

CONSUMERS' PERCEPTIONS AND PREFERENCES FOR SUSTAINABLY-PRODUCED  
FRUITS AND VEGETABLES: THE CASE OF ORGANIC, LOCAL, AND SMALL FARM

by

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B.S., Kansas State University, 2009

A THESIS

submitted in partial fulfillment of the requirements for the degree

MASTER OF SCIENCE

Department of Agricultural Economics  
College of Agriculture

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

2011

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## **Abstract**

This study focuses on determining what key differences predispose a consumer to regularly purchase and be willing to pay a premium for sustainably-produced fruits and vegetables. Organic, local, and small farm are the three cases used in the study. The research used a structured questionnaire to conduct an online survey of U.S. internet users with email addresses in the spring of 2011 with logit and ordered logit regression used as the analytical tools.

Cost was the most important factor for consumers who did not purchase organic and local products more frequently while unavailability was the principal reason for not consuming produce from small farms. The study showed consumers of small farm products often (98.5 percent of the time) consume local fruits and vegetables also but not the other way around.

The relevant socio-economic factors for determining organic purchasing frequency were gender, household size, and education. For small farm they were the ability to influence local change and the respondents' frequency of purchase of local products. Socio-economic characteristics did not prove to be a factor in local purchasing decisions.

Regular purchasers of organic fruits and vegetables provided a consistent perception of organic products with the USDA certified organic definition. Local consumers reported that taste and freshness are the most defining characteristics of local products while small farm consumers could not provide a clear picture of the definitional statements defining fruits and vegetables produced by a small farm. This implied that there is need for more work by small farm producers to differentiate themselves in the market. On the contrary, both local and organic producers have a clear point of differentiation to reach their customers.

Industry marketing efforts can be greatly improved by focusing on the characteristics of the consumers they are trying to reach. Our results can be further investigated by completing the following recommendations. First, to conduct more targeted studies such as interviews or focus groups, second, to gain a deeper understanding of how consumers perceive these attributes and third to conduct a comprehensive study on the similarities and differences between small farm and local consumers.

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## **Acknowledgements**

This material is based upon research supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under Agreement No. 2008-38420-18754. Any opinions, findings, conclusions, or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture. Thank you to the USDA for providing me the opportunity to earn my master's degree at Kansas State University.

First, I would like to convey my deep appreciation for my advisor and mentor, Dr. Vincent Amanor-Boadu. I am endlessly thankful to him for the lessons that he has taught me, not only about conducting ethical research, but also about life in general. He has affected my life in a lasting and meaningful way that has forever changed my perception of life.

I would also like to thank my committee members, Dr. Karen Schmidt, Dr. Delores Chambers, and Dr. Jason Bergtold, for their support, encouragement, and expertise throughout this process. Their insightful input has improved the quality of this research.

To my friends and family, a simple thank you for listening, laughing, and everything else you do on a daily basis to keep me loving my life.



## **Dedication**

To the fourth floor graduate students for providing support, laughter, and friendship

## Chapter 1 - Introduction

Over the past half-century scholars have sought to strictly define what constitutes sustainability. Attempts and failures to define sustainability can be found within the literature (Lyman and Herdt, 1989; Brown et al., 1987); and most authors write of the struggles inherent in creating a definition for such a wide-ranging and diverse concept (Toman, 1992). The challenge does not arise in discussing the topic, but from trying to discuss how the concept of sustainability can be applied in today's society and culture in an operational way. Almost every paper written on the topic of sustainability since 1987 quotes the most popular definition as it was published in the Brundtland Commission's Report by the United Nations (1987). The Brundtland Commission defines sustainability and sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

As scholars world-wide are challenged to create a complete and operational definition of sustainability, the trend itself is becoming much more popular with citizens around the globe. The internet has provided a convenient way to share information globally on this topic, quickly expanding the bounds of sustainability. For example, the word sustainability yields more than 58 million web sites, in the world's most used search engine, Google (Google, 2011). Sustainability has also become a hot topic within the research community. There have been more than 44,000 journal articles published on all areas of sustainability, with 82 percent of the articles published in the last decade and over 6,500 published in 2010 (Web of Science, 2011). Several facets of sustainability are explored in the literature; sustainable development, sustainable agriculture, sustainable consumption, and sustainable energy sources, to name a few. Some might argue that the demand for political guidance on the subject far outweighs the scientific knowledge on the topic, thus the lack of a legal definition (Sustain, 2009).

