

Locally Grown Ethnic Greens and Herbs: Demand Assessments and Production Opportunities for East Coast Farmers

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EXECUTIVE SUMMARY

This study primarily focused on identifying opportunities for small and medium farmers in the eastern United States to produce ethnic greens and herbs. The motivation for studying ethnic greens and herbs comes from the fact that the states in this study have a large ethnic immigrant population, consisting largely of Asians and Hispanics, which is growing every year. Since ethnic Hispanics and Asians population within the U.S. had combined purchasing power of almost US\$1.5 trillion in 2009, they could represent a major market opportunity for United States farmers, especially in the Eastern region of the U.S. Farmers in this region face growing constraints from land, increased cost of inputs and competition from other areas of the country in the supply of traditional produce items. To increase profitability, many farmers have been adopting the move towards growing specialty crops. Specialty crops are non-commodity crops, and have unique characteristics for which consumers are typically willing to pay a premium. Niche crops are usually targeted toward a specific, small consumer base such as a particular ethnic population. Since ethnic Hispanic and Asian populations in the Eastern United States has been growing steadily in the past decade, producing and marketing ethnic greens/herbs could be a profitable venture.

The primary focus of this project were marketing, estimating consumer demand for ethnic greens and herbs, willingness to pay a premium for fresh leafy greens and herbs, document ethnic consumers preferences for local produce and demographic characteristics; production and profitability and; dissemination of results to stakeholders. Specifically, the study aimed to answer the following important points: 1) Estimate the size of the ethnic greens and herbs market in the Eastern United States and determine the top ten ethnic greens/herbs for each ethnicity; 2) Document the consumer characteristics of those purchasing ethnic greens and herbs such as expenditure, visitation, frequency, distance travelled to purchase these products etc.; 3) Assess the demand for locally produced ethnic greens and herbs and document the characteristics of consumers who are willing to pay a premium for fresh and local produce; 4) Document the evolving structure of the supply chain in the ethnic greens and herbs industry in Eastern United States and analyze the issues faced by market intermediaries; 5) Conduct field trials, estimate profitability, and recommend best production practices and strategies to those participating; and 6) Communicate the results from the consumer survey, intermediary survey and production trials to stakeholders.

Based on the population characteristics and consumption priorities, this study selected four major ethnic groups, namely Chinese, Asian Indians, Mexicans and Puerto Ricans. The geographic focus was 16 states East-Coast including Washington D.C. The project team members identified greens/herbs of interest with the help of respective ethnic consumers and crop expert panel review members. The team members identified over 100 crops of greens and herbs out of which 40 were selected to represent 10 crops for each ethnicity to conduct the focus group bulletin board and telephone survey. A separate survey for each ethnicity was prepared and modified based on the input from experts and discriminating ethnic consumers.

To best achieve the goals of the overall project and develop a survey that can be utilized with a larger sample of the four ethnic groups is Phase II of the project. Four separate Internet bulletin board focus group sessions, one for each of the targeted ethnic groups held 10-12 March 2010, were conducted during Phase I to better understand consumers' use of ethnic greens and herbs and perceived quality, price, and availability. As focus group results indicated, availability of ethnic greens and herbs depended on panelists' location. Panelists residing in more metropolitan areas expressed that they had access to ethnic greens and herbs, through at least one outlet. A minority of panelist reported traveling distances up to 40 miles from their residence to purchase such ingredients. Responses were mixed pertaining to whether panelists chose to purchase from conventional grocery stores, from ethnic markets, or both. Availability of ethnic markets, product quality and freshness, and price influenced their purchasing decisions. For those who were able to compare conventional grocery stores with ethnic markets, noted that greens and herbs tended to be higher quality and, since they believed stock rotated more frequently at ethnic markets, were fresher and priced lower. While a few panelists provided prices for items sold at ethnic markets, compared to conventional grocery stores, most of the panelists either believed prices were cheaper and/or expected prices to be lower. Responses were then used to construct a telephone survey of ethnic consumers matching the criteria stated above. Data from both studies can be used to provide growers and retailers with information vital for meeting demand and exceeding the needs of ethnic consumers they serve. Furthermore, this market intelligence was designed to allow commercial growers to include new ethnic crops that would be of interest to these consumers to purchase, and in this way use the marketing and consumer studies to identify new crop opportunities thus tailoring their products and promotional activities to better meet the needs of those purchasing ethnic greens and herbs. Also, consumers will be able to purchase their familiar home country produce from local farms which will enable them to satisfy their social as well as community needs.

Moreover, promotion of locally grown produce reduces the food miles resulting in environmental benefits to the community.

The final survey instrument was adapted based on the focus group meeting results and a total of 1,117 samples (Chinese-276, Asian Indian-277, Mexicans-280, and Puerto Ricans-284) were collected randomly through a telephone survey from all four ethnicities. Additionally, 127 partial surveys from non-purchasers of ethnic greens and herbs (Chinese-21, Asian Indian-45, Mexicans-24, and Puerto Ricans-37) were also collected to document the reasons not to buy ethnic greens and herbs. The long version of the survey includes the top 10 crops for each ethnicity in order to document consumer demand. The cooperation rates of the consumer survey were calculated as: Chinese (34.8%), Asian Indian (42.1%), Mexican (44%) and Puerto Ricans (35.4%), and with the overall yield rate 39%.

The ten crops from each ethnicity were further refined through a systematic process based on the survey results (demand) and relevant production considerations (supply) for the local market place, targeting at least 6 crops per each ethnicity to be included in the subsequent production research. In order to estimate the overall size of the greens/herbs market for each ethnic group, the survey component collected information on overall expenditure on produce, expenditure on ethnic greens/herbs, expenditures on top ten greens/herbs and the number of times an ethnic respondent visited the grocery store in a month.

With the collated data, this study was also able to then estimate the state wide ethnic greens/herbs market demand for all Eastern United States (16 states + Washington D.C.). This will help producers and marketers to identify a target market. The first phase of the project was intended to document consumer buying patterns relating to ethnic greens and herbs. The second phase of the project was focused on production research and demonstration of selective ethnic greens and herbs in Florida, New Jersey and Massachusetts. In subsequent phases, ethnic crop growers, wholesale buyers, distributors, brokers and retailers will be surveyed to document the potential opportunities and limitations in expanding the ethnic greens and herbs markets. Combining ethnic consumer and intermediaries survey results, information from production trials, and the current views and practices of ethnic growers, will help to make final ethnic greens herbs recommendations in the Eastern United States. The overall results will help stakeholders in discovering potential changes in the ethnic markets that could be beneficial to small and medium size growers looking to increase the farm operational profit in the eastern United States.

Field research conducted on the promising ethnic greens and herbs in Florida, New Jersey and Massachusetts showed that many as expected were adaptable to being field-grown in the East Coast. While a number of these crops appear ready for commercialize in one or more states, many of the ethnic crops will require substantive further study to develop efficient and profitable production and harvesting systems. A number of these crops are limited in the availability of high quality and uniform seed supply, many are susceptible to a wide range of insects and diseases and many are poor competitors against weeds. Initial examination on a few ethnic greens and herbs (e.g. amaranth, nightshade) indicated that those examined are nutrient rich and such information could be of interest in generating additional market interest and linking horticulture with health and nutrition needs.

1. INTRODUCTION

Profitability, and subsequently farm viability, has been a challenge for produce growers in the eastern United States since the 1980's because of highly volatile market prices (Govindasamy, 2010). Growers in the east coast also operate on a relatively small land base with production costs that are generally higher per unit of crop output. This puts them at a competitive disadvantage against larger commodity growers from other states where production costs are comparatively lower. Encroachment of farmland by development coupled with the difficulty to maintain profitability create a challenge for some farming enterprises, especially for agronomic crops such as corn and soybeans that require large acreage and lower per acre cost of production to remain viable. In the 21st century, success in commercial farming in the East will depend largely on the ability of the growers to focus on high value, specialty crops such as ethnic produce targeted at specific niche markets for favorable competitive advantages.

Economic opportunities have arisen in the last decade for specialty crop agriculture catering to the ethnically diverse consumers along the east-coast of the United States (Govindasamy et al. 2006; Mendonca et al. 2006; Sciarappa, 2001-2003; Tubene, 2001). U.S. Census data projections indicate that New York and Maryland, each with 40% minority population estimates, are among the next set of states to become "majority-minority" states (Bernstein, 2005). U.S. Census data also shows that the mainstream population increased by 9.7 % from 2000 to 2010 as compared to 43% for Asians and 43.5% for Hispanics (Census 2000, 2010). According to 2001 Census Bureau reports, Hispanics and Asians continue to be the two fastest-growing minorities in the U.S. The overall U.S. average population increased 9.7% between 2000 and 2010 compared to 43.5 % Hispanic during the same period, making it the fastest growing minority group in the United States (Census 2000, 2010). The Hispanic population is projected to nearly triple from 49.7 to 132.8 million during the period from 2010 to 2050 (U.S. Census Bureau, 2008). Among Hispanics in the U.S., 65% of them were of Mexican origin, 9% of them were Puerto Rican origin, 3.5% of them Cuban, 3.3% of them Salvadoran and 3.3% of Dominican and the remaining were of other central American, South American or Latino origin (U.S.Census Bureau, 2009). Among Hispanics, about 14.2 million people were foreign born compared to 37.2 million overall U.S. foreign born populations. In terms of Hispanic ethnic subgroups, 8.6 million Mexicans were foreign born, whereas, only 47000 of Puerto Ricans were foreign born. A majority of the Mexicans were immigrants compared to Puerto Ricans. Based on the high concentration, Mexican and Puerto Rican subgroups were selected

from within the Hispanic population for this study. The 2000 census counted 11.9 million Asians. Between 2000 and 2010, the Asian population alone in 2010, increased by 4.4 million. If the Asian alone or in combination population is used, an increase of 5.4 million. Thus, from 2000 to 2010, the range for the increase in the Asian population was 43 percent. In comparison, the total population grew by 9.7 percent, from 281.4 million in 2000 to 308.7 million in 2010 (Census, 2000 and 2010).

The ethnic population boom along the East Coast is even more pronounced. Similarly, growing Hispanic concentrations are geographically dispersed along the East Coast, with just five states (FL, GA, NY, NC, and NJ) accounting for over one-fifth of the nation's Hispanic population growth and yielding a combined growth rate of 59%. Among the Hispanic population in the eastern U.S., Puerto Ricans are concentrated in New York (1,050,293), Florida (482,027) New Jersey (366,788), Pennsylvania (228,557) Massachusetts (199,207), Connecticut (194,443) and Virginia (41,131), whereas, Mexicans are concentrated in Florida (363,925), Georgia (275,288), New York (260,889), North Carolina (246,545), New Jersey (102,929), Virginia (73,979), Pennsylvania (55,178), and South Carolina (52,871). Overall, about 2.7 million Puerto Ricans and 1.6 million Mexicans are living in the eastern U.S. (Table 1). In ethnically diverse population hubs such as the Northeast Region, the Asian population growth reached 60% during this period. As can be seen in Table 1, among Asians in the eastern United States, a majority of Chinese are concentrated in New York (424,774), New Jersey (100,355), Massachusetts (84,392), and Pennsylvania (50,650). Among Asian Indians, a majority of them are living in New York (251,724), New Jersey (169,180), Florida (70,740), Pennsylvania (57,241) and Maryland (49,909). According to the annual UGA Selig Center Multicultural Economy study (Humphreys, J.M. 2009), the combined Hispanic and Asian ethnic populations of the U.S. had a purchasing power of almost 1.3 trillion in 2007. The buying power of Hispanics exceeded \$978 billion in 2009 and is estimated to be more than \$1.3 trillion by 2014. In the case of Asians, the buying power is estimated to be about \$508 billion in 2009, increasing to \$696.5 billion by 2014. The rapid expansion of ethnic populations and their purchasing power present significant opportunities for the produce sector, especially greens and herb producers in the region to take advantage of their close proximity to densely populated areas. Major retailers are responding to these population shifts. For example, to target the fast-growing ethnic population and increase its grocery sales, Wal-Mart Stores Inc. plans to convert two of its existing Phoenix and Houston supermarkets to stores that will specifically target the Hispanic shopper (Cheng, 2009). Farmers can follow Wal-Mart's example by adjusting their

production to cater to these new ethnic groups. Assessing the demand and determining production costs will allow farmers to target crops with the highest potential return.

A separate survey for each ethnicity was prepared and modified based on the input from experts and ethnic consumers, particularly, Chinese, Asian Indians, Mexicans and Puerto Ricans. Total of 1,117 samples were collected randomly from all four ethnicities along east-coast region of the United States. The survey also included the top 10 crops for each ethnicity to document consumer demand. The survey was pre-tested before conducting a focus group bulletin board survey. The focus group bulletin board survey was conducted between 10 and 12 in March, 2010. Estimation of the size of the ethnic greens and herb market and assessment of market demand would be examined using focus group sessions and surveys. The first phase of the project has documented consumer buying patterns relating to ethnic greens and herbs. This involved both focus group sessions and surveys. Based on the survey results, during the summer of 2011, production trials and crops demonstrations were started in New Jersey, Massachusetts and Florida. In phase three, wholesale buyers, distributors and retailers would be surveyed to document the opportunities and limitations to expand ethnic greens and herbs market in the Eastern United States.

Growing demand for ethnic greens and herbs presents opportunities for producers to exploit existing comparative advantages associated with serving ethnic markets in densely populated areas in order to increase profitability and sustain farming operations. The objectives of this study are summarized in the following general categories:

1. Estimate the size of ethnic greens and herbs market in the Eastern United States and determine the market demand for selected ethnic produce in the Eastern United States.
2. Document ethnic greens and herbs consumer characteristics such as expenditure, visitation, frequency, distance travelled to purchase these products and other characteristics.
3. Assess the demand for local ethnic greens and herbs and document the characteristics of consumers who are willing to pay a premium for fresh, local produce.
4. Document the evolving structure of the supply chain in the ethnic greens and herbs industry in Eastern United States and analyze the issues faced by market intermediaries.

5. Conduct field trials, estimate profitability, and recommend best production practices and strategies that participating growers may consider in order to first ensure adequate product supply and overcome problems of oversupply.
6. Communicate the results from consumer survey, intermediary survey and production trials to stakeholders.

The project intended to understand economic, social, and marketing factors that influence consumption of specialty crops. This initiative was to assess the profitability of specialty crops and evaluate the sustainability of current practices. It would increase the knowledge about health promoting properties of bioactive components found in specialty crops.

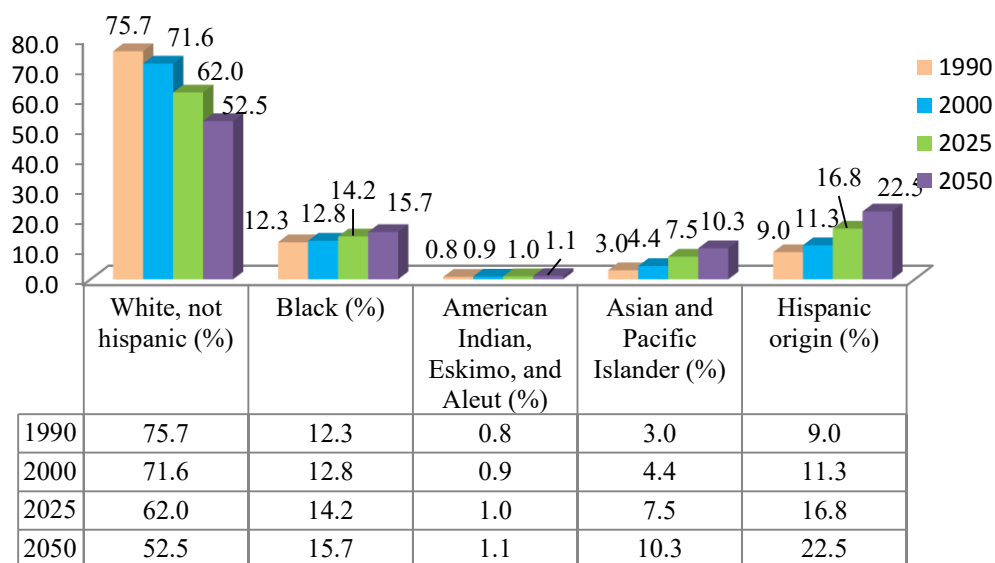
The entire process were to establish the economic benefits, both individual and societal, for increased consumption. It will also improve understanding the environmental, economic, and social implications of specialty crop production, distribution, and marketing - including the production and transportation of specialty crops. This innovative project used combinations of tried-and true economic methods such as in-depth interviews, focus groups, and surveying to analyze the demand for ethnic greens and herbs.

