center - Female	F	75	1	0	Some high school	Widowed	20,000-29,999	White	No	No

Focus Group	Sex	Age	How many adults (ages 18 or older) live with you	How many children (under age 18) live with you	What is the highest grad of school you have completed	What is your marital status	What is your yearly household income	What do you consider yourself	Have you/household receive SNAP in the past 12 mos	Have you/household received govmt assistance in past 12 mos
Senior Center - Female	F	77	0	0	More than college	Divorced	10,000-19,999	White	No	Yes
Senior Center - Female	F	68	1	0	More than college	Widowed	30,000-49,999	White	No	No
Senior Center - Female	F	67	1	0	College graduate	Divorced	20,000-29,999	White	No	No
Senior Center - Female	F	69	1	0	High school/GED	Married/living with partner	less than 10,000	African American	No	No
Averages		68.64								
Senior Center - Male	M	71	0	0	Some high school	Divorced	10,000-19,999	White	No	No
Senior Center - Male	M	84	0	0	High school/GED	Divorced	10,000-19,999	White	No	No
Senior Center - Male	M	70	0	0	More than college	Married/living with partner	50,000 or more	White	No	No
Senior Center - Male	M	94	0	0	Some high school	Widowed	10,000-19,999	White	No	No
Senior Center - Male	M	79	0	0	More than college	Divorced	10,000-19,999	White	No	Yes

Focus Group	Sex	Age	How many adults (ages 18 or older) live with you	How many children (under age 18) live with you	What is the highest grad of school you have completed	What is your marital status	What is your yearly household income	What do you consider yourself	Have you/household receive SNAP in the past 12 mos	Have you/household received govmt assistance in past 12 mos
Senior Center - Male	M	75	1	0	High school/GED	Married/living with partner	--	African American	No	No
Senior Center - Male	M	59	0	0	High school/GED	Separated	less than 10,000	African American	Yes	--
Senior Center - Male	M	78	1	0	Eighth grade or less	Divorced	--	African American	Yes	No
Senior Center - Male	M	68	0	0	Some college	Widowed	20,000-29,999	African American	No	No
Senior Center - Male	M	68	2	0	College graduate	Divorced	--	African American	No	No
Averages		74.6								
AA 1	F	49	2	3	Some college	Married	\$20,000-\$29,999	African American	No	No
AA 1	M	28	2	2	College graduate	Never been married	\$30,000-\$49,999	White	Yes	No
AA 1	F	40	0	1	Some high school	Separated	less than \$10,000	White	Yes	Yes
AA 1	M	54	1	0	Some college	Divorced	\$20,000-\$29,999	African American	No	No
AA 1	M	--	1	0	High school graduate	Separated	less than \$10,000	African American	Yes	Yes
AA 1	M	54	0	0	Some college	Never been married	less than \$10,000	African American	Yes	No
AA 1	M	51	0	0	High school graduate	Divorced	less than \$10,000	African American	Yes	--

Focus Group	Sex	Age	How many adults (ages 18 or older) live with you	How many children (under age 18) live with you	What is the highest grad of school you have completed	What is your marital status	What is your yearly household income	What do you consider yourself	Have you/household receive SNAP in the past 12 mos	Have you/household received govmt assistance in past 12 mos
AA 1	M	50	1	0	High school graduate	Divorced	less than \$10,000	African American	Yes	No
AA 1	M	47	0	0	High school graduate	Never been married	less than \$10,000	African American	Yes	Yes
AA 1	M	60	0	0	High school graduate	Never been married	less than \$10,000	African American	No	No
Averages		48.11								
AA 2	F	67	5	6	High School Graduate	Widowed	Less than \$10,000	African American	No	Yes
AA 2	F	48	3	0	High School Graduate	Divorced	Less than \$10,000	African American	Yes	No
AA 2	F	29	2	3	Some college	Married	Less than \$10,000	African American	Yes	Yes
AA 2	F	--	2	0	High School Graduate	Married	\$10,000-\$19,999	African American	No	No
AA 2	F	28	1	3	Some college	Separated	\$20,000,\$29,999	African American	Yes	Yes
AA 2	F	34	3	2	Some college	Never been married	\$10,000-\$19,999	African American	No	Yes
AA 2	M	38	6	0	Trade or beauty school	Never been married	Less than \$10,000	African American	No	Yes
AA 2	M	47	2	0	High School Graduate	Never been married	Less than \$10,000	African American	No	No
AA 2	M	56	3	0	Some college	Married	\$10,000-\$19,999	African American	No	No
Averages		43.38								
Latino	F	33	--	3	8th grade or less	Married	\$10,000-\$19,999	Hispanic	No	Yes