Several policies have been set forth to begin guiding the process towards sustainable production. The first subset of policies addresses the ecological aspects of sustainability. This is often the most common perspective of sustainability as it has to do with preserving the environment. These policies deal with environmentally degrading factors and externalities from production. For example, carbon dioxide emissions and how their reduction will positively impact the environment. One such policy, the Kyoto Protocol (1997), commits 37 industrialized

nations to reduce their greenhouse gas emissions at a rate of five percent between 2008 and 2012. This policy has created a “carbon market”, where countries can trade contracts that allow them to emit a given number of carbon units. If a company/country has not used their allotted number of units, they are allowed to sell their permits to another company or country. However, critics argue that the success of the Protocol depends completely on full compliance by all countries involved, otherwise the protocol would be ineffective (Grubb et al., 2011; Meyerson, 1998). Further reform of and amendments to existing policies along with the development and creation of new policies are needed to guide the current industrial sector to be more conscientious. Policies that internalize the unaccounted for costs of these negative externalities are needed before companies will see it as more profitable to change their ways.

The next set of policies aimed at restructuring production towards global sustainability, deal with the bio-physical aspect of sustainability. This definition deals with the production resources themselves, such as water purification, soil health, and carbon sequestration. The Conservation Reserve Program (CRP) through the NRCS is a policy that seeks to take land out of production. The CRP pays farmers and landowners to retire land and is intended to reduce soil erosion, improve water quality and preserve the nation’s ability to produce its food supply. Along with protecting resources invaluable to food and fiber production, CRP is also intended to enhance wildlife habitat and reduce sedimentation in rivers and streams (by reducing soil erosion), and protect forest and wetland resources (USDA – NRCS, 2009).

The 2002 U.S. farm bill included the passage of the Conservation Security Act (CSA) which allowed the USDA to make payments to farmers for using conservation tillage. This policy is focused on land that is currently in production and attempts to incentivize farmers to utilize sustainable tillage practices in place of conventional tillage. It is difficult to encourage U.S. farmers to take advantage of these programs because the payment may seem riskier than the guarantee of keeping the land in production and the continuous use of known tillage practices (Kurkalova et al., 2006). From producers’ perspective, government subsidies do not carry the same guarantee as keeping the land in production. Therefore, the incentive to utilize these programs must be carefully determined to achieve socially optimal utilization.

Finally, the least sculpted definition of sustainability and the focus of this research, centers around preserving cultural nuances in agricultural production. These nuances include, but are not limited to, organic farming, local food consumption, and keeping farm size lower.

The assumption is that these factors are dimensions of sustainability and therefore represent sustainable production technologies (SPT). These niche markets are characterized by consumer demand driven production and are only a small part of global food consumption.

The first legal definition to fall into this category was for “organic production” and was documented by the USDA in 2000. Since then, government spending on organic agriculture has increased five-fold (ERS, 2009) and both organic and local consumption have increased drastically. Because the demand for organic food products has grown so drastically, price premiums have been established for food carrying the “USDA Organic” label. However, as the gap between domestic demand and domestic supply for organic products has widened, imports and price premiums have increased (ERS, 2009). Local and organic products are closely related because of the connection between nature and farmer, farmer and food, and food and consumer. These connections are driving the growth in demand of these niche markets that provide closeness between farmer, food and consumer. A less well known market is that for products produced by a characteristically small farm. Data for consumers of small farm products is even less prevalently available than for local and organic consumers.