2. RESEARCH APPROACH

In view of national trends in ethnic populations (Figures 1 and 2), this research has intended to capture the opportunities in ethnic niche market growth in the areas of greens and herbs, which is expected to continue growing at a rapid rate. The specific ethnic market subjects of study were the Asian and Hispanic segments, chosen for their strong recent growth and continued growth expectations. The top two sub-groups within each of these segments were Chinese and Asian Indian (Asian sub-groups) and Puerto Rican and Mexican (Hispanic sub-groups). The geographic focus is the East Coast and includes Washington D.C. and sixteen states bordering the East Coast. This research has been carried out through a consortium of land grant universities, county government marketing specialists, small and medium sized growers who are true working partners in the process, and not just advisory in nature. While the collection and dissemination of information gathered has been listed under individual activity areas, data collection and information dissemination has been coordinated through a collaborative effort of team members and an industry-based advisory board. The industry-based advisory board

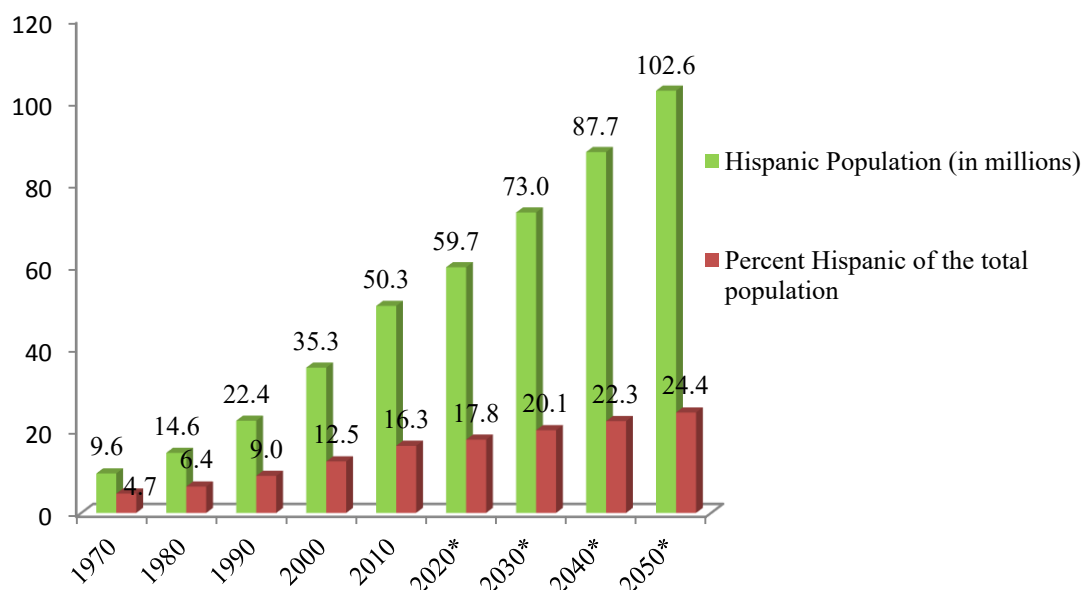
consists of growers, wholesale buyers, distributors and retailers who deal with ethnic specialty produce.

Figure 1: U.S. Population Projections by Race and Hispanic Origin (1990-2050)



Source: U.S. Census Bureau, Population Division, Population Projections of the United States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2050, Series P25-1104. (Extracted date: 5/24/2011).
<http://www.census.gov/population/www/pop-profile/natproj.html>

Figure 2: Hispanic Population in the United States: 1970 to 2050



Source: U.S. Census Bureau, 1970, 1980, 1990, 2000 and 2010 Decennial Censuses; Population Projections, July 1, 2020 to July 1, 2050.

2.1. Rationale and Significance

This project findings would be very relevant both for small and medium-sized farmers in the Eastern U.S, but also to the entire supply chain community as it would provide valuable insight into how consumers make their decisions to purchase ethnic greens and herbs, and elucidate which product attributes contribute to the process. Previous work (Govindasamy et al., 2006; Govindasamy et al., 2007; Park et al., 2007) has shown that ethnic consumers are looking for produce with specific attributes, such as specific varieties with authentic flavors. The aim of this project was to assist small and medium-sized farmers with better understanding of ethnic consumers and the factors that drive the consumer market for greens and herbs. Most of the ethnic greens and herbs reviewed can be grown in production systems similar to those used to grow traditional American crops. Some crops benefit tremendously by using the intensive production systems adopted to increase yields, weed control and irrigation efficiency. However, these same production systems have the potential to contribute to the same oversupply of the ethnic crops that they do for traditional vegetables in some instances. While niche markets of high value crops create potential income and contribute to farm viability, rapid over-production and inadequate marketing infrastructure can lead to an excessive supply of the products, causing depressed prices, reducing the viability for these crops for farmers. For example, Canadian growers, assisted by favorable U.S. to Canadian exchange rate, potential subsidies and the NAFTA open trade policy, are rapidly filling niche markets for some ethnic crops, such as Chinese cabbage (*Brassica rapa*) and water spinach (*Ipomoea aquatica*) and ethnic eggplants (*Solanum spp.*).

Despite the competitive disadvantages relative to year-round producers in western production areas, significant comparative advantages exist for local East Coast growers as a result of their proximity to densely populated areas rich in ethnic diversity (Govindasamy et al., 2006). Increasingly, these producers are adopting new crops or creating new value-added products in order to remain economically viable. Establishing or extending existing cooperative marketing associations along the East Coast, from North to South, can create an improved market system that will provide appropriate year-round supplies to markets up and down the Coast. Coordinated production and marketing are potential solutions to these perceived threats. New Jersey has a long tradition of cooperative marketing of produce, including the first and currently oldest operating produce cooperatives in the country. However, vegetable co-ops have tended to operate within state boundaries. Established cooperatives, such as the Landisville Produce

Cooperative (NJ) and/or Pioneer Valley Growers (MA) can provide links between ethnic crop growers, community markets and mainstream groceries. Extending their memberships or affiliations beyond the East Coast could create a market system to provide year-round supplies.

2.2. Data Collection

This entire project team, along with the advisory board, carried out the development, administration, and data collection from consumer focus group meetings and telephone survey. The specific ethnic market subjects of study were the Asian and Hispanic segments, within which of Chinese and Asian Indian (Asian sub-groups) and Puerto Rican and Mexican (Hispanic sub-groups subgroups) from the east coast region including Washington D.C. were chosen. The key components of this study included an assessment of consumers' preferences, shopping patterns, opinions, willingness to pay premiums for locally grown greens and herbs, willingness to buy organically grown and genetically modified greens/herbs as well as analysis of the demographic characteristics of likely purchasers. The data obtained from focus group meetings and telephone surveys was used to evaluate ethnic consumers purchasing behaviors such as frequency and quantities of ethnic greens/herbs, and estimate the overall market size. The survey instrument has also collected the top ten greens/herbs used by consumers from the four ethnicities.

2.3. Market Estimation and Production Research

This study was undertaken to examine the possible niche markets which East Coast farmers might be able to use to regain their advantage. Production of crop (s) or supplying of crop (s) to the market depends on correct estimation of demand or since incorrect estimation of demand would decrease the profit. Similarly, excess supply of crop (s) to the market tends to decrease the price of crop(s), and profit margin of a farm would decline. The ethnic greens/herbs demand has been estimated through the marketing research approach. The ethnic consumer survey has collected necessary expenditure data to estimate the overall greens/herbs market size for each of the four ethnic groups in the eastern United States. In the process of estimating market size, the survey component included the overall expenditure on produce, expenditure on ethnic greens/herbs, expenditures on top ten greens/herbs and the number of times an ethnic respondent visits the grocery store in a month. The study has also estimated the overall ethnic greens/herbs market demand for all of the Eastern United States (16 states + Washington D.C.) including State-wise market demand. This will help producers and marketers to identify the target market. The 40 greens/herbs included in

the survey instrument were selected from an initial list of over 100 ethnic greens/herbs based on the recommendations of selective ethnic consumers and a crop expert panel review. The surveyed crops list was further refined through a raking method based on expenditures, quantities and appropriate production considerations for the local market demand and supply factors.

3. ETHNIC CONSUMER SURVEY

The ethnic survey procedure was divided into two components, the focus group panel survey and the telephone survey. In the initial stage, the survey instrument was prepared and pretested before conducting the focus group bulletin board survey. The final telephone survey was prepared based on the input from the focus group survey results. This report presents both the procedures of the focus group bulletin board and telephone survey.

3.1. Focus Group Survey

To best achieve the goals of the overall project and develop a meaningful survey instrument to be utilized with a larger sample of four ethnic groups (Asian Indian, Chinese, Mexican and Puerto Rican), four separate Internet bulletin board focus group sessions, one for each of these targeted ethnic groups was held between 10-12 March 2010, and was used to better understand consumers' use of ethnic greens and herbs and perceived quality, price, and availability. Focus group participants were selected at random from a recognized panel of participants residing in 16 states located along the eastern coast of the United States and Washington D.C. (Table 1) as defined and managed by Survey Sampling International, LLC, (Shelton, CT) a provider of sampling solutions for survey research. Panelists received a consent statement from a Survey Sampling International project manager that was developed by the researchers and approved, along with the questionnaire, by both the Office of Research Protections at The Pennsylvania State University (University Park, PA) and the Office of Research and Sponsored Programs, Rutgers-The State University of New Jersey, (New Brunswick, NJ).

All potential participants were screened based on age and asked to participate if they were at least age 18 years, identified with one of the ethnic groups of interest, were responsible for at least half of the grocery shopping for the household, and lived within the East Coast region of the U.S. Panelists were informed of this criterion in the consent statement as well as their compensation (2500 Survey Sampling International, LLC. reward points which is the equivalent of \$25.00). To begin the survey, panelists would click on a hyperlink at the bottom

of the consent statement which then directed them to the survey welcome screen. Over a 48 hour period panelists, were instructed to login in the bulletin board system and respond to questions posed by the moderator, review other panelists' submissions, and comment if necessary. Each morning the moderator would send an email to all panelists recruited and remind them as to how to login to the system and to respond to new questions and review questions that were posted on the previous day. In total, of the 44 panelists who accessed the bulletin boards, 38 consumers completed the study: 11 in the "Chinese" ethnicity focus group session, 10 in the "Asian Indian" session, nine in the "Mexican" session, and eight in the "Puerto Rican" session. During the focus group meeting, participants were asked about their shopping habits, preferences, perceptions and demographic characteristics. Bulletin board focus group responses were used to construct a telephone survey of ethnic consumers.

3.2. Consumer Telephone Survey and Implementation

A telephone survey of consumers residing in states along the East Coast region (Connecticut, Delaware, Florida, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia and Washington D.C.) of the U.S. was conducted by Perceptive Marketing Research, Inc. (Gainesville, Florida), a market research firm. The survey was administered between 11 May to 22 Oct. 2010 to gather information that can be used to assist small and medium farmers with better understanding consumer perceptions and factors that drive ethnic greens and herbs markets, specifically attitudes and behaviors of Asian Indian, Chinese, Mexican, and Puerto Rican consumers. The survey instrument was approved by the Office of Research Protections at The Pennsylvania State University (University Park, PA) and the Office of Research and Sponsored Programs, Rutgers-The State University of New Jersey, (New Brunswick, NJ), and was pre-tested on a subset of the target consumer population (n=38) who participated in Internet bulletin board focus group sessions held 10-12 Mar, 2010. Based on responses, questions that were misleading or misunderstood were clarified prior to full deployment of the survey.

Consumers were deemed eligible if they were: 1) age 18 and older, to ensure that only adults participated; 2) the primary food shopper for the household; 3) belonged to the ethnic groups of interest; and 4) if they had purchased ethnic greens and herbs that corresponded to their ethnicity and heritage within the past 12 months, based on a definition read by the interviewer. Consumers who did not purchase ethnic greens and herbs within the past 12 months, and as a result did not qualify for the study, were asked to indicate why they decided not to purchase the items. They

were then asked to respond to the demographic questions and the interview was terminated. Interviews were conducted using the computer-assisted telephone interviewing system (CATI) with interview times averaging between 20 and 23 minutes, depending on ethnic group, and conducted in Spanish if the participant preferred to communicate in this language.

Since Census 2010 results were not available, sample sizes for each ethnicity were identified based on Census 2000 (table 1). As indicated in Table 2, in total, 1117 completed survey responses were obtained: 276 from consumer identifying with the Chinese ethnic group, 277 from the Asian Indian ethnic group, 280 from the Mexican ethnic group, and 284 from the Puerto Rican ethnic group. Further sample size requirements were established, based upon ethnic group by state in accordance with a stratified random sampling method, with a minimum requirement of one sample per state for each ethnic group. The sampling error associated with each ethnicity is approximately $\pm 5\%$ with a 90% confidence interval. Consumers who met the age requirement, were the primary food shopper for the household, and belonged to the ethnic group of interest but had not purchased ethnic greens and herbs were classified as non-purchasers and included in the partially-completed survey category. Non-purchasers who were interviewed accounted for less than 1% of the total sample for each ethnic group with number of non-purchasers interviewed as follows: Chinese (19), Mexican (21), Puerto Rican (34), and Asian Indian (40).

Table 1: Distribution of East Coast Ethnic Populations in 2000

STATE	Ethnicity			
	Chinese	Asian Indian	Mexican	Puerto Rican
Connecticut	19,172	23,662	23,484	194,443
Delaware	4,128	5,280	12,986	14,005
District of Columbia	3,734	2,845	5,098	2,328
Florida	46,368	70,740	363,925	482,027
Georgia	27,446	46,132	275,288	35,532
Maine	2,034	1,021	2,756	2,275
Maryland	49,400	49,909	39,900	25,570
Massachusetts	84,392	43,801	22,288	199,207
New Hampshire	4,074	3,873	4,590	6,215
New Jersey	100,355	169,180	102,929	366,788
New York	424,774	251,724	260,889	1,050,293
North Carolina	18,984	26,197	246,545	31,117
Pennsylvania	50,650	57,241	55,178	228,557
Rhode Island	4,974	2,942	5,881	25,422
South Carolina	5,967	8,356	52,871	12,211
Vermont	1,330	858	1,174	1,374
Virginia	36,966	48,815	73,979	41,131
TOTAL	884,748	812,576	1,549,761	2,718,495

Source: United States Census 2000

Table 2: Ethnic Survey Sample Distribution by State

State	Chinese	Asian Indian	Mexican	Puerto Rican	Total
Connecticut	10	11	1	47	69
Delaware	1	1	4	1	7
District of Columbia	1	3	1	1	6
Florida	23	32	96	8	159
Georgia	9	26	65	1	101
Maine	2	1	1	1	5
Maryland	20	16	5	1	42
Massachusetts	37	16	1	51	105
New Hampshire	1	4	1	1	7
New Jersey	41	69	24	15	149
New York	76	30	15	71	192
North Carolina	14	14	50	1	79
Pennsylvania	20	24	5	81	130
Rhode Island	4	2	1	1	8
South Carolina	4	6	4	1	15
Vermont	1	1	1	1	4
Virginia	12	21	5	1	39
Purchasers*	276	277	280	284	1117
Partial Interviews**	21	45	24	37	127
Total Surveys	297	322	304	321	1244

* Purchasers are respondents that indicated they have purchased ethnic greens and herbs within the past 12 months.

** Partial Interviews are respondents that indicated they have not purchased ethnic greens and herbs within the past 12 months.

3.3. Cooperation Rate

The team relied heavily on the project advisory board in the design and dissemination of the surveys in order to enhance response rate. In total 7,678 number of leads were used by Perceptive Marketing Research, Inc in order to meet required samples. The random sample was drawn from their database which was compiled from various sources including public phone directories, Secretaries of State, County Courthouses, Public Record Notices etc. Ultimately, a total of 1244 responses were received from all four ethnic consumers as follows; 1,117 completed surveys by purchasers of ethnic greens and herbs (Chinese-276, Asian Indian-277, Mexicans-280, and Puerto Ricans-284) and 127 partial surveys from non-purchasers of ethnic greens and herbs (Chinese-21, Asian Indian-45, Mexicans-24, and Puerto Ricans-37).

Table 3: Ethnic Consumer Cooperation Rate

Survey Response Analysis		Ethnic group			
Variables used to calculate response rate	Chinese	Asian Indian	Mexican	Puerto Rican	Total
a)Complete Interviews (I)	276	277	280	284	1117
b)Partial Interviews (P)	21	45	24	37	127
Subtotal (a+b)	297	322	304	321	1244
c)Refusals	65	58	24	48	195
d)No answer	635	566	537	719	2457
e)Telephone interview was interrupted	17	12	11	9	49
f)Respondent was not available during initial and follow up attempts	137	128	120	131	516
g)Total unsuccessful contacts	854	764	692	907	3,217
Total	2,005	1,850	1,688	2,135	7,678
Response Rate	34.8%	42.1%	44%	35.4%	39%

Around 6% of households refused to answer the call and 32% of them reported as no answer. Overall, 42% of calls were reported as unsuccessful. As can be seen in Table 3, Cooperation rates for each ethnic group were calculated based on the number of complete and partial interviews divided by the sum of: a) complete interviews, b) partial interviews c) number of consumers who refused to participate, d) telephone call was not answered, telephone was busy, telephone call was intercepted by an answering machine, or computer-assisted telephone interviewing system (CATI) refused the telephone number, e)number of interviews that were interrupted, and f) number of cases where the respondent was not available during the initial and follow-up attempts. Based on this calculation cooperation rates have been given for each ethnicity: Chinese (34.8%), Asian Indian (42.1%), Mexican (44%) and Puerto Ricans (35.4%) and the overall rate was about 39%.