Focus Group	Sex	Age	How many adults (ages 18 or older) live with you	How many children (under age 18) live with you	What is the highest grad of school you have completed	What is your marital status	What is your yearly household income	What do you consider yourself	Have you/household receive SNAP in the past 12 mos	Have you/household received govmt assistance in past 12 mos
Latino	F	38	--	--	8th grade or less	--	Less than \$10,000	Hispanic	No	--
Latino	F	40	--	1	8th grade or less	Married	Less than \$10,000	Hispanic	No	Yes
Latino	F	26	--	0	8th grade or less	Married	--	Hispanic	No	No
Latino	F	55	--	2	Some college	Married	\$10,000-\$19,999	Hispanic	Yes	Yes
Latino	F	30	--	--	Some high school	Married	\$10,000-\$19,999	Hispanic	No	No
Latino	F	33	--	3	8th grade or less	Married	Less than \$10,000	Hispanic	Yes	Yes
Latino	F	23	--	2	8th grade or less	Married	\$10,000-\$19,999	Hispanic	Yes	Yes
Averages		34.75								
AA 3	F	46	1	0	High school	Never been married	\$10,000-\$19,999	African American	No	Yes
AA 3	F	39	3	2	College graduate	Never been married	less than \$10,000	African American	Yes	Yes
AA 3	F	56	0	1	Some high school	Never been married	less than \$10,000	African American	Yes	Yes
AA 3	F	39	2	2	High school	Never been married	less than \$10,000	African American	Yes	Yes
AA 3	F	32	1	1	Some college	Never been married	less than \$10,000	African American	Yes	Yes
AA 3	F	37	2	4	High school	Separated	less than \$10,000	African American	Yes	Yes
Averages		41.5								
AA 4	F	57	1	0	High school	Never been married	\$10,000-\$19,999	African American	No	--

Focus Group	Sex	Age	How many adults (ages 18 or older) live with you	How many children (under age 18) live with you	What is the highest grad of school you have completed	What is your marital status	What is your yearly household income	What do you consider yourself	Have you/household receive SNAP in the past 12 mos	Have you/household received govmt assistance in past 12 mos
AA 4	F	51	1	0	High school	Never been married	Less than \$10,000	African American	Yes	Yes
AA 4	F	33	1	3	Some high school	Never been married	Less than \$10,000	African American	Yes	Yes
AA 4	F	24	8	4	Some high school	Married or living with partner	Less than \$10,000	African American	Yes	Yes
AA 4	F	52	2	0	Eight grade or less	Never been married	Less than \$10,000	African American	Yes	Yes
AA 4	F	53	2	0	Some high school	Never been married	Less than \$10,000	African American	Yes	Yes
AA 4	F	22	2	0	Trade or beauty school	Never been married	\$10,000-\$19,999	African American	Yes	Yes
AA 4	F	22	2	0	High school	Never been married	\$10,000-\$19,999	African American	Yes	Yes
Averages		39.25								
AA 5	F	54	2	1	Some college	Never been married	\$10,000-\$19,999	African American	Yes	Yes
AA 5	F	60	2	0	High school	Married	Less than \$10,000	African American	No	No
AA 5	F	28	3	--	Some high school	Widowed	Less than \$10,000	African American	No	Yes
AA 5	F	45	5	1	Trade or beauty school	Never been married	Less than \$10,000	African American	No	No
AA 5	F	64	1	1	High school	Widowed	\$20,000-\$29,999	African American	Yes	No

APPENDIX D

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Coding Summary

Focus_group_coding

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Hierarchical Name	Aggregate	Coverage	Number Of Coding References	Number Of Users Coding
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Document