This cluster of niche markets that preserves these cultural nuances has been deemed the “agri-culture” definition of sustainability. The assumption is that niche food markets such as organic, local, small farm and many others make up the sustainably-produced food market that is a small subset of American agriculture. By learning more about the individual markets within sustainably-produced food, our understanding of the entire sustainably-produced food market increases.

## **1.1 Research Problem and Question**

The foregoing illustrates the difficulty associated with the definition of sustainability. Creating an all encompassing definition for sustainability is like building a barbed-wire fence too close to a cottonwood tree – the tree will grow around it. A rapidly growing need within sustainability is to determine consumer response to sustainably-produced products. Statistics showing consumption patterns for organically produced food can be found (ERS, 2009), but detailed demographics of the consumers driving local and small farm niche markets are not commonly available. Studies have provided basic and sometimes contradicting effects of demographic characteristics on consumption patterns for some food products. These products

are usually meat, dairy, or produce. For example, Rosa et al. (2009) found a positive relationship between income and consumption of organic products, but the ERS (2009) could not make the same case. The ERS' report stated that the consumer's income level had no effect on their frequency of purchase of organic products.

Studies within this body of research typically address one product, with very specific attributes. Therefore, these studies are ineffective at drawing conclusions regarding the organic, local and small farm product markets in their entirety. Therefore, the research question is this: What are the socio-economic, behavioral, and motivational differences between consumers who choose to purchase SPT fruits and vegetables and those who do not? This research will examine consumers' frequency of purchase, willingness to pay a premium for SPT fruits and vegetables, and their perceptions of each sustainable attribute. Also of interest are the reasons why some consumers choose not to purchase sustainably-produced fruits and vegetables more regularly.

## **1.2 Objectives**

The overall research objective is to determine what key differences may predispose a consumer to purchase SPT fruits and vegetables more regularly and be willing to pay a premium for those products. To gain this knowledge we examine the characteristics of consumers of SPT fruits and vegetables and their willingness to pay for products with specific sustainable attributes vis-à-vis organic, local, and small farm. The specific objectives are as follows:

1. Assess the difference in the socio-economic characteristics between those purchasing and not purchasing organic, local, and small farm fruits and vegetables;
2. Determine how socio-economic and behavioral factors affect consumers' purchasing frequency of organic, local, and small farm fruits and vegetables;
3. Determine how consumers' perceptions of products with these sustainable attributes influence the premium they are willing to pay for them; and
4. Develop recommendations for producers and marketers of organic, local, and small farm fruits and vegetables to enhance their probability of success.

This research is instrumental in ensuring that producers are catering to the demand of consumers. Also, marketers need this information to establish criteria for desirable markets to introduce products with sustainable attributes. A better understanding of consumers that do and

do not demand organic, local, and small farm products increases the likelihood of success. Acknowledging non-consumers' motives for not purchasing these products more frequently is the first step in increasing the regularity of their purchases. Understanding regular consumers' perceptions of sustainable production technologies is a large step in being able to capitalize on them.

Knowledge of current consumers, coupled together with polite respect for those choosing not to purchase SPT fruits and vegetables more frequently, is instrumental in enhancing the consumer base for these products. The first task is creating more loyal consumers and second, converting less frequent consumers to regular purchasers. To provide the data necessary to accomplish these tasks, a survey is used, served to a sample of the US adult population. Then statistical and econometric modeling tools are used to address each objective.

### **1.3 Method Overview**

A structured questionnaire is used to conduct an online survey to examine the above research questions. The respondents were chosen from a large database of U.S. residents who have willingly opted into a marketing database. Database members provided information including their email, address, birth date, gender and other demographic characteristics when opting into the database. The survey responses were analyzed using two principal approaches: statistical analysis and econometric analysis. Logistic regressions were employed in the econometric analysis. These methods facilitated addressing Objectives 1 through 3. The robustness of the results has provided a foundation for assessing the inferences that may be developed from the results to provide recommendations. These recommendations focus on how the sustainability industry may enhance their competitiveness through effective marketing to consumers.