3.4.Data Limitations

Since the 2010 population census was not available at the time of survey execution, the survey samples were drawn based on the population of census 2000. The consumer survey was only planned to gather information on ethnic greens/herbs purchases by four ethnic communities in the East-coast region. The survey was not intended to collect data on non-ethnic greens/herbs that were purchased by ethnic consumers. The expenditure data collected from ethnic respondents would not reflect all ethnic greens/herbs. Furthermore, a short survey was also

conducted from the additional sample of 127 from the non-purchasers of ethnic produce to document future marketing trends of ethnic markets.

3.5. Subtlety of Ethnic Languages and Crop Name

The Survey Sampling International, LLC administered the surveys by using trained, bilingual phone interviewers to minimize response bias due to potential language barriers. All four ethnic surveys offered different language methodologies based on the ethnicity; (1) Chinese interviews offered/conducted in English, Mandarin, and Cantonese; (2) Indian interviews offered/ conducted in English and Hindi; and (3) Mexican and Puerto Rican interviews offered/conducted in English and Spanish. In anticipation of crop name recognition issues, all four surveys greens and herbs names translated into English and ethnic local language (s) to address these crop name recognition issues and ease any potential reduction in survey completions. With respect to Asian Indian communities, specially, crops names were translated into national (Hindi) and several local languages such as Kannada, Gujarati, Tamil, Telugu etc. Interviewers were also provided with additional crop names and/or crop pictures to ensure interviewer crop familiarity and increase their ability to communicate with survey respondents and to receive accurate information.

3.6. Survey Design: Sequence and Content

The survey questionnaire was designed to collect two sets of data pertaining to purchasers and non-purchasers of ethnic greens and herbs. The first survey question was asked to a respondent was whether he/she had bought ethnic greens and herbs in the last 12 months. If any respondent said “yes” for question number one, subsequently he/she was requested to answer all the questions of the survey. If any respondent said “no” for the same question, he/she had given the reasons for not purchasing ethnic greens and herbs and had answered only demographic questions and these respondents were categorized as non-purchasers. The reasons for not purchasing ethnic greens/herbs were due to, non-familiarity, lack of availability in main stream American stores, poor selection, large distance of ethnic store outlet, no ethnic store/outlet available, prices charged. The non-purchasers only answered reasons for not purchasing ethnic green/herbs and demographic characteristics. The non-purchasers data was collected to learn reasons for non-purchase and identify potential new or extended opportunities to utilize these ethnic markets in the eastern United States.

Those who answered affirmatively towards the purchasing of ethnic greens and herbs cooperated to complete full survey questions including frequency, proximity, expenditures on ethnic greens/herbs, point of purchase (typical American grocery store, ethnic grocery store, community farmers market, on-farm markets or roadside stands and pick your own) quantity, price, and expenditures. These attributes were helpful to quantify market demand, evaluate the importance of product features, and compare ethnic versus conventional stores. In terms of buying options, the survey questions were designed pertaining to consumers experiences when purchasing ethnic greens and herbs in rating the importance of attributes such as store availability, language the employee of store spoke, selection, freshness, quality, price, packaging, and information on the package, and the choices were prompted as “very important”, “somewhat”, “not important” and “unsure”. Furthermore, the survey included a set of questions relating to locally grown ethnic greens/herbs and respondents were asked whether they increased purchases of locally grown ethnic green/herbs because of quality/freshness, availability, desire to support local farmer, food miles, food safety and agro terrorism.

The survey participants were also asked several questions and opinions relating to willingness to pay a premium for ethnic greens and herbs, organically grown, genetically modified, country of origin (COOL), new herbs/greens and various promotional methods. The participants were also asked whether they grew ethnic greens/herbs at home and whether this attitude captured their interest in practicing their culinary tradition. The final section of the survey included detailed demographic information of respondents such as neighborhood, family size, number of children below 17 years of age, education, current occupation, household income, marital status, gender, language spoke at home, birth country and the age at which the respondent arrived to the United States. The complete version of the survey was intended to collect demand and marketing information including product, placement and promotion information. The data from this survey will assist small and medium farmers in better understanding consumer perceptions and the factors that drive the ethnic greens and herbs market.

3.7. Data Purpose

The survey was designed to document ethnic consumers’ information pertaining to their attitudes, preferences and demographic characteristics to evaluate their purchasing behavior towards ethnic greens and herbs. Especially, socio-demographic information such as gender, family size, age, education income, and employment status helps to target appropriate segments to identify potential market demand. Econometric models (e.g. qualitative choice, multiple regressions) have

been developed to identify the factors that significantly contribute towards willingness to pay for ethnic greens and herbs given the characteristics of consumers. The probability of willing to pay a premium given the consumer characteristics has been estimated using a logit and probit framework. Along with the probability models, the conjoint analysis has been used to elicit consumer preferences for specialty ethnic greens and herbs. These models will facilitate effective distribution efforts by enabling producers, wholesalers, and retailers to target appropriate markets and locations, based upon demographic profiles and geographic population concentrations.

The survey also included ethnic consumer's overall expenditures on total produce per month and expenditures on ethnic greens/herbs per visit, and number of visits per month. Each of four ethnic market sizes has been estimated based on expenditure data sets. A separate question relating to top ten ethnic greens/herbs per each ethnicity was also included in the survey to document expenditure per week, price per unit, and quantities in terms of pounds/bunches/numbers per each crop to prioritize the subsequent production research. The top ten crops data used in the crop selection process was based on ranking criteria using purchasing frequency and total expenditures with zero purchase.

4. CROP SELECTION PROCESS

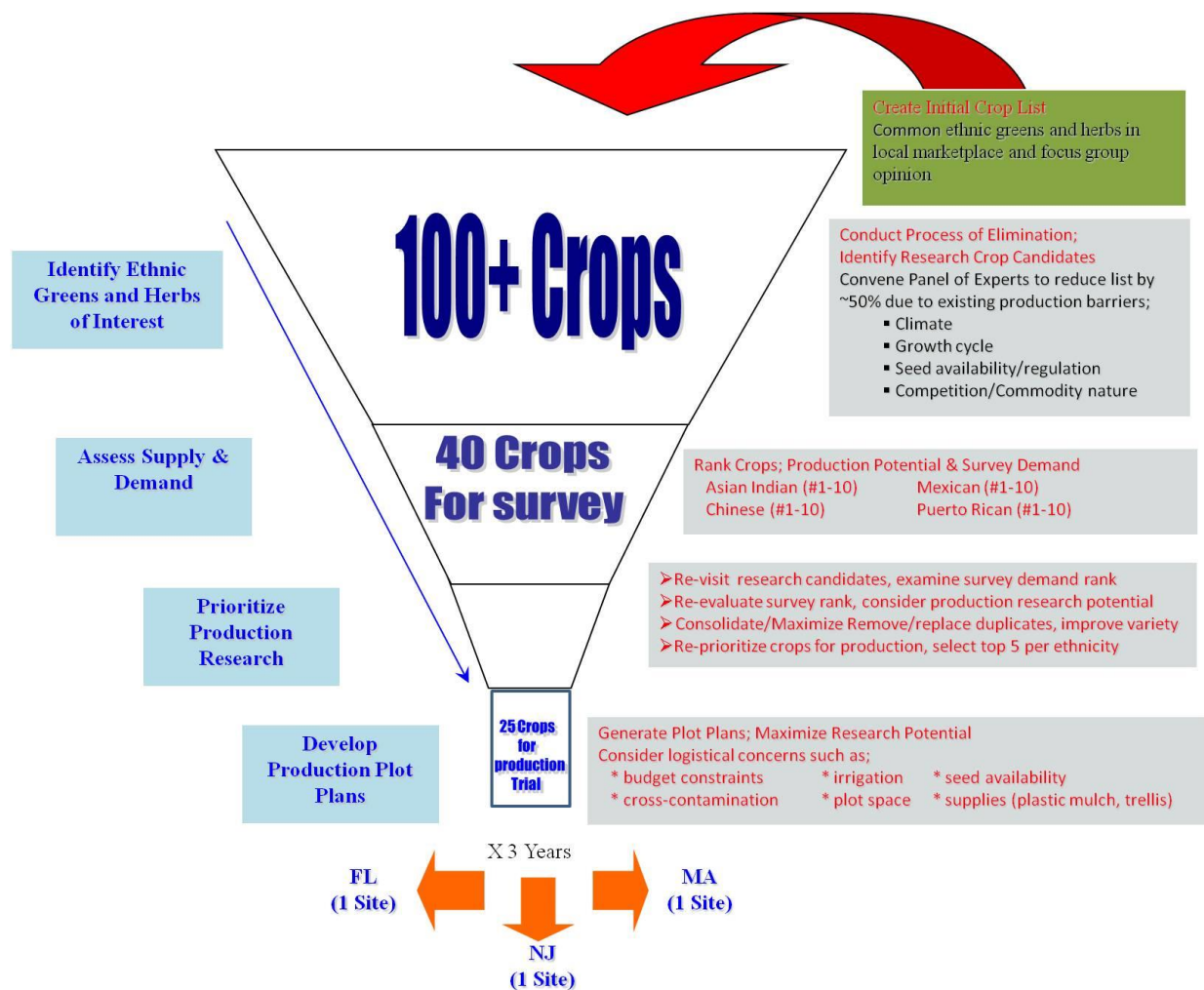
The crop selection process has begun with a crop expert panel review of an initial list of over 100 ethnic greens and herbs to select 40 greens/herbs (10 per each ethnicity) for inclusion in the ethnic consumer survey questionnaire (Fig. 3). The surveyed crops were further refined through a systematic process based on the survey results (demand) and relevant production considerations (supply) for the local marketplace, which resulted in a list of 25 crops to enter into the production trials. Figure 3 shows the survey model for ethnic greens and herbs selection and the follow-up field production trials to be focused on the selected crops for the southern (Florida), central (New Jersey) and northern (Massachusetts) regions of the East Coast.

4.1. Identification of Ethnic Greens and Herbs

An initial list of ethnic greens and herbs commonly sold/marketed and considered as ethnic produce items for each of the four ethnic groups of study has been compiled based upon a combination of focus groups and identification through related research. To determine which crops from the initial list to include in the survey, a panel of marketing, field/extension, and

crop specialists scrutinized the list of ethnic greens and herbs in order to eliminate those with existing production barriers that could impede their local production and/or marketplace success.

Figure 3: Ethnic Greens and Herbs Selection Process



Production barriers to consider also included local climate limitations, growth cycle (relatively short cycle necessary to grow in designated East Coast production sites), lack of seed supply due to regulatory issues, and local competition and/or the commodity nature of certain produce items. Thus, specialty crops with short post-harvest life were given priority over commodity. This process has been reduced the survey crop candidate list to 40 crops (10 for each ethnic group: Asian Indian, Mexican, Puerto Rican and Chinese) to assess demand. The list had required further reduction to arrive at a final list of approximately 25 crops, targeting roughly 6 per ethnicity to be included in the subsequent production research. Seven crops were included to the Puerto Rican list with an additional herb. Assessment of the survey results, along with additional production evaluation for each, has been conducted to achieve project goals.

5. FOCUS GROUP RESULTS

In total, of the 44 panelists who accessed the bulletin boards 38 completed the study: 11 in the “Chinese” ethnicity focus group session, 10 in the “Asian Indian” session, nine in the “Mexican” session, and eight in the “Puerto Rican” session. The most common responses to demographic questions were: female (62.2%), between the ages of 25 to 36 (37.8%), who were responsible for all of the grocery shopping (67.6%), and resided in Florida (24.3%).

Participants were asked about their shopping habits, primarily if they purchase ethnic greens and herbs from stores and then decide what meal to create or if they first decide on the meal(s) to create and then purchase the ethnic ingredients. A majority of participants indicated that they either knew what they were going to purchase before grocery shopping or always kept common ingredients on-hand and created meals based on what was in their pantry. Seven participants indicated that they either “use the grocery store for inspiration,” “find what is affordable [at the store] and buy that,” or choose “greens/herbs based on freshness at the store.”

As focus group results indicated, availability of ethnic greens and herbs depended on panelists’ location. Panelists residing in more metropolitan areas expressed that they had access to ethnic greens and herbs, through at least one outlet. A few panelists reported traveling distances up to 40 miles from their residence to purchase such ingredients. These outlets included ethnic markets located in cities such as New York or farmers’ markets where three participants mentioned purchasing ethnic greens and herbs during the summer months. While a majority of participants indicated that living in an area where a large ethnic population resided made it easier for them to find and purchase desired greens and herbs, a few panelists had difficulty finding the ingredients they needed. One panelist responded that it was a not easy to find an outlet from which to purchase needed items, this was astonishing since “a lot of Hispanic people [live] here.”

Responses were mixed pertaining to whether panelists chose to purchase from conventional grocery stores, from ethnic markets, or both. Availability of ethnic markets, product quality and freshness, and price influenced their purchasing decisions. For those who were able to compare conventional grocery stores with ethnic markets, they noted that greens and herbs tended to be higher quality and, since they believed stock rotated more frequently at ethnic markets, were fresher and priced lower. Those who mentioned that availability of select greens and herbs was limited at conventional supermarkets indicated that they would willingly travel

to ethnic grocery stores to select from a larger selection of food products. While a few panelists provided prices for items sold at ethnic markets, compared to conventional grocery stores, most of the panelist either believed prices were cheaper and/or expected prices to be lower.

Panelists were asked to indicate what they do when ethnic greens and herbs they desire are not available, whether they substitute the item with non-ethnic greens and herbs or change what they planned to cook for that occasion. For those who responded to the question, 60% felt quite strongly that substituting with a non-ethnic green or herb was unacceptable and that if the retailer doesn't have the item "something else will be cooked that day" or that fresh greens and herbs would be substituted with a canned, frozen, or dried formulation. The other 40%; however, were willing to make appropriate substitutes stating that either ethnic green and herbs were too difficult to find or that price was a deterrent. For example, one participant wrote that "Chinese broccoli (*Brassica oleracea*) is too expensive [and that] American broccoli (*Brassica oleracea*)" is used instead. Other panelists listed substitutes for morning glory – *Ipomoea* spp. (appropriate substitute: green bean - *Phaseolus vulgaris*), water spinach - *Ipomoea aquatica* (regular spinach - *Spinacia oleracea* or lettuce - *Lactuca sativa*), cilantro - *Coriandrum sativum* (parsley – *Petroselinum neapolitanum*), or indicated that they would buy "American greens to substitute."

When asked what would influence their willingness to buy more, less, or the same amount of ethnic greens and herbs than they currently buy, 50% of those who responded to the question indicated that price, price and quality, or price and freshness would motivate them to purchase more product. Six panelists, 20%, would not change the amount of ethnic greens and herbs they purchase as they "buy what they need" regardless of other factors, though some of these respondents would purchase more product when entertaining during the holidays and other occasions when family members or friends visited. A few panelists specified that recipes, "more new and fresh varieties," smaller amounts to accommodate smaller-sized families, and an ability to cook influences what and how much they purchase.

As to whether advertising, product packaging, and other factors persuade them to make purchases, responses were varied. Slightly over half, 58%, responded that either advertising for ethnic foods or stores is nonexistent, that they do not notice this advertising, that advertising doesn't influence them, or that they believe advertising would increase prices. Though only a few panelists responded that advertising would have a positive influence on their purchasing decisions, either alerting them that a new product or brand was available or that a new store

was opening, although product quality, price, and freshness appeared to be more of an influence. Other store-specific aspects included clean stores, friendly staff, and the ability to “pick the greens and herb bunches right from the produce shelf,” allowing the panelist to ensure that the product is fresh and at the desired quality level.

Bulletin board focus group responses would be used to construct a telephone survey of ethnic consumers matching the criteria stated above. Data from both studies would provide growers and retailers with information vital for meeting demand and exceeding the needs of ethnic consumers they serve. Furthermore, this market intelligence can assist growers in tailoring their products and promotional activities to better meet the needs of the ethnic greens and herbs purchaser, allowing these consumers to be able to purchase authentic ethnic produce from local farms which will enable them to satisfy their social as well as community needs. Moreover, promotion of locally grown produce reduces the food miles resulting in environmental benefits to the community.

6. ETHNIC CONSUMER SURVEY

6.1. Sample and Method

Samples for each ethnicity were identified based on 2010 Census populations for Chinese, Asian Indian, Mexicans and Puerto Ricans in the 16 East Coast states and the District of Columbia (Table 4). In total, 1117 completed survey responses were obtained, 277 for Asian Indian ethnic group, 276 for consumer identifying with Chinese, 280 for Mexican and 284 for Puerto Rican. Additionally, another 114 surveys were collected from the Non-purchasers who were interviewed accounted for less than 1% of the total sample for each ethnic group with number as followed: Asian Indian (45), Chinese (21), Mexican (24) and Puerto Rican (37).