Internals\\Transcriptions\\Latino

Node

Nodes\\child health	No	0.48 %	1	1
Nodes\\Children's Food Preference	No	6.44 %	14	1
Nodes\\Community Garden	No	11.33 %	18	1
Nodes\\Community Need	No	0.07 %	1	1
Nodes\\Convenience	No	1.45 %	5	1
Nodes\\Cooking knowledge	No	4.97 %	10	1
Nodes\\Cost	No	10.53 %	31	1

Nodes\\Current food shopping behavior	No	7.97 %	24	1
Nodes\\Current Produce programs	No	0.13 %	1	1
Nodes\\Farmers' Market	No	1.50 %	6	1
Nodes\\Fast Food	No	7.39 %	14	1
Nodes\\Food Culture	No	1.41 %	3	1
Nodes\\Gardening knowledge	No	7.56 %	9	1
Nodes\\Geographic Location	No	0.63 %	2	1
Nodes\\Household food preference	No	0.60 %	1	1
Nodes\\Language	No	5.80 %	7	1
Nodes\\Nutrition Knowledge	No	2.28 %	3	1
Nodes\\Organic preference	No	0.21 %	2	1
Nodes\\Organic Stigma	No	0.37 %	3	1
Nodes\\Perceived Health Benefits	No	0.81 %	3	1
Nodes\\Perishability	No	0.46 %	2	1
Nodes\\Personal Eating Habits	No	0.89 %	2	1
Nodes\\Personal Food Preference	No	0.86 %	4	1
Nodes\\Personal Health	No	4.00 %	7	1
Nodes\\promotion	No	0.09 %	1	1
Nodes\\Quality	No	1.04 %	4	1
Nodes\\Restaraunt	No	12.32 %	25	1
Nodes\\Safety	No	1.16 %	3	1
Nodes\\School Food	No	1.15 %	11	1
Nodes\\Storage	No	2.28 %	3	1

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Hierarchical Name	Aggregate	Coverage	Number Of Coding References	Number Of Users Coding
Nodes\\Taste	No	1.49 %	5	1
Nodes\\Time	No	4.68 %	7	1
Nodes\\Traditional Cuisine	No	2.39 %	8	1
Nodes\\Transportation	No	2.48 %	4	1
Nodes\\Variety	No	1.36 %	3	1
Nodes\\Veggie Van	No	2.81 %	3	1
Nodes\\Weather	No	1.06 %	4	1

**Internals\\Transcriptions\\Senior_Female
Node**

Nodes\\Buying Local	No	0.66 %	4	1
Nodes\\Cleanliness	No	0.23 %	1	1
Nodes\\Community Garden	No	2.78 %	3	1
Nodes\\Community Need	No	1.20 %	2	1
Nodes\\Convenience	No	0.89 %	6	1
Nodes\\Cooking knowledge	No	3.60 %	7	1
Nodes\\Cost	No	11.16 %	24	1

Nodes\\Current food shopping behavior	No	7.47 %	15	1
Nodes\\Current Produce programs	No	13.28 %	23	1
Nodes\\Customer Service	No	0.22 %	1	1
Nodes\\EBT	No	0.76 %	2	1
Nodes\\Farmers' Market	No	7.75 %	18	1
Nodes\\Food Purchasing Past Culture	No	0.42 %	1	1
Nodes\\Gardening knowledge	No	1.14 %	1	1
Nodes\\Generational food experience	No	1.54 %	2	1
Nodes\\Nutrition Assistance Programs	No	2.08 %	7	1
Nodes\\Nutrition Knowledge	No	0.86 %	2	1
Nodes\\Organic preference	No	1.29 %	2	1
Nodes\\Organic Stigma	No	0.76 %	1	1
Nodes\\Perceived Health Benefits	No	1.29 %	7	1
Nodes\\Personal Eating Habits	No	0.28 %	1	1
Nodes\\Personal Health	No	0.12 %	1	1
Nodes\\promotion	No	3.64 %	10	1
Nodes\\Quality	No	0.30 %	2	1
Nodes\\Restaraunt	No	1.94 %	3	1
Nodes\\Storage	No	1.80 %	4	1
Nodes\\Time	No	2.48 %	6	1