In Chapter 2, a review of relevant literature is given. Following this, Chapter 3 presents a description of the conceptual model; that supports the empirical approach. Also included in Chapter 3 is an explanation of the statistical and econometric methods, as well as a discussion of the survey data. Chapter 4 presents the results from the statistical and econometric analyses and Chapter 5 provides a summary of conclusions from the study.

## Chapter 2 - Literature Review

“Business competitiveness should be based on an appropriate mix of economic, societal, and environmental criteria” (Rosa et al., 2009, p. 659). To this extent, it is not surprising that the following of sustainability has strengthened and become more popular over the last several decades, or that research in this area has grown exponentially. Issues facing the agricultural industry concerning the difference between organic and traditional food products have drastically increased the profile of sustainable production technologies (SPT) and the demand for food from such technologies (Clonan et al., 2010). The SPT food market has grown radically during the previous decade. The supply of these products is also growing since studies have proven that price premiums can be charged for sustainably-produced food (ERS, 2009) and local products (Darby et al., 2006). Other factors contribute to the growth of the SPT food market. For instance, the creation of the USDA Organic label and subsequent production standards have aided the growth of the organic market while the creation of state guided campaigns to promote locally grown food products, such as Colorado Proud, Pennsylvania Preferred, and South Carolina Grown (Constanigro et al., 2010; James et al., 2009; Carpio and Isengildina-Massa, 2008). Also helping to grow the demand for local food is the increase in the number of farmers’ markets around the country (James et al., 2009).

As sustainability trends in the agricultural industry continue to grow, price premiums are becoming more common and more pronounced (Galloway and Bailey, 2005). Current research seeks to address why consumers are willing to pay more for a product carrying a label indicating that SPT were used. Of great importance to sellers trying to charge a premium for their product is the label that the product carries. Labels indicate product attributes that are important to the consumer, differentiate the product (James et al., 2009), and generate loyalty to a certain product or attribute (Wettstein et al., 2009). However, not all labels indicating SPT are substantiated by a government agency. The USDA Organic label is earned by the seller for adhering to certain production guidelines while labels like ‘local’ and ‘sustainably-produced’ are left to the consumer to interpret as they will. Common labels that represent inconsistent standards, such as local or small farm lead to consumers misinterpreting the label and making inaccurate inferences based on incomplete information (Tonsor and Shupp, 2009). Tonsor and Shupp (2009) suggest that because of these inferences, the consumer base may be extremely sensitive to attempts to

standardize labeling for uncertified production technology. However, standardized labeling may not be the answer. In the case of country-of-origin labeling, Umberger and Mueller (2010) report that even with mandatory country of origin labels on every unit of beef sold in the U.S., 64 percent of their survey respondents indicated that they were generally not aware of the origin of their beef. Also, even though freshness is one of the most commonly cited reasons for wanting to purchase local products, Darby et al. (2006) found that between two products harvested only 24 hours prior to purchase, consumers preferred the local product. This result suggests that even if consumers are attracted to a label, for example “fresh”, they may still differentiate between products for more extensive reasons.

An alternative method to determining why consumers value these sustainable attributes is to interpret their attitudes toward these products. Their attitudes signal information about themselves, including to what extent they feel that purchasing SPT products will impact themselves, their communities, and their environment. Nurse et al. (2008) call this feeling “perceived consumer effectiveness” (PCE) while Seyfang (2006) refers to it as “ecological citizenship”. Both ideas are similar in that they attempt to measure the extent consumers feel their purchasing decisions influence the people and places around them. Both PCE and ecological citizenship are positively correlated with frequency of purchase and willingness to pay for SPT products (Nurse et al., 2008; Seyfang, 2006). Without political mandates currently in place, these feelings of responsibility for consumers to do their part are driving the growth in consumption of STP products (Seyfang, 2006). However, there may be a difference between PCE at a local and global level.