Table 4: Distribution of Survey Respondents by States and Ethnicity

State	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Connecticut	11	3.97%	10	3.62%	1	0.36%	47	16.55%	69	6.18%
Delaware	1	0.36%	1	0.36%	4	1.43%	1	0.35%	7	0.63%
District of Columbia	3	1.08%	1	0.36%	1	0.36%	1	0.35%	6	0.54%
Florida	32	11.55%	23	8.33%	96	34.29%	8	2.82%	159	14.23%
Georgia	26	9.39%	9	3.26%	65	23.21%	1	0.35%	101	9.04%
Maine	1	0.36%	2	0.72%	1	0.36%	1	0.35%	5	0.45%
Maryland	16	5.78%	20	7.25%	5	1.79%	1	0.35%	42	3.76%
Massachusetts	16	5.78%	37	13.41%	1	0.36%	51	17.96%	105	9.40%
New Hampshire	4	1.44%	1	0.36%	1	0.36%	1	0.35%	7	0.63%
New Jersey	69	24.91%	41	14.86%	24	8.57%	15	5.28%	149	13.34%
New York	30	10.83%	76	27.54%	15	5.36%	71	25.00%	192	17.19%
North Carolina	14	5.05%	14	5.07%	50	17.86%	1	0.35%	79	7.07%
Pennsylvania	24	8.66%	20	7.25%	5	1.79%	81	28.52%	130	11.64%
Rhode Island	2	0.72%	4	1.45%	1	0.36%	1	0.35%	8	0.72%
South Carolina	6	2.17%	4	1.45%	4	1.43%	1	0.35%	15	1.34%
Vermont	1	0.36%	1	0.36%	1	0.36%	1	0.35%	4	0.36%
Virginia	21	7.58%	12	4.35%	5	1.79%	1	0.35%	39	3.49%
Total Purchasers	277	100.00%	276	100.00%	280	100.00%	284	100.00%	1117	100.00%
Non-purchasers	45		21		24		37		127	
Total	322		297		304		321		1244	

7. SURVEY RESULTS

7.1 Shopping Patterns

Purchase Frequency. As table 5 shows, 888 participants who answered questions “on average, how many times a month do you typically purchase Ethnic greens and herbs?” 103 observations were Asian Indian, 274 were Chinese, 280 participants were Mexican and 231 were from Puerto Rican. More than 84% of the observed ethnicities purchased Ethnic greens and herbs one to five times in one month, and more than 90% for the Mexican and Puerto Rican groups. Among all ethnicities, on an average, 88.5% visited one to five times a month and 7.7% visited more than six times. A very small percent 0.4% of Asians Indian visited more than 16 times a month.

Amount Spent per Visit. As Table 6 shows, 872 respondents took this survey question. On average, more than 60% of the respondents spent 25 dollars or less on ethnic greens and herbs and around 30.8% to 35.3% of each sub-group spent about 26 dollars to 50 dollars per visit. However, less than 4% of each sub-group spent more than 51 dollars per visit.

Amount Spent Monthly. The survey divided the monthly expenditure on ethnic greens and herbs into six categories (Table 7). In general, more Chinese (13.6%) and Mexican (11.1%) respondents than Asian Indian (4.1 %) and Puerto Rican (9.1 %) spent less than 40 dollars on ethnic greens and herbs. From 24.3% to 41.5% of the respondents from each ethnicity spent 40 dollars to 79.99 dollars on ethnic greens and herbs monthly. Moreover, around 30% of the respondents in each ethnic group spent more than 80 dollars but less than 119.99 dollars on purchases. Additionally, 14.9% of Asian Indian, 12.2% of Chinese, 22.2% of Mexican and 15.4% of Puerto Rican spent around 120 dollars to 159.9 dollars. In the more than 160 dollars category, 29.7% of Asian Indian, 12.7% of Chinese, 4.1% of Mexican and 5.1% of Puerto Rican responded affirmatively.

Amount Spent on All Produce Monthly. As Table 8 shows, on an average, 8.9% to 22.4% of respondents in these four ethnicities spent less than 75 dollars per monthly on all produce. On average, around half of the respondents spent 76 to 225 dollars on all purchases. However, more than 40% Mexicans spent \$151 to \$300 on all their produce in a month. Around 4.9% to 13.2% of the respondents in each group spent more than 301 dollars monthly; 9.1% for the

Asian Indian group, 13.2% for the Chinese group, 4.5% for the Mexican group and 9.9% for the Puerto Rican group.

Monthly Expenditure on Ten Ethnic Greens and Herbs. Forty greens and herbs (10 per each ethnicity) were selected for the ethnic consumer survey. More than half of observations in each group spent less than 39.9 dollars on these ten ethnic greens and herbs (Table 9); 57.7% and 56.1% from the Asian Indian and Chinese groups, while 56.5% and 57.3% from the Mexican and Puerto Rican group, respectively. More than 30% of the respondents spent 40 to 89.9 dollars on ten ethnic greens and herbs. In general, 14.3% of the Asian Indian spent 60 to 89.9 dollars, 8.5% of Chinese, 13.1% of Mexican and 9.3% of Puerto Rican spend those dollars on ten Ethnic greens and herbs. Additionally, roughly 10% of respondents picked the option that they spent more than 90 dollars per month on the ten ethnic greens and herbs.

Frequency and Expenditure Amount. The purchasing frequency was 4.2 times per month, but this varied by ethnic group (Table 10); Asian Indian shopped 3.71 times and 4.73 times for Chinese, 4.2 times for Mexican as well as 3.8 times for Puerto Rican. The expenditure for ethnic greens and herbs were summarized by ethnic group with expenditure per visit; \$24 for Asian Indian, \$25.7 for Chinese, \$23 for Mexican and \$ 22.7 for Puerto Rican. Asian Indian spent over 100 dollars on ethnic greens and herbs monthly. Meanwhile, the other three sub groups spent around 79 to 86.7 dollars on ethnic green and herbs per month. However, for total produce expenditure per month, 142.9 dollars to 210.9 dollars were spent among these four ethnicities. On average, around 42.9 dollars were spent on the ten crops which were selected by a systematic process. Respondents lived within 8 miles approximately and their household sizes were around 3 to 5 person per one family.

**Table 5: On average, how many times a month do you typically purchase Ethnic greens and herbs?
(Distribution)**

Number of Times Visits	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1-5	91	88.35%	232	84.67%	254	90.71%	209	90.48%	786	88.51%
6-10	11	10.68%	25	9.12%	15	5.36%	17	7.36%	68	7.66%
11-15	.	.	8	2.92%	5	1.79%	4	1.73%	17	1.91%
16+	1	0.97%	9	3.28%	6	2.14%	1	0.43%	17	1.91%
Total	103	100.00%	274	100.00%	280	100.00%	231	100.00%	888	100.00%

**Table 6: On average, how much do you spend on ethnic greens and herbs per visit?
(Distribution)**

Distribution of Expenditure per Visit	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1-25	155	66.52%	139	62.90%	130	65.66%	146	66.36%	570	65.37%
26-50	73	31.33%	78	35.29%	61	30.81%	71	32.27%	283	32.45%
51+	5	2.15%	4	1.81%	7	3.54%	3	1.36%	19	2.18%
Total	233	100.00%	221	100.00%	198	100.00%	220	100.00%	872	100.00%

Table 7: Distribution of Expenditures per Month on Ethnic Greens and Herbs

Expenditures on Greens and Herbs per Month	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1-39.99	3	4.05%	30	13.57%	22	11.11%	16	9.09%	71	10.61%
40-79.99	18	24.32%	68	30.77%	50	25.25%	73	41.48%	209	31.24%
80-119.99	20	27.03%	68	30.77%	74	37.37%	51	28.98%	213	31.84%
120-159.99	11	14.86%	27	12.22%	44	22.22%	27	15.34%	109	16.29%
160+	22	29.73%	28	12.67%	8	4.04%	9	5.11%	67	10.01%
Total	74	100.00%	221	100.00%	198	100.00%	176	100.00%	669	100.00%

**Table 8: On average, how much do you spend for all of your produce, in a month?
(Distribution)**

Total Expenditures on all Produce	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1-75	30	12.93%	21	8.94%	48	17.91%	59	22.43%	158	15.83%
76-150	88	37.93%	53	22.55%	128	47.76%	77	29.28%	346	34.67%
151-225	50	21.55%	78	33.19%	52	19.40%	66	25.10%	246	24.65%
226-300	43	18.53%	52	22.13%	28	10.45%	35	13.31%	158	15.83%
301+	21	9.05%	31	13.19%	12	4.48%	26	9.89%	90	9.02%
Total	232	100.00%	235	100.00%	268	100.00%	263	100.00%	998	100.00%

Table 9: Distribution of Expenditures per Month on Ten Ethnic Greens and Herbs

Expenditure s on Ten Greens and Herbs per Month	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
0-39.99	154	57.68%	152	56.09%	147	56.54%	154	57.25%	607	56.89%
40-59.99	47	17.60%	54	19.93%	37	14.23%	49	18.22%	187	17.53%
60-89.99	38	14.23%	42	15.50%	42	16.15%	41	15.24%	163	15.28%
90+	28	10.49%	23	8.49%	34	13.08%	25	9.29%	110	10.31%
Total	267	100.00%	271	100.00%	260	100.00%	269	100.00%	1067	100.00%

Table 10: Average Visits, Expenditures on Greens and Herbs, Proximity and Family size by Ethnicity

Household Average Figures	Ethnicity				All Ethnicities
	Asian Indian	Chinese	Mexican	Puerto Rican	
Visits in a Month (Number)	3.71	4.73	4.23	3.81	4.22
Ethnic Greens/Herbs Expenditure per visit	\$24.04	\$25.70	\$23.00	\$22.67	\$23.88
Expenditures on Ethnic Greens/Herbs per Month	\$111.97	\$86.72	\$84.57	\$79.02	\$86.85
Total Produce Expenditure per Month	\$179.76	\$210.90	\$142.85	\$169.77	\$174.55
Total Ten Crops Expenditures per Month	\$41.73	\$42.54	\$44.12	\$43.37	\$42.93
Proximity to the Nearest Ethnic Grocery Store (Miles)	12.75	11.57	3.39	4.63	8.11
Average Household Size (Number)	3.57	3.41	4.91	3.00	3.73

Ethnic greens/Herbs Outlets. Information on outlets was required to determine where consumers tended to buy ethnic greens and herbs. Six sources were included in the survey, such as typical American grocery stores, ethnic grocery stores, community farmers markets, on-farm markets or road side stands, pick your own and any other sources. The distribution of survey respondents' sources of greens and herbs outlets is described in the Table 11. Approximately 81% of Mexicans, 75% of Puerto Ricans, 56% of Asian Indians and 40% of Chinese bought ethnic greens and herbs from typical American grocery stores. Overall, a majority of the Hispanic sub-group bought ethnic greens and herbs from typical American grocery store compared to the Asian sub-group. The same percentage (96%) of Chinese and Asian Indians, 86% of Mexicans and 76% of Puerto Ricans purchased ethnic greens and herbs from ethnic outlets. On the whole, a majority of the survey consumers bought their ethnic greens and herbs from ethnic grocery stores. It seems most of the traditional greens and herbs were sold by ethnic outlets compared to other sources. In terms of community farmers markets, 48% of Asian Indians, 38% of Mexicans, 37% of Puerto Ricans and 22% of Chinese respondents sourced their ethnic greens and herbs. In the case of on-farm markets or roadside stands, 28% of Mexicans, 24% of Puerto Ricans, 17% of Asian Indians and only 8% of Chinese participated in buying ethnic greens and herbs there. About 16% of Mexicans, 10% of Puerto Ricans, and about the same percentage (8%) of Asian Indians and Chinese respondents purchased ethnic greens and herbs from pick your own farm. Overall a majority of Hispanic subgroups bought ethnic greens and herbs from on-farm markets or roadside stands and pick your own farms compared to Asian Indian subgroups. Across the categories, ethnic grocery stores and typical American grocery stores were the most frequented sources for purchase of ethnic greens and herbs for all four ethnic groups.

American Grocery Stores. We can see from table 12, towards the question what portion of ethnic greens and herbs are purchased at typical American grocery stores?", less than 4% of the Asian respondents stated that all of their ethnic greens and herbs were purchased at typical American grocery stores; 4% of Asian Indian and only 1.5% of Chinese; while 15.4% of Mexican and 13.0% of Puerto Rican. 11.9% of Asian Indian, 8.3% of Chinese, 34.3% of Mexican and 32.4% of Puerto Rican respondents indicated that most of their ethnic greens and herbs were purchased at typically American grocery stores. Additionally, more than 40% of the observations responded some of such products they purchased at the typically American grocery stores. Due to the situation that low percentage of the Asian respondents said "All" as their choices relatively, compared with Hispanic observations(8.9% of Mexican and 12.3% of Puerto Rican), high

percentage of the Asian observation said none of the ethnic greens and herbs they purchased at American store (27.1% of Asian Indian and 46.4% of Chinese).

Purchase First or Meal Plan. Purchasing food and creating meals have an order of occurrence. In their daily life, more than half of the respondents in each sub group (50.9% of Asian Indian, 65.2% of Chinese, 66.1% of Mexican and 53.2% of Puerto Rican) purchased ethnic greens and herbs first and then decided what meal to create (Table 13). 15.2% to 34.5% from each group indicated that they decided on the meal first then purchased the ethnic greens and herbs. Although, 24.9% of the Asian Indian, 19.6% of Chinese, 8.9% of Mexican and 12% of Puerto Rican stated they followed both orders. Only one observation in Puerto Rican stated that he or she had no purchase order.

Distance to Nearest Ethnic Grocery Store. 56% of Chinese, 62.1% of Asian Indian, 90.1% of Mexican and 85.3% of Puerto Rican respondents lived within 9.99 miles of an ethnic grocery store or market (Table 14). More than 80% from each group lived within 19.99 miles which correlated with the findings that 75.7% to 96% indicated that they shopped at ethnic grocery stores. Only 1.8% to 7.7% of the respondents from each group travelled 20 to 29.9 miles to purchase ethnic greens and herbs. Around 10% of each of the two Asian group indicated that they lived more than 30 miles away from the nearest ethnic grocery store and less than 3% of each Hispanic group said they travelled more than 30 miles to nearest ethnic grocery store. This result suggests that relatively fewer purchasers were willing to travel more than 20 miles to an ethnic store and may be forced to shop at an alternative store.

What if you Desires are not available at the Place you usually Shop. As Table 15 shows, If ethnic greens and herbs that they desire are not available at the market or grocery store where they usually shop, more than half of the respondents from Asian Indian, Chinese and Puerto Rican indicated they didn't have any problem on finding ethnic greens and herbs at market or grocery store and 27.9% of Mexican said either. 41.2% of Asian Indian and 50% of Chinese, as well as 35.4% of Mexican and 41.6% of Puerto Rican respondents expressed that they didn't make any substitutes and just skipped the ingredient recipe, if they couldn't find the exact ethnic greens and herbs they wanted in the grocery store. However, from 35.6% to 44.9% of the respondents in each group stated that they used the other ethnic greens and herbs as substitutes. Given the option to substitute the missing ingredient with non-ethnic or American greens and herbs, 40.1% of Asian Indian and 39.9% of Chinese, as well as 32.5% of Mexican and 27.1% of Puerto Rican indicated the answer "yes"., On the contrary, 59.9% of Asian Indian, 60.1% of Chinese, 67.5% of Mexican and 27.1% of Puerto Rican said they would not use non-ethnic greens and herbs as substitutions.

Table 11: Where do you tend to buy ethnic greens and herbs during the course of the year? Please indicate all places, even if you only visit a certain retailer during the season in which fresh greens and herbs are available

Places to Buy	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Typical American grocery stores										
Yes	155	55.96%	110	39.86%	226	80.71%	213	75.00%	704	63.03%
No	122	44.04%	166	60.14%	54	19.29%	71	25.00%	413	36.97%
Ethnic grocery stores										
Yes	265	95.67%	265	96.01%	241	86.07%	215	75.70%	986	88.27%
No	12	4.33%	11	3.99%	39	13.93%	69	24.30%	131	11.73%
Community farmers' market										
Yes	133	48.01%	60	21.74%	107	38.21%	106	37.32%	406	36.35%
No	144	51.99%	216	78.26%	173	61.79%	178	62.68%	711	63.65%
On-farm markets or roadside stands										
Yes	48	17.33%	21	7.61%	79	28.21%	69	24.30%	217	19.43%
No	229	82.67%	255	92.39%	201	71.79%	215	75.70%	900	80.57%
Pick your own farms										
Yes	23	8.30%	22	7.97%	44	15.71%	28	9.86%	117	10.47%
No	254	91.70%	254	92.03%	236	84.29%	256	90.14%	1000	89.53%
Other										
Yes	29	10.47%	38	13.77%	37	13.21%	50	17.61%	154	13.79%
No	248	89.53%	238	86.23%	243	86.79%	234	82.39%	963	86.21%

Table 12: What portion of your ethnic greens and herbs are purchased at typical American grocery stores? Would you say, 'All, Most, Some, or None'?