Hierarchical Name	Aggregate	Coverage	Number Of Coding References	Number Of Users Coding
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Nodes\\Transportation	No	1.40 %	6	1
Nodes\\Variety	No	1.81 %	3	1
Nodes\\Veggie Van	No	4.88 %	13	1
Nodes\\Weather	No	2.47 %	6	1

Internals\\Transcriptions\\Senior_Male
Node

Nodes\\Availability	No	2.87 %	5	1
Nodes\\Change	No	0.22 %	2	1
Nodes\\Children's Food Preference	No	1.74 %	3	1
Nodes\\Community Change	No	1.42 %	2	1
Nodes\\Community Garden	No	4.56 %	12	1
Nodes\\Community Need	No	1.31 %	5	1
Nodes\\Convenience	No	0.62 %	3	1
Nodes\\Cooking knowledge	No	1.52 %	8	1
Nodes\\Cost	No	15.75 %	53	1
Nodes\\Current food shopping behavior	No	0.91 %	9	1
Nodes\\Current Produce programs	No	1.78 %	5	1
Nodes\\Farmers' Market	No	4.45 %	18	1
Nodes\\Fast Food	No	0.46 %	3	1

Nodes\\Food Purchasing Past Culture	No	1.27 %	8	1
Nodes\\Food Safety	No	1.64 %	4	1
Nodes\\Gardening knowledge	No	3.42 %	8	1
Nodes\\Generational food experience	No	9.62 %	30	1
Nodes\\Healthy Food Stigma	No	1.97 %	2	1
Nodes\\Organic preference	No	2.03 %	1	1
Nodes\\Organic Stigma	No	1.27 %	7	1
Nodes\\Perceived Health Benefits	No	0.42 %	4	1
Nodes\\Perishability	No	1.27 %	2	1
Nodes\\Personal Eating Habits	No	2.62 %	8	1
Nodes\\Personal Food Preference	No	3.38 %	11	1
Nodes\\Personal Health	No	0.62 %	1	1
Nodes\\promotion	No	5.72 %	10	1
Nodes\\Quality	No	0.55 %	4	1
Nodes\\Restaraunt	No	4.47 %	16	1
Nodes\\Storage	No	1.82 %	5	1
Nodes\\Time	No	3.73 %	13	1

Hierarchical Name	Aggregate	Coverage	Number Of Coding References	Number Of Users Coding
Nodes\\Transportation	No	1.02 %	3	1
Nodes\\Trust	No	1.80 %	1	1
Nodes\\Variety	No	1.79 %	3	1

Nodes\\Veggie Van	No	6.85 %	16	1
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Internals\\Transcriptions\\AA3

Node

Nodes\\child health	No	5.97 %	13	1
Nodes\\Children's Food Preference	No	11.23 %	25	1
Nodes\\Community Change	No	0.24 %	2	1
Nodes\\Community Garden	No	4.11 %	20	1
Nodes\\Community Need	No	0.64 %	3	1
Nodes\\Convenience	No	1.27 %	2	1
Nodes\\Cooking knowledge	No	2.54 %	9	1
Nodes\\Cost	No	8.84 %	31	1
Nodes\\Current food shopping behavior	No	8.23 %	31	1
Nodes\\Current Produce programs	No	3.53 %	17	1
Nodes\\EBT	No	0.76 %	4	1
Nodes\\Farmers' Market	No	0.90 %	7	1
Nodes\\Fast Food	No	3.18 %	7	1
Nodes\\Food Purchasing Past Culture	No	0.30 %	1	1
Nodes\\Generational food experience	No	7.46 %	13	1
Nodes\\Geographic Location	No	0.46 %	5	1