The increasing interest in sustainability can, in part be attributed to the lack of a legal definition. As of 2011, the U.S. government and its agencies had yet to publish a legal definition for the terms sustainable or sustainably-produced. Umberger and Mueller (2010) suggest that SPT include, but are not limited to, hormone and antibiotic free, environmentally friendly, and certified humane. While that is not a legal definition, some aspects contributing to SPT have been legally defined, such as organic or fair trade. For example, the term organic was legally defined in 2000 in conjunction with the creation of the “USDA Organic” label. This label signifies to consumers that their product was produced using an “ecological production system that fosters cycling of resources, promotes ecological balance, and conserves biodiversity” (ERS, 2009). While organic producers have strict guidelines that they must meet before they can



legally label their product as USDA Organic, producers who market their product as being local are not legally bound to follow any set of production standards. Therefore, the distance that consumers consider to be local is often a subset of research to determine the willingness to value of local products. The most common definitions of local are within the state of consumption, within 100 miles of consumption, or as close to the point of production as possible (ERS, 2009; Seyfang, 2006; Darby et al., 2006).

Fruits, vegetables, and dairy products account for over half of the U.S. organic market which has more than quintupled since 1997 (ERS, 2009). The scientifically documented advantages of organic fruit and vegetable production include: reduced pesticide residues in water and food, reduced effects on non-target species (e.g. humans or animals), lower energy use in production, enhanced carbon sequestration, and enhanced biodiversity in organic fields as opposed to traditional production fields (ERS, 2009). While the small farm movement is a national movement, organic food is a global issue that promotes wellness for our entire planet. Local food promotes economic success for each individual consumer's home community. Therefore, it is not surprising to experience widespread results that show consumers, more often choose local or small farm food over organic food products.

In a study that examined organic and "environmentally friendly" labeled apples, Loureiro et al. (2001) found that organic was preferred by almost all consumers over 'environmentally friendly' apples. This result, once again demonstrating that labeling makes a notable difference because being more environmentally conscientious is a proven feature of organic production (ERS, 2009). Even though organic was preferred over the market-oriented 'environmentally friendly' label in the case of Portland, Oregon apples, in the case of local versus organic products, local is almost always preferred. The ERS' (2009) study of the organic market revealed that on a head to head direct comparison of two products only differing between the local and organic attribute, consumers more often chose local. Clonan et al. (2010) reported that eggs and poultry, vegetables, and milk are popular choices for local consumption.

James et al. (2009) conducted a study of value-added attributes in a processed product, using applesauce with the three varying attributes of Pennsylvania Preferred, no sugar added, and USDA Organic. The Pennsylvania Preferred attribute was the most useful for increasing consumer utility followed by "no sugar added", with USDA Organic being the least important to survey respondents. The low valuation of organic products may be due to organic products

becoming almost “common” in the U.S. food market. While organic is still a very small part of food products consumed in the U.S., the visibility of organic products has increased dramatically. The reasoning behind consumers’ clear preference for local products over organic becomes clearer when examining specific reasons that consumers create preferences for each product attribute.

Different consumers value SPT products for different reasons and at varying levels. The frequency of purchase and consumption of SPT products varies from devoutly loyal to an occasional purchase of such products. The motives for purchasing SPT products vary from person to person but can be broken down into a few broad categories. While “health benefits” is cited by Rosa et al. (2009) as consumers’ largest motive for purchasing organic milk products, “freshness/taste” is cited most often as the reason for purchasing local products (Tonsor and Shupp, 2009; Dentoni et al., 2009; Darby et al., 2006).