Purchase Behavior	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
All	11	3.97%	4	1.45%	43	15.36%	37	13.03%	95	8.50%
Most	33	11.91%	23	8.33%	96	34.29%	92	32.39%	244	21.84%
Some	158	57.04%	121	43.84%	116	41.43%	120	42.25%	515	46.11%
None	75	27.08%	128	46.38%	25	8.93%	35	12.32%	263	23.55%
Total	277	100.00%	276	100.00%	280	100.00%	284	100.00%	1117	100.00%

Table 13: Do you first purchase ethnic greens and herbs and then decide what meal to create, or do you decide on the meal that you want to create and then purchase the ethnic greens and herbs?

Behavior	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
I first purchase ethnic greens and herbs and then decide what meal to create	141	50.90%	180	65.22%	185	66.07%	151	53.17%	657	58.82%
I first decide on the meal that I will cook and then purchase the ethnic greens and herbs	67	24.19%	42	15.22%	70	25.00%	98	34.51%	277	24.80%
Both	69	24.91%	54	19.57%	25	8.93%	34	11.97%	182	16.29%
Neither	.	.	.	.	.	.	1	0.35%	1	0.09%
Total	277	100.00%	276	100.00%	280	100.00%	284	100.00%	1117	100.00%

**Table 14: How close to your home is the nearest ethnic grocery store?
(Distribution)**

Proximity (miles)	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
0-9.99	169	62.13%	154	56.00%	246	90.11%	226	85.28%	795	73.27%
10-19.99	53	19.49%	74	26.91%	20	7.33%	25	9.43%	172	15.85%
20-29.99	21	7.72%	19	6.91%	5	1.83%	6	2.26%	51	4.70%
30-39.99	10	3.68%	13	4.73%	1	0.37%	3	1.13%	27	2.49%
40-49.99	6	2.21%	5	1.82%	1	0.37%	1	0.38%	13	1.20%
50+	13	4.78%	10	3.64%	.	.	4	1.51%	27	2.49%
Total	272	100.00%	275	100.00%	273	100.00%	265	100.00%	1085	100.00%

Table 15: What do you do, or alter, if ethnic greens and herbs that you desire are not available at the market or grocery store where you usually shop?

Alternative Sources	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
I do not have any problem finding ethnic greens and herbs at market or grocery store										
Yes	167	60.29%	159	57.61%	78	27.86%	166	58.45%	570	51.03%
No	110	39.71%	117	42.39%	202	72.14%	118	41.55%	547	48.97%
I do not make any substitutes. I just skip the ingredient in the recipe										
Yes	114	41.16%	138	50.00%	99	35.36%	118	41.55%	469	41.99%
No	163	58.84%	138	50.00%	181	64.64%	166	58.45%	648	58.01%

Alternative Sources	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican		All Ethnicities	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
I substitute the missing ingredient with other greens and herbs specific to my culture										
Yes	123	44.40%	124	44.93%	121	43.21%	101	35.56%	469	41.99%
No	154	55.60%	152	55.07%	159	56.79%	183	64.44%	648	58.01%
I substitute the missing ingredient with non-ethnic or American greens and herbs										
Yes	111	40.07%	110	39.86%	91	32.50%	77	27.11%	389	34.83%
No	166	59.93%	166	60.14%	189	67.50%	207	72.89%	728	65.17%
Other alternatives										
Yes	34	12.27%	18	6.52%	9	3.21%	17	5.99%	78	6.98%
No	243	87.73%	258	93.48%	271	96.79%	267	94.01%	1039	93.02%

7.2 Opinions, Preferences, Willingness to Pay, and Related Practices

Attribute Importance: Ethnic consumers from all four ethnicities in the study showed basic consistencies in terms of rating the relative importance ('Very important', 'somewhat important', 'Not important', 'Unsure'), of nine specific store and product attributes in terms of their decisions to shop for and purchase ethnic produce (Table 16A, Table 16B and Table 16C), more than 50% of the respondents from each group rated the availability of the store as very important, another 20% more of the respondents deemed store availability as somewhat important. From 5.7% of Mexican to 15.6% of Chinese said the availability of the store was not important. Around 75% of respondents in the two Asian sub groups deemed language that the employee speak was not important, while more than 55% of the Hispanic observations indicated that the language was important, either very important or somewhat important, in fact nearly 67.9% of Mexican chose very important as their answer. Roughly 80% of each group deemed selection as very important or important to their decision on purchasing. Freshness and quality were each deemed as important (either very or somewhat) by an overwhelming 97% or more of respondents in each of the groups. Less than 90% of Asian respondents and more than 90% of Hispanic respondents indicated that price is 'important' factor to their purchasing decision. Freshness and quality were consistently deemed 'very important' by more respondents in each group than either language packaging, and information on the package; 93.3%, 93.3% of respondents in each group deemed it as very important, compared to Language ,information in the package which were deemed 'very important' by 37.5% and 43.1% in each group.

Influence factors. The survey showed the factors that affect consumers' consumption decision (Tables 17A, Table 17B and Table 17C). Nearly 60% of Asian respondents, 75% of Puerto Rican and 84.6% of Mexican expressed that familiarity with the ethnic greens and herbs was a factor which affected their willingness to buy more of the ethnic greens and herbs. Roughly two thirds of the respondents in each group indicated that better access to or availability of ethnic greens and herbs was the reason. Except for Chinese, more than 80% of the respondents said higher quality of ethnic greens and herbs was the influencing reason. Although not as high as other three sub-groups, 75.7% of Chinese also indicated that higher quality was primary factors. However, wider variety would affect willingness to buy more. 79.1% of Asian Indian and 66.7% of Chinese, as well as 86.1% of Mexican and 86.9% of Puerto Rican agreed that a wider variety of ethnic greens and herbs would a greater effects on their willingness to buy. On

average, 20.3% of ethnic observations in these four groups indicated that they disagree with this opinion.

Freshness was deemed as another key factor that affected consumers' willingness to buy more ethnic greens and herbs. More than 85% of Asian Indian, Mexican and Puerto Rican and 77.5% of Chinese expressed the opinion that if ethnic greens and herbs were fresher than currently available to them then this would affected their willingness to buy more of the ethnic greens and herbs than they currently buy. This result was coincide with the data presented situation in Table 13B which shows that a high portion of the respondents indicated that freshness was a very important factor that affected their purchasing decision; a similar attitude is reflected towards lower price for ethnic greens and herbs. Respondents' attitudes were split on the idea of Ethnic greens and herbs being sold in package rather than sold loss, and vice versa. Even Chinese respondents had higher portion of 'No' compare to the 'Yes'.

More than 50% of Asian respondents expressed that ethnic produce were by brand was not a reason which affected their willingness to buy more ethnic greens and herbs, however, roughly 70% of Hispanic said that the brands was a reason which affected their willingness to buy more. Relatively, more Asian Indian, Chinese, Mexican and Puerto Rican expressed that locally grown ethnic greens and herbs would increase their purchasing. Similarly, other family members eating meals made with ethnic greens and herbs was another factor which increases their willingness to buy more.

In regarded to the statement I am able to find and purchase ethnic greens and herbs that are level of quality that I expect and desire, roughly half of the respondents in each ethnicity indicated that they were in with agreement with this statements and another 30% of the respondents stated that the strongly agree and only less than 10% of them expressed their disagreement, moreover around 1% to 2% of them indicated that they strongly disagreed (In Table 18).

Table 16A: Pertaining to your own experiences when purchasing ethnic greens and herbs, please rate the importance of each of the following factors in your decision to either shop at a particular store or purchase a particular green and/or herb

Opinions	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Store Availability										
Very important	170	61.37%	161	58.33%	189	67.50%	175	61.62%	695	62.22%
Somewhat important	77	27.80%	71	25.72%	66	23.57%	56	19.72%	270	24.17%
Not important	23	8.30%	43	15.58%	16	5.71%	40	14.08%	122	10.92%
Unsure	7	2.53%	1	0.36%	9	3.21%	13	4.58%	30	2.69%
Language the employees speak										
Very important	22	7.94%	38	13.77%	190	67.86%	93	32.75%	343	30.71%
Somewhat important	39	14.08%	29	10.51%	51	18.21%	67	23.59%	186	16.65%
Not important	212	76.53%	207	75.00%	38	13.57%	120	42.25%	577	51.66%
Unsure	4	1.44%	2	0.72%	1	0.36%	4	1.41%	11	0.98%
Selection										
Very important	177	63.90%	162	58.70%	210	75.00%	210	73.94%	759	67.95%
Somewhat important	78	28.16%	70	25.36%	58	20.71%	41	14.44%	247	22.11%
Not important	21	7.58%	42	15.22%	9	3.21%	24	8.45%	96	8.59%
Unsure	1	0.36%	2	0.72%	3	1.07%	9	3.17%	15	1.34%

Table 16B: Pertaining to your own experiences when purchasing ethnic greens and herbs, please rate the importance of each of the following factors in your decision to either shop at a particular store or purchase a particular green and/or herb

Opinions	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Freshness										
Very important	269	97.11%	267	96.74%	245	87.50%	261	91.90%	1042	93.29%
Somewhat important	7	2.53%	7	2.54%	29	10.36%	15	5.28%	58	5.19%
Not important	1	0.36%	1	0.36%	4	1.43%	3	1.06%	9	0.81%
Unsure	.	.	1	0.36%	2	0.71%	5	1.76%	8	0.72%
Quality										
Very important	267	96.39%	264	95.65%	244	87.14%	267	94.01%	1042	93.29%
Somewhat important	8	2.89%	10	3.62%	32	11.43%	13	4.58%	63	5.64%
Not important	2	0.72%	1	0.36%	3	1.07%	2	0.70%	8	0.72%
Unsure	.	.	1	0.36%	1	0.36%	2	0.70%	4	0.36%
Price										
Very important	139	50.18%	149	53.99%	227	81.07%	220	77.46%	735	65.80%
Somewhat important	104	37.55%	100	36.23%	46	16.43%	43	15.14%	293	26.23%
Not important	31	11.19%	26	9.42%	7	2.50%	20	7.04%	84	7.52%
Unsure	3	1.08%	1	0.36%	.	.	1	0.35%	5	0.45%

Table 16C: Pertaining to your own experiences when purchasing ethnic greens and herbs, please rate the importance of each of the following factors in your decision to either shop at a particular store or purchase a particular green and/or herb

Opinions	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Packaging										
Very important	82	29.60%	43	15.58%	155	55.36%	139	48.94%	419	37.51%
Somewhat important	106	38.27%	80	28.99%	79	28.21%	79	27.82%	344	30.80%
Not important	83	29.96%	149	53.99%	39	13.93%	52	18.31%	323	28.92%
Unsure	6	2.17%	4	1.45%	7	2.50%	14	4.93%	31	2.78%
Information on the package										
Very important	111	40.07%	56	20.29%	147	52.50%	167	58.80%	481	43.06%
Somewhat important	69	24.91%	64	23.19%	94	33.57%	55	19.37%	282	25.25%
Not important	93	33.57%	152	55.07%	30	10.71%	49	17.25%	324	29.01%
Unsure	4	1.44%	4	1.45%	9	3.21%	13	4.58%	30	2.69%
Other Factors										
Yes	64	23.10%	47	17.03%	3	1.07%	17	5.99%	131	11.73%
No	213	76.90%	229	82.97%	277	98.93%	267	94.01%	986	88.27%

Table 17A: What would influence your willingness to buy more of the ethnic greens and herbs that you currently buy?

Opinion	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
More familiarity with the ethnic greens and herbs and how to use them										
Yes	166	59.93%	160	57.97%	237	84.64%	213	75.00%	776	69.47%
No	111	40.07%	116	42.03%	43	15.36%	71	25.00%	341	30.53%
Better access to/availability of ethnic greens and herbs										
Yes	213	76.90%	195	70.65%	224	80.00%	246	86.62%	878	78.60%
No	64	23.10%	81	29.35%	56	20.00%	38	13.38%	239	21.40%
Higher quality of ethnic greens and herbs available to me										
Yes	225	81.23%	209	75.72%	236	84.29%	250	88.03%	920	82.36%
No	52	18.77%	67	24.28%	44	15.71%	34	11.97%	197	17.64%
Wider variety of ethnic greens and herbs available to me										
Yes	219	79.06%	184	66.67%	241	86.07%	246	86.62%	890	79.68%
No	58	20.94%	92	33.33%	39	13.93%	38	13.38%	227	20.32%

Table 17B: What would influence your willingness to buy more of the ethnic greens and herbs that you currently buy?

Opinion	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican		All Ethnicities	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Ethnic greens and herbs that are fresher than what is currently available to me										
Yes	239	86.28%	214	77.54%	249	88.93%	247	86.97%	949	84.96%
No	38	13.72%	62	22.46%	31	11.07%	37	13.03%	168	15.04%
Lower prices for ethnic greens and herbs available to me										
Yes	212	76.53%	199	72.10%	242	86.43%	245	86.27%	898	80.39%
No	65	23.47%	77	27.90%	38	13.57%	39	13.73%	219	19.61%
Ethnic greens and herbs are sold in packages rather than sold loose										
Yes	97	35.02%	67	24.28%	130	46.43%	117	41.20%	411	36.79%
No	180	64.98%	209	75.72%	150	53.57%	167	58.80%	706	63.21%
Ethnic greens and herbs are sold loose rather than in packages										
Yes	114	41.16%	79	28.62%	188	67.14%	157	55.28%	538	48.16%
No	163	58.84%	197	71.38%	92	32.86%	127	44.72%	579	51.84%

Table 17C: What would influence your willingness to buy more of the ethnic greens and herbs that you currently buy?

Opinion	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Ethnic greens and herbs are marketed as being sold by a brand that I know and trust										
Yes	133	48.01%	90	32.61%	197	70.36%	197	69.37%	617	55.24%
No	144	51.99%	186	67.39%	83	29.64%	87	30.63%	500	44.76%
Ethnic greens and herbs were grown by local farmers										
Yes	209	75.45%	165	59.78%	224	80.00%	218	76.76%	816	73.05%
No	68	24.55%	111	40.22%	56	20.00%	66	23.24%	301	26.95%
Others in my household would eat meals made with ethnic greens and herbs										
Yes	196	70.76%	199	72.10%	216	77.14%	237	83.45%	848	75.92%
No	81	29.24%	77	27.90%	64	22.86%	47	16.55%	269	24.08%
Other										
Yes	19	6.86%	15	5.43%	10	3.57%	14	4.93%	58	5.19%
No	258	93.14%	261	94.57%	270	96.43%	270	95.07%	1059	94.81%

Table 18: How likely are you to agree with the following statement: I am able to find and purchase ethnic greens and herbs that are the level of quality that I expect and desire?

Opinion	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Strongly agree	96	34.66%	101	36.59%	77	27.50%	110	38.73%	384	34.38%
Agree	137	49.46%	140	50.72%	155	55.36%	149	52.46%	581	52.01%
Neither agree nor disagree	17	6.14%	14	5.07%	21	7.50%	6	2.11%	58	5.19%
Disagree	21	7.58%	17	6.16%	23	8.21%	16	5.63%	77	6.89%
Strongly disagree	6	2.17%	4	1.45%	4	1.43%	3	1.06%	17	1.52%
Total	277	100.00%	276	100.00%	280	100.00%	284	100.00%	1117	100.00%

Ethnic outlets as compared to Conventional Establishments. On question whether ethnic outlet are better, the same or worse than traditional American grocery stores (Table 19A and Table 19B), On average, roughly half or more of the respondents in four ethnic groups rated ethnic outlets as better than conventional establishments in terms of the selection of produce; more than 50% for Asian sub-group, especially Chinese (84%), while less than 50% for Hispanic sub-group. Meanwhile, around one third of the respondents in all four ethnic groups considered freshness of the produce in ethnic outlets to be better than those in traditional American grocery stores. Almost similar a portion of the respondents in each group chose ‘same’, and fewer observations consider it ‘worse’. More than 70% of the respondents in each sub group consider the quality of the produces in ethnic stores to be at least same as those in traditional American stores.

Interestingly, freshness and quality were the two most frequently cited ‘important’ and more over ‘very important’ product attributed by all four ethnic groups, yet a majority of ethnic respondents did not find the produce in ethnic outlets to be better than those in traditional establishments on the basis of these two criteria. Rather, respondents from each group were roughly split between rating ethnic outlets ‘better’ or the ‘same’ with respect to freshness and quality; 23.9% to 50.7% from each group fell into these categories.

More than 60% of Asian ethnic respondents thought price in ethnic stores were better than in traditional American stores, seemingly offset by less than 15% who indicated same or worse. While respondents from the Hispanic sub groups were roughly split between rating ‘better’ or ‘same’ with respect to price. 15.5% of Puerto Rican considered the price of products in ethnic stores to be worse than the price in non-ethnic stores.