Nodes\\Household food preference	No	0.26 %	1	1
Nodes\\Household Health	No	1.94 %	4	1
Nodes\\Nutrition Knowledge	No	3.14 %	6	1
Nodes\\Organic preference	No	1.36 %	5	1
Nodes\\Organic Stigma	No	1.56 %	6	1
Nodes\\Perceived Health Benefits	No	2.01 %	4	1
Nodes\\Perishability	No	0.61 %	3	1
Nodes\\Personal Food Preference	No	3.67 %	9	1
Nodes\\Personal Health	No	0.23 %	1	1
Nodes\\promotion	No	0.77 %	9	1
Nodes\\Quality	No	0.86 %	5	1
Nodes\\Restaraunt	No	1.09 %	3	1
Nodes\\Safety	No	0.82 %	4	1
Nodes\\School Food	No	6.77 %	17	1

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Hierarchical Name	Aggregate	Coverage	Number Of Coding References	Number Of Users Coding
Nodes\\Taste	No	3.97 %	7	1
Nodes\\Time	No	0.47 %	2	1
Nodes\\Transportation	No	1.46 %	10	1
Nodes\\Veggie Van	No	2.94 %	19	1

Internals\\Transcriptions\\AA4
Node

Nodes\\Buying Local	No	0.73 %	4	1
Nodes\\child health	No	0.25 %	1	1
Nodes\\Children's Food Preference	No	2.32 %	14	1
Nodes\\Cleanliness	No	0.52 %	2	1
Nodes\\Community Change	No	1.20 %	6	1
Nodes\\Community Garden	No	3.70 %	26	1
Nodes\\Community Need	No	3.20 %	12	1
Nodes\\Cooking knowledge	No	2.98 %	14	1
Nodes\\Cost	No	7.75 %	50	1
Nodes\\Current food shopping behavior	No	4.55 %	25	1
Nodes\\Current Produce programs	No	2.65 %	13	1
Nodes\\EBT	No	2.16 %	14	1
Nodes\\Farmers' Market	No	2.69 %	25	1
Nodes\\Food Purchasing Past Culture	No	1.35 %	9	1
Nodes\\Gardening knowledge	No	0.87 %	7	1
Nodes\\Generational food experience	No	1.88 %	14	1
Nodes\\Nutrition Assistance Programs	No	1.23 %	3	1

Nodes\\Nutrition Education	No	1.95 %	9	1
Nodes\\Nutrition Knowledge	No	2.25 %	15	1
Nodes\\Organic preference	No	2.01 %	7	1
Nodes\\Organic Stigma	No	0.18 %	2	1
Nodes\\Perceived Health Benefits	No	0.88 %	6	1
Nodes\\Personal Eating Habits	No	0.12 %	1	1
Nodes\\Personal Food Preference	No	2.95 %	24	1
Nodes\\Personal Health	No	2.44 %	9	1
Nodes\\promotion	No	2.61 %	19	1
Nodes\\Quality	No	2.42 %	19	1
Nodes\\Restaraunt	No	2.33 %	17	1
Nodes\\Safety	No	0.42 %	3	1
Nodes\\School Food	No	0.01 %	1	1

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Hierarchical Name	Aggregate	Coverage	Number Of Coding References	Number Of Users Coding
Nodes\\Storage	No	1.01 %	1	1
Nodes\\Taste	No	2.22 %	17	1
Nodes\\Time	No	1.17 %	6	1
Nodes\\Transportation	No	1.75 %	15	1
Nodes\\Variety	No	0.82 %	9	1
Nodes\\Veggie Van	No	3.42 %	24	1

Internals\\Transcriptions\\AA2
Node

Nodes\\Availability	No	1.72 %	7	1
Nodes\\Buying Local	No	0.42 %	4	1
Nodes\\Change	No	1.21 %	2	1
Nodes\\child health	No	1.52 %	5	1
Nodes\\Children's Food Preference	No	0.56 %	3	1
Nodes\\Cleanliness	No	1.13 %	4	1
Nodes\\Community Garden	No	9.90 %	17	1
Nodes\\Community Need	No	0.89 %	3	1
Nodes\\Convenience	No	1.05 %	5	1
Nodes\\Cooking knowledge	No	3.09 %	10	1
Nodes\\Cost	No	8.64 %	43	1
Nodes\\Current food shopping behavior	No	1.32 %	6	1
Nodes\\Current Produce programs	No	3.95 %	12	1
Nodes\\EBT	No	1.93 %	6	1
Nodes\\Farmers' Market	No	4.90 %	21	1
Nodes\\Fast Food	No	0.97 %	4	1
Nodes\\Food Culture	No	1.40 %	7	1