Many reasons are mentioned in the literature as driving the consumption of sustainably-produced products. Most SPT consumers share the common pursuit of “quality of life” through purchasing products with sustainable attributes rather than seeking economic growth as a means for development (Seyfang, 2006). The pursuit of quality of life suggests that price may not be a highly important factor to those who are purchasing agri-cultural products. Novotorova and Mazzocco (2008) clarify by adding, that price is still very important, but exempt from this generalization are those consumers who are already willing to pay a premium for SPT products. However, most consumers’ specific reasons for purchasing SPT products remain dependent on the specific attribute. For example, reasons for favoring organic over conventional products include: taste, nutritional value, absence of preservatives, and environmental benefits (Rosa et al., 2009). The reasons for shopping locally tend to be tied to community and the short time period between harvest and consumption. Specifically, the reasoning is linked to freshness, environmentally friendliness, flavor, nutrition, safety, and maintaining a connection with the food source (Dentoni et al., 2009; Darby et al., 2006; Constanigro et al., 2010).

Studies have also examined consumer reactions to products that are labeled as “sustainably-produced”. The motives for purchasing a product labeled as sustainably-produced seem to draw from all sustainable attributes. These motives often depend on what the consumer associates with sustainable production. For example, demand for sustainably-produced products is higher for individuals associating the label with the product being organic or environmentally

friendly (Tonsor and Shupp, 2009). Consumers are also concerned with animal welfare, country of origin (Latvala and Kola, 2004), packaging, production methods and the transparency of the information provided (Clonan et al., 2010).

Transitioning to SPT is a challenging task for a firm of any size. The challenge is compounded further when considering whether or not a premium or a discount should be charged for SPT products. Firms, researchers, and marketing teams are trying to establish if consumers view SPT as a product attribute that adds value. The studies focus mainly on produce (Tonsor and Shupp, 2009; Darby et al., 2006; Dentoni et al., 2009) and animal products (Latvala and Kola, 2004; Umberger and Mueller, 2010; Constanigro et al., 2010). Other studies can be found that use coffee possessing sustainable attributes (Galloway and Bailey, 2005) and organic milk products (Rosa et al., 2009).

Researchers take varying approaches in determining how consumers value SPT. Dentoni et al. (2009) focused on determining if consumers value the sustainable attribute on its own, or value the qualities that the sustainable attribute signals to them. For example, do consumers value local fruit because they want to promote local consumption or because they associate local with fresh? The approach of comparing consumer attitude to purchasing behavior and willingness to pay has also become more and more popular as a means of determining value of SPT products (Constanigro et al., 2010; Dentoni et al., 2009).

Though both studies cited many pieces of literature stating that consumer attitude is positively correlated with purchasing behavior, some studies offer opposing results. Nurse et al. (2008) found that a positive attitude towards a product attribute does not necessarily result in a willingness to pay. This unexpected result is most likely caused by external factors that may promote or hinder the purchase of SPT products such as price or pressure to conform. Extending beyond purchasing behavior to focus on purchasing patterns and repurchase, many factors outside of the product itself can affect repurchase of the product. Those factors could include economic circumstance and clarity of labeling (Andersen and Sullivan, 1993) or why, specifically, a consumer values the “sustainable” attribute (Dentoni et al., 2009).

Thus far, willingness to value sustainable attributes has not been generalized for the entire food industry and the results from the recent studies are cause for debate. The results are split and cannot generalize whether or not SPT products should be valued at a premium or a discount relative to their traditional substitutes. The findings are very specific to certain

products, methods, and the sample population used for the study. Even within fruits and vegetables, results are specific to the product being examined. For example, Tonsor and Shupp (2009) found that sustainable apples and tomatoes were being discounted by consumers. But when the sample was segmented into those who were previously interested in SPT products and those who had a low level of interest, the results told a different story. Those who already had an interest in SPT were willing to pay more for SPT apples and tomatoes. However, the magnitude of the premium assigned to the product was conditional on socio-economic factors. Differing from the previous study, Loureiro et al. (2001) found that organic apples were worth a premium over traditional and environmentally friendly apples. Likewise, Umberger and Mueller (2010) established that consumers were willing to pay a premium for beef labeled as 'environmentally sustainable'. Price premiums were also found for local strawberries in a study conducted by Darby et al. (2006) and for SC grown produce and animal products in Carpio and Isengildina-Massa's (2008) study. Some products receive more of a price premium than others for various reasons. The ERS (2009) found that organically produced watermelon, mango, strawberries, grapefruit, spinach, cabbage, lettuce, and potatoes are the fruits and vegetables that receive the highest price premiums.