Packaging was the only attribute for which ethnic outlets were rated ‘better’ by less than 30% of the respondents in all four ethnic groups; even half of the Hispanic respondents rated ethnic outlets as the ‘same’ in terms of packaging as well as 25% to 39.4% of Chinese respondents in the Asian sub-group, either, which corresponds to the result when packaging was tested as a factor in the respondents decision to either shop at a particular store or purchase a particular green and/or herb, especially for Asian sub group.

Table 19A: Please respond to the following with whether you find the ethnic outlets to be 'Better, the Same or Worse' than the traditional American grocery stores, in terms of their greens and herbs?

Opinion	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Selection is										
Better	171	61.73%	232	84.06%	103	36.79%	134	47.18%	640	57.30%
Same	61	22.02%	23	8.33%	139	49.64%	87	30.63%	310	27.75%
worse	30	10.83%	16	5.80%	31	11.07%	27	9.51%	104	9.31%
Unsure	15	5.42%	5	1.81%	7	2.50%	36	12.68%	63	5.64%
Freshness is										
Better	110	39.71%	133	48.19%	85	30.36%	103	36.27%	431	38.59%
Same	86	31.05%	66	23.91%	134	47.86%	92	32.39%	378	33.84%
worse	55	19.86%	51	18.48%	56	20.00%	42	14.79%	204	18.26%
Unsure	26	9.39%	26	9.42%	5	1.79%	47	16.55%	104	9.31%
Quality is										
Better	92	33.21%	136	49.28%	87	31.07%	120	42.25%	435	38.94%
Same	113	40.79%	68	24.64%	142	50.71%	92	32.39%	415	37.15%
worse	56	20.22%	46	16.67%	47	16.79%	35	12.32%	184	16.47%
Unsure	16	5.78%	26	9.42%	4	1.43%	37	13.03%	83	7.43%

Table 19B: Please respond to the following with whether you find the ethnic outlets to be 'Better, the Same or Worse' than the traditional American grocery stores, in terms of their greens and herbs?

Opinion	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Price is										
Better	183	66.06%	211	76.45%	112	40.00%	105	36.97%	611	54.70%
Same	41	14.80%	24	8.70%	99	35.36%	77	27.11%	241	21.58%
worse	37	13.36%	14	5.07%	61	21.79%	58	20.42%	170	15.22%
Unsure	16	5.78%	27	9.78%	8	2.86%	44	15.49%	95	8.50%
Packaging is										
Better	35	12.64%	51	18.48%	68	24.29%	77	27.11%	231	20.68%
Same	109	39.35%	69	25.00%	159	56.79%	130	45.77%	467	41.81%
worse	102	36.82%	116	42.03%	38	13.57%	35	12.32%	291	26.05%
Unsure	31	11.19%	40	14.49%	15	5.36%	42	14.79%	128	11.46%

Willingness to pay a Premium. The purchasers were asked questions about their willingness to pay a premium for ethnic greens and herbs (Table 20). 39.7% of Asian Indian indicated their willingness to pay more for Ethnic greens and herbs, while 60.3% expressed their unwillingness; and almost the percent for Mexican sub-group. For the Puerto Rican sub-group, 43% of the respondents expressed their willingness to pay more for ethnic greens and herbs and 57% said they were not willing to pay more. The Chinese group had a higher percentage (59.1%) who expressed their willingness to pay more than those not willing to pay a premium (40.9%).

Percent Willingness to pay. In regards to the respondents who said 'yes' to willingness to pay a premium, roughly 66% of Asian and more than 80% of Hispanic were willing to pay a maximum of up to 20% (Table 21). Offsetting to the high percentage in 1% to 20% category, less than 10% of Hispanic located in the category of 21% to 40% more, as well as 41% to 60%, however, 16.5% of Asian Indian and 14.4% of Chinese indicated they were willing to pay 21% to 40% more on ethnic greens and herbs. Moreover, 14.6% of Asian Indian and 11% of Chinese picked 41% to 60% more. Additionally, with the exemption of the Chinese (8.2%) sub-group, less than 5% of the other three groups, which are Asian Indian (1.9%), Mexican (1.2%) and Puerto Rican (4.5%) indicated they were willing to pay 61% more on ethnic greens and herbs than comparable American substitutes.

Food Safety. As table 22 shows, more and more consumers care about food safety problems. Except the Mexican sub-group, roughly 60% of the respondents in other three sub groups were concerned about food safety as well as 39.2% of the Mexican sub-group. 37.5% of the Asian Indian, 38% of the Chinese, 57.5% of the Mexican and 38.7% of the Puerto Rican indicated they were not concern about food safety. Meanwhile, less than 4% of each group felt unsure about this problem.

Table 20: Respondents Willingness to Pay a Premium for Ethnic Greens/Herbs than the Comparable American or Conventional Substitutes

Willingness to Pay a Premium	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Yes	110	39.71%	163	59.06%	85	30.36%	122	42.96%	480	42.97%
No	167	60.29%	113	40.94%	195	69.64%	162	57.04%	637	57.03%
Total	277	100.00%	276	100.00%	280	100.00%	284	100.00%	1117	100.00%

Table 21: Are you willing to pay more for ethnic greens and herbs than the comparable American or conventional substitutes, and if so, what percent more?

Willingness to Pay a Premium (%)	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1%-20%	69	66.99%	97	66.44%	70	86.42%	88	80.00%	324	73.64%
21%-40%	17	16.50%	21	14.38%	6	7.41%	10	9.09%	54	12.27%
41%-60%	15	14.56%	16	10.96%	4	4.94%	7	6.36%	42	9.55%
61%+	2	1.94%	12	8.22%	1	1.23%	5	4.55%	20	4.55%
Total	103	100.00%	146	100.00%	81	100.00%	110	100.00%	440	100.00%
Average %		22.03%		25.62%		13.48%		17.22%		20.45%

Table 22: Are you concerned about food safety issues relating to ethnic greens and herbs that you buy?

Respondents Concern	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Yes	166	59.93%	164	59.42%	110	39.29%	166	58.45%	606	54.25%
No	104	37.55%	105	38.04%	161	57.50%	110	38.73%	480	42.97%
Unsure	7	2.53%	7	2.54%	9	3.21%	8	2.82%	31	2.78%
Total	277	100.00%	276	100.00%	280	100.00%	284	100.00%	1117	100.00%

Reasons for increase purchasing. Many factors influence consumers' purchasing behavior. Quality and freshness were the most important factors to affect the consumers' purchasing behaviors (table 23A and table 23B) . Except the Mexican sub-groups, the other three sub groups had roughly 50% of the respondents indicates that quality and freshness were the reasons to increased their purchase of locally grown ethnic greens and herbs, while 70.4% of Mexican respondents expressed the same view. On average, 41% of these four ethnicities thought they would not increase their purchasing of locally grown greens and herbs because of quality and freshness. Meanwhile, 55.5% of the Asian Indian, 42% of the Chinese, 53.2% of the Mexican and 50.7% of Puerto Rican subgroups thought availability was one of the reasons to affect them purchase more on ethnic greens and herbs. Roughly 44% of the respondents in all groups increased purchasing of locally grown ethnic greens and herbs in order to support local farmers.

Food Miles or the distance food travels from the farm to shopping area was another reason, however, compared with the respondents who said 'yes', more respondents thought they would not increase the purchase because of this reason, however 38.3% of respondents from these four ethnicities indicated that Food Safety was a reason which affected them to increase purchasing, while 61.7% ethnic respondents a the negative answer. Additionally, a large percentage of respondents did not think Agro terrorism was a reason for increasing their purchase on locally grown ethnic greens and herbs.

Increase to Purchasing. Roughly 47% or less of respondents in each group increased their purchasing of ethnic greens and herbs throughout the year, while more than half did not increase their purchasing (Table 24). The Asian Indian sub group has a slightly lower percentage (34.3 %) of respondents who increased their consumption on ethnic greens and herbs throughout one year, compared to the other three groups. Offsetting this slightly lower percentage, a slim higher percentage (60.6%) of Asian Indians indicated to a negative answer and around half of respondents in Chinese, Mexican and Puerto Rican suggested the answer 'no'.

When to Increase purchase. Ethnic holiday was the main occasion for which the respondents increased purchasing ethnic greens and herbs (Tables 25A and Table 25B). an From 75% to 87.1% of the observations in each group gave the positive answer for whether ethnic holiday would causes you to increase purchasing of ethnic greens and herbs, while 23.2% of Asian

Indian, 25% of Chinese, 13.3% of Mexican and 12.9% of Puerto Rican gave the negative answer. Meanwhile, more than half of the respondents (54.7% of Asian Indian, 54.7% of Chinese, 62.8% of Mexican and 74.2% of Puerto Rican) increased their purchase of ethnic greens and herbs because of a traditional American holiday. Same situation happened in the option increase to purchase in warmer months of the year while relative lower percentage to increase purchasing on cooler months of the year, although still had 51.6% in Puerto Rican.

Getting-together with family and friends were key time for ethnic respondents to increase their consumption. Except the Mexican sub-group, more than 90% of the respondents indicated they increased their consumption during family and friend union times. Although less than 90%, still 79.6% of Mexican chosen this option as well. 71.6% of Asian Indian, 87.5% of Chinese, 76.1% of Mexican and 81.5% of Puerto Rican believed that when family members returned home from school or other extended travel, they would increase shopping for ethnic greens and herbs. Extended family's visiting lead more than 88% of ethnic respondents increase their consumption.

Table 23A: Have you increased purchases of locally grown ethnic greens and herbs for any of the following reasons?

Reasons	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Quality & Freshness										
Yes	157	58.15%	147	53.26%	197	70.36%	152	53.52%	653	58.83%
No	113	41.85%	129	46.74%	83	29.64%	132	46.48%	457	41.17%
Availability										
Yes	150	55.56%	116	42.03%	149	53.21%	144	50.70%	559	50.36%
No	120	44.44%	160	57.97%	131	46.79%	140	49.30%	551	49.64%
Support Local Farmer										
Yes	144	53.33%	94	34.06%	128	45.71%	127	44.72%	493	44.41%
No	126	46.67%	182	65.94%	152	54.29%	157	55.28%	617	55.59%

Table 23B: Have you increased purchases of locally grown ethnic greens and herbs for any of the following reasons?

Reasons	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Food Miles or distance food travels from the farm to my area										
Yes	101	37.97%	78	28.36%	111	39.64%	89	31.34%	379	34.30%
No	165	62.03%	197	71.64%	169	60.36%	195	68.66%	726	65.70%
Food Safety										
Yes	121	45.49%	83	30.18%	104	37.14%	115	40.49%	423	38.28%
No	145	54.51%	192	69.82%	176	62.86%	169	59.51%	682	61.72%
Agroterrorism										
Yes	50	18.80%	31	11.27%	66	23.57%	50	17.61%	197	17.83%
No	216	81.20%	244	88.73%	214	76.43%	234	82.39%	908	82.17%

Table 24: Does the amount of ethnic greens and herbs that you purchase increase throughout the year?

Increased Purchase of Ethnic Greens/Herbs	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Yes	95	34.30%	128	46.38%	113	40.36%	124	43.66%	460	41.18%
No	168	60.65%	145	52.54%	163	58.21%	155	54.58%	631	56.49%
Unsure	14	5.05%	3	1.09%	4	1.43%	5	1.76%	26	2.33%
Total	277	100.00%	276	100.00%	280	100.00%	284	100.00%	1117	100.00%

Table 25A: When or for what occasions does the amount of ethnic greens and herbs you purchase increase?

Occasions	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Ethnic holidays I/we celebrate										
Yes	73	76.84%	96	75.00%	98	86.73%	108	87.10%	375	81.52%
No	22	23.16%	32	25.00%	15	13.27%	16	12.90%	85	18.48%
Traditional American holidays I/we celebrate										
Yes	52	54.74%	70	54.69%	71	62.83%	92	74.19%	285	61.96%
No	43	45.26%	58	45.31%	42	37.17%	32	25.81%	175	38.04%
Warmer months of the year										
Yes	48	50.53%	53	41.41%	79	69.91%	67	54.03%	247	53.70%
No	47	49.47%	75	58.59%	34	30.09%	57	45.97%	213	46.30%
Cooler months of the year										
Yes	37	38.95%	39	30.47%	52	46.02%	64	51.61%	192	41.74%
No	58	61.05%	89	69.53%	61	53.98%	60	48.39%	268	58.26%

Table 25B: When or for what occasions does the amount of ethnic greens and herbs you purchase increase?

Occasions	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican		All Ethnicities	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Get-together with family and/or friends										
Yes	89	93.68%	118	92.19%	90	79.65%	113	91.13%	410	89.13%
No	6	6.32%	10	7.81%	23	20.35%	11	8.87%	50	10.87%
When household members return home from school or other extended travel										
Yes	68	71.58%	112	87.50%	86	76.11%	101	81.45%	367	79.78%
No	27	28.42%	16	12.50%	27	23.89%	23	18.55%	93	20.22%
When extended family visit										
Yes	85	89.47%	113	88.28%	94	83.19%	113	91.13%	405	88.04%
No	10	10.53%	15	11.72%	19	16.81%	11	8.87%	55	11.96%
Other										
Yes	24	25.26%	6	4.69%	24	21.24%	24	19.35%	78	16.96%
No	71	74.74%	122	95.31%	89	78.76%	100	80.65%	382	83.04%

Natural Remedy. As Table 26 shows, more than half of the respondents from each group (Asian Indian 58.5%, Chinese 52.5%, Mexican 55.4% and Puerto Rican 51.4%) used traditional ethnic greens and herbs for natural remedies, while, over all, around 43.7% of observations gave the negative answer towards this question.

Health Reason. More than 60% for both Asian groups (66.1% of Asian Indian and 71.2% of Chinese) ate ethnic greens and herbs for health reasons, meanwhile, 36.1% of Mexican and 48.6% of Puerto Rican respondents also gave the positive response in regards to currently eating ethnic greens and herbs for health reasons. portion who choose ‘yes’ reached to more than 60% in Asian group, 31.5% of Asian Indian and 28.8% of Chinese gave out the negative answer, however more than half of Hispanic respondents said they ate ethnic greens and herbs not for health reasons (Table 27).

Read Labels. 84.8% of Asian Indian, 73.2% of Chinese, 81.8% of Mexican and 80.6% of Puerto Rican respondents read food labels, when they shopped for ethnic greens and herbs. On the contrary, around 18.4% of all ethnicities did not read the food labels (Table 28).

Willing to buy. Purchasers were asked a question about their relative willingness to buy ethnic greens and herbs based on certain factors or product attributes (Table 29A and Table 29B). A majority of purchasers, ranging from 81.4% to 94.6%, in each ethic group were willing to purchase ethnic greens and herbs which were locally grown. The Asian Indian was at the lower extremes and Mexican was at the higher extreme. Approximately 70.3% to 80.9% of the purchaser in each group were willing to buy organically grown ethnic greens and herbs, the Asian group was in the lower extreme and the Hispanic group was in the higher extreme. The propensity to purchase genetically modified ethnic produce was lower than the propensity to purchase based on every other characteristic; 70% of Asian Indian, 58.3% of Chinese, 57.1% of Mexican and 66.9% of Puerto Rican weren’t willing to buy genetically modified ethnic greens and herbs, which is offset by a relatively lower percentage of willingness to buy (14.8% of Asian Indian, 14.5% of Chinese, 27.1% of Mexican and 19% of Puerto Rican). 64.6% of these four ethnicities said they were willing to buy ethnic greens and herbs Labeled with the country of origin, while 25.3% gave the negative answer and 10.1% felt uncertain towards this question. Slightly more than half of Asian Indian (64.3%), Chinese (59.4%) and Mexican (59.3%), as well as just under half of Puerto Rican (43.3%) were willing to purchase new ethnic greens and herbs, however, 26.6% of these four ethnicities expressed their unwillingness to purchase ethnic greens and herbs which were new to market.

Table 26: Do you use traditional ethnic greens and herbs for natural remedies?

Behavior	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Yes	162	58.48%	145	52.54%	155	55.36%	146	51.41%	608	54.43%
No	109	39.35%	125	45.29%	118	42.14%	136	47.89%	488	43.69%
Unsure	6	2.17%	6	2.17%	7	2.50%	2	0.70%	21	1.88%
Total	277	100.00%	276	100.00%	280	100.00%	284	100.00%	1117	100.00%

Table 27: Are you currently eating ethnic greens/herbs for health reasons?

Behavior	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Yes	107	66.05%	104	71.23%	56	36.13%	71	48.63%	338	55.50%
No	51	31.48%	42	28.77%	96	61.94%	74	50.68%	263	43.19%
Unsure	4	2.47%	.	.	3	1.94%	1	0.68%	8	1.31%
Total	162	100.00%	146	100.00%	155	100.00%	146	100.00%	609	100.00%

Table 28: Do you read food labels?