Nodes\\Food Purchasing Past Culture	No	0.91 %	4	1
Nodes\\Gardening knowledge	No	3.95 %	11	1
Nodes\\Generational food experience	No	2.90 %	9	1
Nodes\\Geographic Location	No	5.35 %	19	1
Nodes\\Healthy Food Stigma	No	1.77 %	3	1
Nodes\\Household food preference	No	0.44 %	2	1
Nodes\\Household Health	No	0.92 %	1	1
Nodes\\Nutrition Assistance Programs	No	2.12 %	5	1
Nodes\\Nutrition Knowledge	No	0.47 %	2	1
Nodes\\Perceived Health Benefits	No	0.38 %	5	1
Nodes\\Perishability	No	0.29 %	2	1

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Hierarchical Name	Aggregate	Coverage	Number Of Coding References	Number Of Users Coding
Nodes\\Personal Eating Habits	No	0.62 %	5	1
Nodes\\Personal Food Preference	No	0.65 %	5	1
Nodes\\Personal Health	No	2.10 %	8	1
Nodes\\promotion	No	6.53 %	13	1
Nodes\\Quality	No	4.65 %	20	1
Nodes\\Restaraunt	No	7.96 %	31	1
Nodes\\Safety	No	2.77 %	11	1
Nodes\\Storage	No	1.08 %	3	1
Nodes\\Taste	No	4.75 %	20	1

Nodes\\Time	No	1.50 %	8	1
Nodes\\Traditional Cuisine	No	0.06 %	2	1
Nodes\\Transportation	No	2.30 %	16	1
Nodes\\TROSA	No	5.39 %	21	1
Nodes\\Trust	No	2.56 %	10	1
Nodes\\Variety	No	2.49 %	10	1
Nodes\\Veggie Van	No	7.93 %	40	1
Nodes\\Weather	No	0.32 %	2	1

Internals\\Transcriptions\\AA1

Node

Nodes\\Buying Local	No	1.27 %	10	1
Nodes\\Change	No	3.67 %	14	1
Nodes\\Cleanliness	No	0.34 %	2	1
Nodes\\Community Change	No	0.95 %	4	1
Nodes\\Community Garden	No	3.77 %	17	1
Nodes\\Community Need	No	0.16 %	1	1
Nodes\\Convenience	No	1.11 %	7	1
Nodes\\Cooking Facility	No	0.23 %	3	1

Nodes\\Cooking knowledge	No	3.80 %	17	1
Nodes\\Cost	No	2.27 %	23	1
Nodes\\Current food shopping behavior	No	1.16 %	7	1
Nodes\\Current Produce programs	No	1.05 %	6	1
Nodes\\Customer Service	No	0.43 %	7	1
Nodes\\EBT	No	1.09 %	9	1
Nodes\\Farmers' Market	No	2.71 %	24	1
Nodes\\Food Culture	No	0.53 %	8	1
Nodes\\Food Purchasing Past Culture	No	1.00 %	1	1

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Hierarchical Name	Aggregate	Coverage	Number Of Coding References	Number Of Users Coding
Nodes\\Gardening knowledge	No	3.14 %	8	1
Nodes\\Geographic Location	No	0.87 %	8	1
Nodes\\Healthy Food Stigma	No	0.48 %	2	1
Nodes\\Nutrition Education	No	4.02 %	10	1
Nodes\\Nutrition Knowledge	No	6.53 %	12	1
Nodes\\Organic preference	No	1.14 %	5	1
Nodes\\Organic Stigma	No	0.09 %	1	1
Nodes\\Perceived Health Benefits	No	0.89 %	4	1
Nodes\\Personal Eating Habits	No	3.95 %	14	1
Nodes\\Personal Food Preference	No	0.10 %	2	1
Nodes\\Personal Health	No	1.82 %	4	1