It is equally important to know how much consumers are willing to pay for SPT products, as it is to know what characteristics these consumers possess. This understanding begins with the group of individuals who make up the current consumer base for SPT products. Once the characteristics of current consumers are pinpointed, the location and acquisition of new consumers may be more straightforward. The key to attracting new consumers and retaining consumers long term may be to examine characteristics of already loyal consumers in conjunction with why the ultra low frequency purchasers are not purchasing SPT products more regularly.

Almost all of the willingness to pay studies include a segment to evaluate demographic characteristics. This portion of the studies is to focus on the characteristics possessed by the consumers who are already purchasing SPT regularly. Each study uses slightly different food products, methods, and sample populations. Therefore each study reports slightly different statistically significant and insignificant demographic, socio-economic and psychographic variables. For example, Tonsor and Shupp (2009) found that consumers with a college education were willing to pay more for sustainably-produced tomatoes and apples, while Novotorova and

Mazzocco (2008) reported that education level was insignificant for consumers purchasing genetically modified apples. As the number of children in the household increased, the demand for sustainably-produced tomatoes decreased (Tonsor and Shupp, 2009), the demand for organic apples increased and the demand for environmentally friendly labeled apples decreased (Loureiro et al., 2001). Carpio and Isengildina-Massa (2008) found that females' willingness to pay was higher than males' in the case of local beef products, but Novotorova and Mazzocco (2008) found that gender was irrelevant in the case of preference for genetically modified apples. The level of concern regarding food safety of the SPT product had different effects on different sustainable attributes. Loureiro et al. (2001) found that a higher awareness of food safety leads to a decreased demand for apples labeled environmentally friendly and an increased demand for organic apples.

Most studies do not ask extensively about the lifestyle background beyond the level of income of the respondent. The determinations of significance of the income level seem to be split between studies. In some cases, higher income: increases the consumers' value of sustainable attributes (Galloway and Bailey, 2005), the demand for organic milk products increases (Rosa et al., 2009), and the willingness to pay for local apples increases (Carpio and Isengildina-Massa, 2008). Contrastingly, the ERS (2009) and Novotorova and Mazzocco (2008) found that the level of income was irrelevant to the demand or willingness to pay for organic and genetically modified food products, respectively. These contrasting results may be an indication that income is not the constraining factor on purchasing decisions. Closer to food purchasing decisions than level of income is the household food budget which is a proportion of household income but may also be influenced by other factors as well.

The next step to building upon the substantial foundation of existing research is to conduct a study of the SPT market. By focusing on the organic, local and small farm product markets in their entirety, an understanding of preferences for sustainably-produced food can be formulated. The sample used to conduct this research is as close to the population of U.S. consumers as possible. Because the delivery method was electronic, a completely random sample could not be drawn from the United States. Therefore, the population used in place of the U.S. is United States internet users with email addresses. According to the PEW Research Group (2010), approximately 79 percent of United States' adults use the internet and 94 percent of them have email.

## **Chapter 3 - Methods and Data**

The models and data used in this study are discussed in this section. The survey instrument used for data collection is described in the first section, followed by an introduction to the models used in this study. The analytical software Stata 10.0<sup>®</sup> is used for all econometric and statistical analysis included in this study.