Read Food Labels	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Yes	235	84.84%	202	73.19%	229	81.79%	229	80.63%	895	80.13%
No	38	13.72%	68	24.64%	47	16.79%	52	18.31%	205	18.35%
Unsure	4	1.44%	6	2.17%	4	1.43%	3	1.06%	17	1.52%
Total	277	100.00%	276	100.00%	280	100.00%	284	100.00%	1117	100.00%

**Table 29A: If made available to you, would you be 'willing to buy' ethnic greens and herbs that are:
(Please indicate Yes or No or Unsure)**

Willingness to Buy	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Locally Grown										
Yes	262	94.58%	241	87.32%	228	81.43%	257	90.49%	988	88.45%
No	10	3.61%	21	7.61%	39	13.93%	21	7.39%	91	8.15%
Unsure	5	1.81%	14	5.07%	13	4.64%	6	2.11%	38	3.40%
Organically grown										
Yes	224	80.87%	194	70.29%	214	76.43%	208	73.24%	840	75.20%
No	31	11.19%	44	15.94%	51	18.21%	60	21.13%	186	16.65%
Unsure	22	7.94%	38	13.77%	15	5.36%	16	5.63%	91	8.15%
Genetically modified										
Yes	41	14.80%	40	14.49%	76	27.14%	54	19.01%	211	18.89%
No	194	70.04%	161	58.33%	160	57.14%	190	66.90%	705	63.12%
Unsure	42	15.16%	75	27.17%	44	15.71%	40	14.08%	201	17.99%

**Table 29B: If made available to you, would you be 'willing to buy' ethnic greens and herbs that are:
(Please indicate Yes or No or Unsure)**

Willingness to Buy	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Labeled according to country of origin										
Yes	176	63.54%	178	64.49%	185	66.07%	183	64.44%	722	64.64%
No	62	22.38%	71	25.72%	69	24.64%	80	28.17%	282	25.25%
Unsure	39	14.08%	27	9.78%	26	9.29%	21	7.39%	113	10.12%
New herbs & greens										
Yes	178	64.26%	164	59.42%	166	59.29%	123	43.31%	631	56.49%
No	66	23.83%	68	24.64%	88	31.43%	75	26.41%	297	26.59%
Unsure	33	11.91%	44	15.94%	26	9.29%	86	30.28%	189	16.92%

Advertisement. In regard to ethnic produce advertisements, generally, these four groups were influenced at similar levels. Less than 50% of Asian Indian, Chinese, and Mexican, as well as 50.7% of Puerto Rican respondents indicated out-store advertisements (such as radio, TV, newspaper, and online) would influence their purchasing decision (Table 30A and Table 30B). However, more than half of respondents in these four ethnicities suggested that visible-from – road ads would not be effective. Moreover, on site or in-store advertisements influenced 57% of Asian Indian and 58.7% of Chinese, additionally, 56.7% of Mexican and 48.9% of Puerto Rican respondents purchasing decisions were affected the on-site or in-store advertisements. . Point-of-purchase advertisement had a similar effect with out-of-store and in-store advertisements. More portions of respondents were not affected by direct mail, E-mail or other advertisements. More than half of the respondents in these four sub groups stated that their consumption decision would not be affected by direct mail. Additionally, more than 70% of respondents in the four sub groups thought e-mail would not affect them.

Grown at home. Roughly half of the Mexican and more than 40% of the Asian Indian and Chinese group, as well as 32% of the Puerto Rican group grew ethnic greens and herbs at home (Table 31).

Vegetarian. As Table 32 show, half (52.4%) of the Asian Indian respondents indicated that they were vegetarians, in contrast, only 7.6% of Chinese respondents were vegetarians. Meanwhile, 21.8% of Mexican and 11.3% of Puerto Rican were vegetarians. This suggests that Asian Indian vegetarians are the prime target market for ethnic greens and herbs, as vegetables are a mainstay in their diet.

Table 30A: Which types of advertisements would influence your decision to purchase ethnic greens and herbs?
Please indicate all types, even if not currently available, from the following

Advertisements	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Out-of-store ads										
Yes	128	46.21%	119	43.12%	120	42.86%	144	50.70%	511	45.75%
No	143	51.62%	142	51.45%	158	56.43%	135	47.54%	578	51.75%
Unsure	6	2.17%	15	5.43%	2	0.71%	5	1.76%	28	2.51%
Visible-from-road ads										
Yes	91	32.85%	77	27.90%	109	38.93%	85	29.93%	362	32.41%
No	175	63.18%	179	64.86%	165	58.93%	193	67.96%	712	63.74%
Unsure	11	3.97%	20	7.25%	6	2.14%	6	2.11%	43	3.85%
On-site or in-store ads										
Yes	158	57.04%	162	58.70%	159	56.79%	139	48.94%	618	55.33%
No	113	40.79%	97	35.14%	119	42.50%	139	48.94%	468	41.90%
Unsure	6	2.17%	17	6.16%	2	0.71%	6	2.11%	31	2.78%
Point-of-purchase ads										
Yes	125	45.13%	144	52.17%	124	44.29%	123	43.31%	516	46.20%
No	146	52.71%	114	41.30%	147	52.50%	155	54.58%	562	50.31%
Unsure	6	2.17%	18	6.52%	9	3.21%	6	2.11%	39	3.49%

Table 30B: Which types of advertisements would influence your decision to purchase ethnic greens and herbs?
Please indicate all types, even if not currently available, from the following

Advertisements	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Direct Mail										
Yes	101	36.46%	82	29.71%	114	40.71%	82	28.87%	379	33.93%
No	168	60.65%	171	61.96%	164	58.57%	198	69.72%	701	62.76%
Unsure	8	2.89%	23	8.33%	2	0.71%	4	1.41%	37	3.31%
E-mail										
Yes	68	24.55%	36	13.04%	52	18.57%	56	19.72%	212	18.98%
No	197	71.12%	219	79.35%	221	78.93%	224	78.87%	861	77.08%
Unsure	12	4.33%	21	7.61%	7	2.50%	4	1.41%	44	3.94%
Any other advertisements										
Yes	28	10.11%	14	5.07%	11	3.93%	17	5.99%	70	6.27%
No	245	88.45%	255	92.39%	261	93.21%	265	93.31%	1026	91.85%
Unsure	4	1.44%	7	2.54%	8	2.86%	2	0.70%	21	1.88%

Table 31: Do you grow ethnic greens or herbs for consumption at home?

Grow Ethnic Greens at Home	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Yes	117	42.24%	126	45.65%	145	51.79%	91	32.04%	479	42.88%
No	160	57.76%	150	54.35%	135	48.21%	193	67.96%	638	57.12%
Total	277	100.00%	276	100.00%	280	100.00%	284	100.00%	1117	100.00%

Table 32: Are you a vegetarian?

Vegetarian	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Yes	145	52.35%	21	7.61%	61	21.79%	32	11.27%	259	23.19%
No	132	47.65%	255	92.39%	219	78.21%	252	88.73%	858	76.81%
Total	277	100.00%	276	100.00%	280	100.00%	284	100.00%	1117	100.00%

7.3. Consumers' Demographic Characteristics:

The East-coast ethnic consumers' demographic survey solicited information relating to: the number of years living at current location, household size, and number of people aged 17 or younger, age, education, current occupation, household income, marital status and gender. Some of these demographic categories are further defined by a certain range (ex. age, education, income, occupation). Furthermore, information such as birth country, whether a consumer speaks an ethnic language at home, age at which the consumer immigrated to the United States were also collected to measure the cultural impact on the greens and herbs market. These responses were aggregated by ethnicity and comparison were made with national averages based on applicable and available distributions.

Neighborhood: As Table 33 shows, 64% of Puerto Ricans and 52% of Mexicans were living in urban areas, whereas, about the same percentage (57%) of Asian Indians and Chinese were living in suburban areas. About 22% of Mexicans, 11% of Puerto Ricans, 8% of Asian Indians and 5% of Chinese were living in rural areas. Overall, a majority of the Hispanic sub groups were living in urban areas, whereas, a greater part of the Asian subgroups were living in suburban areas.

Number of years living at current Location. As can be seen in Table 34, on average, 11.1 years for Asian Indian have lived at the current location; similarly, 13.7 years have lived at the current location on average for Chinese respondents. For Mexican, the living period was a slightly shorter at 9.7 years while 17.9 years for Puerto Rican. Household sizes were similar among these four ethnic groups. On average, 3.7 members lived in one family among all ethnicities. 3.6 members within Asian Indian families on average, 3.4 for Chinese, 4.9 for Mexican and 3 for Puerto Rican. On average, the number of household member under 17 years of age was 1.2 for all four ethnic groups. Mexican has highest number of member under 17 years old, compared with other three groups.

Length of Time at Current Residence. From Table 35, we can determined that roughly half of the respondents from each group had been living in their current location for ten years or less, ranging from 43.4% of Puerto Rican to 67% for Mexican. Around one quarter of respondents from each group have done so for eleven to twenty years. In the choice of twenty-one to thirty years, 10.7% participants came from Asian Indian, 15.1% of people from Chinese and 16.1% of the respondents from Puerto Rican group, while for Mexican, only 2.2% of the observations said they had been living in the current city or states for twenty-one to thirty years.

Table 33: Is your neighborhood 'Urban, Suburban, or Rural'?

Location	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Urban	94	34.56%	105	38.32%	144	51.80%	179	63.70%	522	47.24%
Suburban	156	57.35%	155	56.57%	72	25.90%	70	24.91%	453	41.00%
Rural	22	8.09%	14	5.11%	62	22.30%	32	11.39%	130	11.76%
Total	272	100.00%	274	100.00%	278	100.00%	281	100.00%	1105	100.00%

Table 34: Average Number of years living at current Location, Average Household Size and Average Number of People age at 17 or younger in a Household by Ethnicity

Average Figures	Ethnicity				All Ethnicities
	Asian Indian	Chinese	Mexican	Puerto Rican	
Average Number years Living at Current Location (Number)	11.13	13.69	9.71	17.94	13.13
Average Household Size (Number)	3.57	3.41	4.91	3.00	3.73
Average Number of People in an Household at age 17 years or Younger (Number)	1.01	0.92	2.00	0.89	1.21

**Table 35: How many years have you been living in <City, State>?
(Distribution)**

Distribution of Number years Living at Current Location	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1-10	159	58.46%	148	54.41%	187	67.03%	121	43.37%	615	55.81%
11-20	79	29.04%	70	25.74%	83	29.75%	60	21.51%	292	26.50%
21-30	29	10.66%	41	15.07%	6	2.15%	45	16.13%	121	10.98%
31-40	4	1.47%	8	2.94%	3	1.08%	29	10.39%	44	3.99%
41+	1	0.37%	5	1.84%	.	.	24	8.60%	30	2.72%
Total	272	100.00%	272	100.00%	279	100.00%	279	100.00%	1102	100.00%

**Table 36: Including yourself, how many people live in your household?
(Distribution)**

Distribution of Household size	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1-3	118	43.70%	133	50.00%	56	20.22%	183	65.59%	490	44.87%
4-6	144	53.33%	130	48.87%	185	66.79%	85	30.47%	544	49.82%
7-9	7	2.59%	2	0.75%	28	10.11%	10	3.58%	47	4.30%
10+	1	0.37%	1	0.38%	8	2.89%	1	0.36%	11	1.01%
Total	270	100.00%	266	100.00%	277	100.00%	279	100.00%	1092	100.00%

Household Size: As Table 36 show, almost 99% of respondents from the two Asian groups had a maximum of six members in their household. Among them, Asian Indian, 43.7% of the participants have one to three family members and 53.3% had four to six members, while for the Chinese group, 50% of the families had one to three members and 48.9% had four to six members. A predominant household size was one to six members among Hispanic; 20.2% of Mexican respondents and 65.6% of Puerto Rican respondents have one to three family members, while 66.8% of Mexican and 30.4% of Puerto Rican respondents have four and six family members. While around 2.9% Mexicans have more than ten members, compared with Asian Indians, Chinese and Puerto Ricans with less than 1%. These ethnic figures seem to correspond with the respective national average household size.

Number of household member under 18 years of age. Slightly less than half of the Asian subgroup and a half of Puerto Rican, as well as 22.8% of Mexican did not have members below the age of 17 years in their household (Table 37). 14.9% to 24.1% from each group had one person under the age of 17 in their household and another 17.2% to 30.1% had two members of their household of this age. Except the Mexicans, less than 10% of respondents in the other three groups had three household members under 17 years old and 24.6% of Mexican chosen this option either. Less than 3% of Asian Indian, Chinese and Puerto Rican and 14.1% of Mexican had more than four children in their household.

**Table 37: Individual in Households age 17 or younger?
(Distribution)**

Distribution of Age 17 or Younger	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
0	115	42.75%	122	45.86%	63	22.83%	152	54.48%	452	41.47%
1	60	22.30%	64	24.06%	41	14.86%	48	17.20%	213	19.54%
2	81	30.11%	66	24.81%	65	23.55%	48	17.20%	260	23.85%
3	7	2.60%	12	4.51%	68	24.64%	24	8.60%	111	10.18%
4+	6	2.23%	2	0.75%	39	14.13%	7	2.51%	54	4.95%
Total	269	100.00%	266	100.00%	276	100.00%	279	100.00%	1090	100.00%

Age. The predominant age group, out of the survey choices provided (less than 20, 21 to 35, 36 to 50, 51 to 65, over 65 years), was 36 to 50 years of age for Asian group; 43.1% of Asian Indian and 49.3% of Chinese fell into this age category (Table 38). Among Hispanic 48.8% fell into the 21-35 age groups. , 37.3% of Mexican respondents fell into the 36 to 50 year age group. The age groups distribution were relatively balanced among Puerto Ricans, Particularly between the especially on 36 to 50 years (28.1 %) and 51 to 65 years age group (28.8 %). Additionally, the Puerto Rican ethnicity had more participants over 65(21%) than the other three ethnic groups. Moreover, more than 91.3% of the Mexican respondents were younger than 50 and only 8.7% of respondents were older than 50.

Education Level. As shown in table 39, on average, 26.9% of respondents in these four groups did not complete high school. However more than half (61.9%) of the Mexican respondents and 38.8% of Puerto Rican respondents have an education level less than the 12th grade, while Asian Indian and Chinese respondents only occupied 0.4% and 5.3% in this education level. More than 30% of Chinese and around 23% of Puerto Rican, as well as 7.2% of Mexican completed some level of college (at least 2 or more years). Furthermore, 14.4% or less from each ethnic groups obtained 2 years college degree. 32.8% of the Asian Indian respondents and 28.9% of Chinese respondents held a 4 year college degree; however, only 1.8% of the Mexican respondents and 8.3% of Puerto Rican groups completed a 4 year college study. More than 40% of the respondents in Asian groups (48.7% of Asian Indian and 40.2% of Chinese) hold post graduate or advanced degrees. The lower number of Hispanic graduates with two year college degree or higher degree was primarily offset by a higher number of observations of those with an education level below higher school.

Table 38: Which of the following ranges includes your age?

Age	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Less than 20	4	1.49%	7	2.63%	15	5.43%	8	2.85%	34	3.11%
21 to 35	68	25.28%	32	12.03%	134	48.55%	54	19.22%	288	26.37%
36 to 50	116	43.12%	131	49.25%	103	37.32%	79	28.11%	429	39.29%
51 to 65	59	21.93%	70	26.32%	21	7.61%	81	28.83%	231	21.15%
Over 65	22	8.18%	26	9.77%	3	1.09%	59	21.00%	110	10.07%
Total	269	100.00%	266	100.00%	276	100.00%	281	100.00%	1092	100.00%

Table 39: What is the highest level of education equivalent that you have completed?

Education	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Less than 12th grade	1	0.37%	14	5.26%	171	61.96%	108	38.85%	294	26.95%
High school graduate	25	9.23%	50	18.80%	84	30.43%	100	35.97%	259	23.74%
2 year college degree	24	8.86%	18	6.77%	15	5.43%	40	14.39%	97	8.89%
4 year college degree	89	32.84%	77	28.95%	5	1.81%	23	8.27%	194	17.78%
Post graduate or advanced degrees	132	48.71%	107	40.23%	1	0.36%	7	2.52%	247	22.64%
Total	271	100.00%	266	100.00%	276	100.00%	278	100.00%	1091	100.00%

Employment. On average, of the four ethnic groups, just over half (50.8%) of the respondents were employed by someone other or self-employed (Table 40). Further , 61.9% of participants of Asian Indian and 62.2% of the Chinese respondents were employed by someone else, while 46.9% of Mexican and 32.9% of Puerto Rican observations were employed by someone else. 5.4% to 12.3% were self-employed. In total, around 40% to 75% of respondents were employed. 10.07% of the Asian Indian and 13.1% of the Chinese, however, only 1.4% of Mexican respondents were retired. The high percentage (25.6%) of retired Puerto Rican seemingly correlated with the higher percentage of Puerto Rican respondents over the age of 65. From 4.1% to 11.2% of the respondents from each group were unemployed and 0.7% to 10.1% belonged to another employment status.

Annual Household Income. Only around 6% of both Asian Indian and Chinese respondents fell into the annual income categories with less than \$20,000 while 58.7% of Mexican and 52.7% of Puerto Ricans belonged to this category (Table 41). Around 40% of the observations from each group made the annual income between \$20,000 and \$79,999. The relatively low percentage of respondents in the lower income category was offset by the higher percentage of respondents with an annual income of \$60,000 to \$79,999. This is seemingly correlated and perhaps due to the higher education level of Asians relative to Hispanics. 23.5% of the Asian Indian and 10.9% of Chinese participants earned more than \$150,000 every year while no Mexican and Puerto Rican observations fell in this category.