Nodes\\promotion	No	2.10 %	15	1
Nodes\\Quality	No	0.32 %	5	1
Nodes\\Restaraunt	No	1.08 %	11	1
Nodes\\Safety	No	3.78 %	18	1
Nodes\\Storage	No	0.29 %	2	1
Nodes\\Taste	No	2.05 %	14	1
Nodes\\Time	No	0.33 %	4	1
Nodes\\Transportation	No	0.16 %	2	1
Nodes\\Variety	No	1.21 %	9	1
Nodes\\Veggie Van	No	4.36 %	47	1

Internals\\Transcriptions\\AA5

Node

Nodes\\Buying Local	No	0.36 %	2	1
Nodes\\Change	No	1.41 %	5	1
Nodes\\child health	No	0.53 %	2	1
Nodes\\Children's Food Preference	No	0.48 %	1	1
Nodes\\Cleanliness	No	2.95 %	8	1
Nodes\\Community Change	No	3.60 %	6	1
Nodes\\Community Garden	No	5.32 %	27	1

Nodes\\Community Need	No	0.30 %	1	1
Nodes\\Cooking knowledge	No	4.98 %	26	1
Nodes\\Cost	No	22.48 %	102	1
Nodes\\Current food shopping behavior	No	4.61 %	24	1
Nodes\\Current Produce programs	No	2.35 %	6	1
Nodes\\EBT	No	0.52 %	4	1

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Hierarchical Name	Aggregate	Coverage	Number Of Coding References	Number Of Users Coding
Nodes\\Farmers' Market	No	1.85 %	11	1
Nodes\\Fast Food	No	2.48 %	7	1
Nodes\\Food Culture	No	1.58 %	7	1
Nodes\\Food Purchasing Past Culture	No	4.85 %	21	1
Nodes\\Food Safety	No	0.14 %	1	1
Nodes\\Gardening knowledge	No	2.59 %	10	1
Nodes\\Generational food experience	No	0.61 %	2	1
Nodes\\Geographic Location	No	7.34 %	20	1
Nodes\\Healthy Food Stigma	No	0.82 %	1	1
Nodes\\Nutrition Assistance Programs	No	0.23 %	1	1
Nodes\\Nutrition Knowledge	No	1.15 %	3	1
Nodes\\Organic Stigma	No	0.06 %	1	1
Nodes\\Perceived Health Benefits	No	0.44 %	2	1
Nodes\\Personal Eating Habits	No	0.30 %	2	1

Nodes\\Personal Food Preference	No	1.29 %	11	1
Nodes\\Personal Health	No	0.04 %	1	1
Nodes\\promotion	No	2.67 %	10	1
Nodes\\Quality	No	0.27 %	4	1
Nodes\\Restaraunt	No	5.25 %	15	1
Nodes\\Safety	No	0.74 %	6	1
Nodes\\Taste	No	0.02 %	1	1
Nodes\\Time	No	0.15 %	1	1
Nodes\\Transportation	No	1.23 %	8	1
Nodes\\Variety	No	0.25 %	2	1
Nodes\\Veggie Van	No	5.56 %	21	1
Nodes\\Weather	No	0.36 %	2	1

APPENDIX E

Other Policy and Community Solutions Given by Key Informants

Key Informants' ideas

- Cooking and nutrition classes with free dinner offered to families (preferably hosted at a church)
- Grocery store shuttle
- Stay away from the term "organic" ... it's a stigma
- Advertise with health organizations or providers
- Employ community members
- Personal gardens
- Use media (T.V.) to get the word out to Latina moms
- Have more Latino vendors at the farmers' market
- Host cooking classes at a place the Latino community trusts
- Account for traditional food preferences in food access programs
- Teach food service people to cook more healthy
- Get the word out about programs!
- Community garden network with a delivery system
- Get church involvement
- Get a champion in the community
- School Garden farmers' markets
- Let kids have ownership of what they cook or grow

Other ideas (taken from the focus groups)

- Cooking classes that use local ingredients to make traditional cuisines
- Translate recipes, gardening instructions into Spanish
- Host gardening workshops in Spanish (there was a particularly great interest in gardening among the Latino group)