Table 40: Which of the following best describes your current occupation?

Occupation	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Employed by someone else	166	61.94%	166	62.17%	130	46.93%	91	32.85%	553	50.78%
Self-employed	33	12.31%	19	7.12%	18	6.50%	15	5.42%	85	7.81%
Retired	27	10.07%	35	13.11%	4	1.44%	71	25.63%	137	12.58%
Full-time Homemaker	25	9.33%	24	8.99%	102	36.82%	41	14.80%	192	17.63%
Unemployed	11	4.10%	17	6.37%	21	7.58%	31	11.19%	80	7.35%
Other (Please Specify)	6	2.24%	6	2.25%	2	0.72%	28	10.11%	42	3.86%
Total	268	100.00%	267	100.00%	277	100.00%	277	100.00%	1089	100.00%

Table 41: Which of the following ranges includes the annual-income of your household before taxes?

Household Income	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Less than \$20,000	12	5.63%	14	6.64%	149	58.66%	137	52.69%	312	33.26%
\$20,000 to \$39,999	17	7.98%	31	14.69%	82	32.28%	54	20.77%	184	19.62%
\$40,000 to \$59,999	33	15.49%	26	12.32%	18	7.09%	44	16.92%	121	12.90%
\$60,000 to \$79,999	29	13.62%	34	16.11%	1	0.39%	13	5.00%	77	8.21%
\$80,000 to \$99,999	21	9.86%	27	12.80%	3	1.18%	3	1.15%	54	5.76%
\$100,000 to \$124,999	37	17.37%	42	19.91%	1	0.39%	6	2.31%	86	9.17%
\$125,000 to \$149,999	16	7.51%	14	6.64%	.	.	3	1.15%	33	3.52%
\$150,000 to \$199,999	21	9.86%	12	5.69%	.	.	.	.	33	3.52%
\$200,000 or more	27	12.68%	11	5.21%	.	.	.	.	38	4.05%
Total	213	100.00%	211	100.00%	254	100.00%	260	100.00%	938	100.00%

Marital Status. More than 60% of the respondents from each group were married (ranging from 64.9% of Mexican to 88.8% of Asian Indian), and 35.3% of Puerto Ricans (Table 42). Due to the lower proportion of married participants, Puerto Ricans had a relatively higher percentage of single respondents relative to the other three groups. The Puerto Rican respondents had the highest divorce rate (11.2%) and they also exhibited the highest rate of being separated or widowed. Meanwhile, less than 3% of respondents of other three groups belonged to this marital status. And slightly higher percentage of Puerto Rican were divorced, separated or widowed relative to Mexicans, Asian Indians and Chinese. Additionally, slightly more Mexican respondents than Asian Indian or Chinese and Puerto Rican were in the status of living together.

Gender. The majority of principal shoppers from each ethnic group were female (Table 43). A slightly higher portion of respondents from the Hispanic sub group were female (72.2% of Puerto Rican and 71.1% of Mexican), as compared to the Asian sub groups (63.8% of Chinese and 57% of Asian Indian).

Table 42: Which of the following best describes your current marital status?

Marital Status	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Married	238	88.81%	216	80.30%	179	64.86%	98	35.25%	731	67.00%
Single	20	7.46%	31	11.52%	52	18.84%	96	34.53%	199	18.24%
Divorced	5	1.87%	7	2.60%	4	1.45%	31	11.15%	47	4.31%
Separated	.	.	1	0.37%	7	2.54%	12	4.32%	20	1.83%
Widower	3	1.12%	7	2.60%	4	1.45%	26	9.35%	40	3.67%
Living together	2	0.75%	6	2.23%	30	10.87%	15	5.40%	53	4.86%
Other	.	.	1	0.37%	.	.	.	.	1	0.09%
Total	268	100.00%	269	100.00%	276	100.00%	278	100.00%	1091	100.00%

Table 43: Gender

Gender	Ethnicity									
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Female	158	57.04%	176	63.77%	199	71.07%	205	72.18%	738	66.07%
Male	119	42.96%	100	36.23%	81	28.93%	79	27.82%	379	33.93%
Total	277	100.00%	276	100.00%	280	100.00%	284	100.00%	1117	100.00%

Language. More than 90% of the respondents from each group indicated that they spoke their respective ethnic language (Table 44). Only less than 6% in each group indicated that they spoke their respective ethnic language only ‘somewhat’ or ‘very little’, with a range of 1.1% to 2.9% that do not speak their ethnic language at all.

Birth place. As table 45 shows, on average, 75.2% of the respondents from these four ethnicities were born in the country of ethnic origin (i.e. China for Chinese, India for Asian Indian). In the Asian group, the fewer Chinese, relative to Asian Indians, were from their respective country of ethnic origin. In the Hispanic groups, relative to Mexicans, Puerto Ricans had a lower percent of ethnic origin, which was offset by a slightly higher number of American-born Puerto Rican respondents. 17.2% of Chinese participants were born outside of the United States and in a country other than their respective country of ethnic origin.

Age of immigration. The foreign-born respondents from Hispanic subgroups generally arrived in the USA at a younger age than their Asian counterparts (Table 46). 32.6% of Puerto Ricans and 27.7% of Mexicans arrived at the USA at the age of fifteen or younger, while 13.4% of Asian Indian and 17.6% of the Chinese respondents arrived at that time. Half of the foreign-born Puerto Rican arrived at an age between sixteen and thirty years old and more than 60% of the observations of the other three sub groups arrived in the United States at that time. More than 90% of the respondents arrived by 45 years old.

Table 44: Do you speak your ethnic language?

Ethnic Language	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Yes	253	92.67%	253	91.67%	274	97.86%	271	95.76%	1051	94.51%
No	7	2.56%	8	2.90%	3	1.07%	4	1.41%	22	1.98%
Somewhat/very little	13	4.76%	15	5.43%	3	1.07%	8	2.83%	39	3.51%
Total	273	100.00%	276	100.00%	280	100.00%	283	100.00%	1112	100.00%

Table 45: Where were you born?

Birth Place	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
U.S.	28	10.33%	50	18.32%	41	14.80%	84	30.11%	203	18.45%
Ethnic Country	227	83.76%	176	64.47%	232	83.75%	192	68.82%	827	75.18%
Other	16	5.90%	47	17.22%	4	1.44%	3	1.08%	70	6.36%
Total	271	100.00%	273	100.00%	277	100.00%	279	100.00%	1100	100.00%

Table 46: How old were you when you arrived in the US?
(If respondent born in ethnic country or other)

Age at Respondent Came to the U.S.	Ethnicity								All Ethnicities	
	Asian Indian		Chinese		Mexican		Puerto Rican			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1-15	31	13.42%	36	17.56%	63	27.75%	62	32.63%	192	22.51%
16-30	161	69.70%	128	62.44%	137	60.35%	95	50.00%	521	61.08%
31-45	34	14.72%	34	16.59%	24	10.57%	16	8.42%	108	12.66%
46+	5	2.16%	7	3.41%	3	1.32%	17	8.95%	32	3.75%
Total	231	100.00%	205	100.00%	227	100.00%	190	100.00%	853	100.00%
Average Years	24.61		24.92		20.07		22.03		22.90	

7.4. Specific Ethnic Crops

Specific Ethnic Crops. The crop selection process began with crop expert panel review of an initial list of over 100 ethnic greens and herbs to select 40 greens and herbs (10 per ethnicity) for inclusion in the ethnic consumer survey questionnaire. The primary purpose of average weekly expenditure data (survey question number 9) was to prioritize subsequent production research. Detailed data including quantity and price data were obtained to assess relevant retail sales data for each produce item based specifically information provided by ethnic respondents who purchased each particular item. The analysis itself entailed grouping respondents' data by unit of measure (pounds, bunches and numbers), calculating the average quantity and price by units purchased weekly.

For Asian Indian (Table 47), Radish Greens, Turmeric and Fenugreek were the top three popular items; 74%, 73% and 72% respondents purchased these three ethnic items respectively. Moreover, more than half of the respondents purchased Indian Sorrel Spinach. In contrast, over 90% of Asian Indian didn't purchase Indian Sorrel and Amaranth (Purple).

Purchasing in season means that the ethnic consumers need not travel far distance and can obtain the produce fresh from the farm. For Asian Indian, the consumers purchased ethnic greens and herbs regularly during the season. The most popular ethnic greens and herbs was Radish Greens, which 74% of the consumers purchased. Within this purchased percentage, 38.27% of respondents bought it regular and 35.7% of them purchased it seasonally. Of the 72% of Asian Indian who purchased Fenugreek, 39.7% of them purchased it regularly and 32.5% purchased it seasonally (Table 48).

For Chinese respondents (Table 49), Shanghai bok choy was the highest percentage purchased items relative to other Chinese produce purchased by a significant majority of Chinese respondents (238 of 276). Also, Spinach and Chinese broccoli had higher percentage by Chinese respondents. Among the respondents who purchased Shanghai bok choy, 72% of them purchased this item regularly and only 14% bought it seasonally. 55% of Chinese purchased both Chinese broccoli and Spinach regularly (Table 50). For Mexican respondents (Table 51), their frequency of purchasing the specific ethnic greens was widely dispersed. Roselle was the highest percentage of purchasing relative to other items. 48% of Mexicans purchased Purslane and 44% purchased Epazote. As table 52 shows, among the respondents who purchased Roselle

(referring to calyx of hibiscus), 30% of them purchased this item regularly. 23% in 48% of Mexican purchased Purslane regularly and 24% did seasonally, meanwhile, 25% out of 44% of respondents bought Epazote regularly. As tables 53 shows, lettuce was the most popular ethnic green among Puerto Ricans. 95% of Puerto Ricans respondents purchased this item. Moreover, 88% of Puerto Rican purchased Culantro, and out of those respondents, 71% indicated that they purchased it regularly while less than 20% of them bought it seasonally, and 72% of those 88%, also purchased Garlic Chives. Among the 95% of respondents who purchased Lettuce, 82% of them purchased it regularly and 13% of them bought it seasonally (Table 54).

Table 47: Percentage Distribution of Ten Greens and Herbs bought by Asian Indian Respondents

Crops	Asian Indian					
	Who Purchased Ten Greens and Herbs?					
	Yes		No		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Purslane/Veradolga	35	13%	242	87%	277	100%
Nightshade	50	18%	227	82%	277	100%
Fenugreek	199	72%	77	28%	276	100%
Indian Sorrel Spinach	163	59%	112	40%	275	99%
Indian Sorrel	19	7%	256	92%	275	99%
Malabar Spinach	46	17%	231	83%	277	100%
Radish Greens	205	74%	72	26%	277	100%
Amaranth (Purple)	29	10%	248	90%	277	100%
Amaranth (green)	60	22%	217	78%	277	100%
Turmeric	203	73%	74	27%	277	100%

Note: Percentage calculated based on total 277 respondents and the total below 100% indicates non response

Table 48: Distribution of Asian Indian Respondents Buying Behavior (Regular/Seasonal) of Ethnic Greens and Herbs

Crops	Asian Indian					
	Respondents Purchase Behavior					
	Regular		Seasonal		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Purslane/Veradolga	17	6.14%	18	6.50%	35	12.64%
Nightshade	15	5.42%	35	12.64%	50	18.05%
Fenugreek	110	39.71%	90	32.49%	200	72.20%
Indian Sorrel Spinach	107	38.63%	56	20.22%	163	58.84%
Indian Sorrel	8	2.89%	11	3.97%	19	6.86%
Malabar Spinach	15	5.42%	31	11.19%	46	16.61%
Radish Greens	106	38.27%	99	35.74%	205	74.01%
Amaranth (Purple)	16	5.78%	13	4.69%	29	10.47%
Amaranth (green)	28	10.11%	32	11.55%	60	21.66%
Turmeric	133	48.01%	70	25.27%	203	73.29%

Note: Percentage calculated based on total 277 respondents and the total below 100% indicates non response

Table 49: Percentage Distribution of Ten Greens and Herbs bought by Chinese Respondents

Crops	Chinese					
	Who Purchased Ten Greens and Herbs?					
	Yes		No		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Shanghai bok choy	238	86%	38	14%	276	100%
Chinese broccoli	199	72%	77	28%	276	100%
Chives & Flowers	108	39%	168	61%	276	100%
Garland Chrysanthemum	85	31%	191	69%	276	100%
Lycium Leaf	20	7%	256	93%	276	100%
Malabar Spinach	56	20%	220	80%	276	100%
Potherb Mustard	47	17%	229	83%	276	100%
Spinach	200	72%	76	28%	276	100%
Sugar Pea tops/bean	114	41%	162	59%	276	100%
Yen choy	78	28%	198	72%	276	100%

Note: Percentage calculated based on total 276respondents

**Table 50: Distribution of Chinese Respondents Buying Behavior (Regular/Seasonal)
of Ethnic Greens and Herbs**

Crops	Chinese					
	Respondents Purchase Behavior					
	Regular		Seasonal		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Shanghai bok choy	198	72%	40	14%	238	86%
Chinese broccoli	151	55%	48	17%	199	72%
Chives & Flowers	66	24%	42	15%	108	39%
Garland Chrysanthemum	30	11%	55	20%	85	31%
Lycium Leaf	10	4%	10	4%	20	7%
Malabar Spinach	39	14%	17	6%	56	20%
Potherb Mustard	29	11%	18	7%	47	17%
Spinach	152	55%	48	17%	200	72%
Sugar Pea tops/bean	76	28%	38	14%	114	41%
Yen choy	51	18%	27	10%	78	28%

Note: Percentage calculated based on total 276 respondents and the total below 100% indicates non response

Table 51: Percentage Distribution of Ten Greens and Herbs bought by Mexican Respondents

Crops	Mexican					
	Who Purchased Ten Greens and Herbs?					
	Yes		No		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Amaranth	34	12%	246	88%	280	100%
Chard	104	37%	176	63%	280	100%
Lambsquarter	85	30%	195	70%	280	100%
Epazote	123	44%	157	56%	280	100%
Lemon Verbena	21	8%	259	93%	280	100%
Lipia	65	23%	215	77%	280	100%
Papalo	60	21%	220	79%	280	100%
Purslane/Verdolaga	133	48%	147	53%	280	100%
Roselle	143	51%	137	49%	280	100%
Vine Vegetables	94	34%	186	66%	280	100%

Note: Percentage calculated based on total 280 respondents

Table 52: Distribution of Mexican Respondents Buying Behavior (Regular/Seasonal) of Ethnic Greens and Herbs

Crops	Mexican					
	Respondents Purchase Behavior					
	Regular		Seasonal		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Amaranth	18	6%	16	6%	34	12%
Chard	41	15%	63	23%	104	37%
Lambsquarter	36	13%	49	18%	85	30%
Epazote	71	25%	52	19%	123	44%
Lemon Verbena	14	5%	7	3%	21	8%
Lipia	36	13%	29	10%	65	23%
Papalo	25	9%	35	13%	60	21%
Purslane/Verdolaga	65	23%	68	24%	133	48%
Roselle	84	30%	59	21%	143	51%
Vine Vegetables	84	30%	10	4%	94	34%

Note: Percentage calculated based on total 280 respondents and the total below 100% indicates non response

Table 53: Percentage Distribution of Ten Greens and Herbs bought by Puerto Rican Respondents

Crops	Puerto Rican					
	Who Purchased Ten Greens and Herbs?					
	Yes		No		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Culantro	251	88%	33	12%	284	100%
Dandelion greens	27	10%	257	90%	284	100%
Garlic Chives	204	72%	80	28%	284	100%
Lambs Quarter	30	11%	254	89%	284	100%
Lemon Balm	37	13%	247	87%	284	100%
Lettuce/Lechuga	271	95%	13	5%	284	100%
Spanish Oregano	135	48%	149	52%	284	100%
Tarragon	12	4%	272	96%	284	100%
Purslane	30	11%	254	89%	284	100%
Wild Garlic	62	22%	222	78%	284	100%

Note: Percentage calculated based on total 284 respondents

Table 54: Distribution of Puerto Rican Respondents Buying Behavior (Regular/Seasonal) of Ethnic Greens and Herbs

Crops	Puerto Rican					
	Respondents Purchase Behavior					
	Regular		Seasonal		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Culantro	203	71%	48	17%	251	88%
Dandelion greens	17	6%	10	4%	27	10%
Garlic Chives	159	56%	45	16%	204	72%
Lambs Quarter	21	7%	9	3%	30	11%
Lemon Balm	19	7%	18	6%	37	13%
Lettuce/Lechuga	234	82%	37	13%	271	95%
Spanish Oregano	93	33%	42	15%	135	48%
Tarragon	9	3%	3	1%	12	4%
Purslane	17	6%	13	5%	30	11%
Wild Garlic	49	17%	13	5%	62	22%

Note: Percentage calculated based on total 284 respondents and the total below 100% indicates non response

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