### **3.1 Survey Instrument**

An online survey was used to collect the data for this study. The survey instrument was a structured questionnaire that sought to identify buyers from non-buyers of sustainably-produced products. Also, the survey included questions to identify purchasers' unique characteristics that could explain their purchasing behaviors. The survey questions covered demographic and psychographic characteristics, purchasing behavior, and willingness to pay a premium for fruits and vegetables with sustainable attributes. The complete survey instrument is located in Appendix I. The software used was Axio, available from the Kansas State University Online Learning and Teaching Portal. The unique advantages of Axio included its construction and navigation ease, as well as facilitating extensive survey branching to allow respondents to see only the questions relevant to their earlier responses.

The survey depended on a database of 50,000 U.S. residents drawn from 250 million United States internet users who had voluntarily opted into a consumer internet user database. The data was purchased from an online list company. The list was randomized using the random number generator in Microsoft Excel and a sample of 20,000 was drawn from it; this formed a sample that received the survey instrument. The survey was distributed in four waves of 5,000 invitations over the first three weeks in March 2011.

Hamilton (2009), analyzing 199 email and online surveys, reported that response rates tend to decline rapidly with large invitations. He argues that large invitations are necessary when low response rates are expected to begin with. In this research, low response rate was expected because of the technical nature of the research question. First, the research was interested in a particular group of consumers – those purchasing fruits and vegetables. Then it was interested in those who were interested in organic, local and small farm production technologies. This begins

to push the limits of response as the technical nature creates participation barriers for many people. These factors guided the use of a large number of invitations.

Originally the survey was supposed to be offered during the first two weeks of March 2011. However, upon seeing the low number of responses that had been submitted at that point, the survey was extended for one more week. During the last week, email reminders were used every other day to encourage those individuals who had not yet opened their surveys to take part in our study. This technique produced several more responses in the last week of the survey. Also, the survey was not incentivized; respondents were donating their time to our study. When the survey was closed, the total number of useful responses received was 104, giving a response rate of 0.52 percent.

### ***3.1.1 Survey Focus***

The focus of this survey was to determine how consumers perceive sustainable attributes in food products and their preferences for such products. The sustainable attributes included in the survey are organic, local, and small farm. Since the respondents may not be familiar with these attributes, the introduction to the survey provided information about each of the attributes. We provided basic definitions for each of the attributes as well as explained how they differed from a traditional food product. Table 3.1 contains the definitions used for each.

**Table 3.1 Provided definitions of attributes**

<b>Attribute</b>	<b>Definition</b>
Organic	Food that is produced without antibiotics, hormones, genetic engineering, radiation, or synthetic pesticides or fertilizers
Local	Food that is sold within a community near the point of production
Small Farm	Food that is produced by a farm with annual revenues of less than \$20,000 and produced on less than 200 acres
Traditional	Food that is not classified as organic, local, or small farm

During the development of the survey, we noted that the length of the questionnaire was very long and this could hinder individuals from completing the entire survey. To remedy this

issue, we divided our survey, which initially had two focuses: (1) fruits and vegetables and (2) fresh meats. The purpose of this division was to limit the number of questions each respondent was presented. The division shortened the amount of time it took to complete one survey and likely increased the number of respondents for the survey. The survey used extensive branching to guide respondents to the questions that pertained to their previous responses. The branching mandated that almost all of the questions were required and therefore could not be skipped.

To allow the data analysis to be more focused and thorough, fruits and vegetables were the sole focus for the purpose of this thesis. The fresh fruits and vegetables survey's questions asked about consumers' purchasing patterns for fruits and vegetables. We clarified to consumers that the classification, "fruits and vegetables" included all fresh fruits and all vegetables that the consumer normally purchased or had the option to purchase. The fruit and vegetable segment was selected as the primary focus because fruits and vegetables are popular consumer choices across organic, local, and small farm production technologies.

### ***3.1.2 Survey Section I: Demographics***

The demographic portion of this study is important because of the fragmented portrait of consumers that is currently available. Reported characteristics of consumers are very dependent to the specific product that is being used, the group of attributes that the product contains, and how the product is presented. The purpose of gathering demographic information for the organic, local, and small farm fruits and vegetables markets is to begin to formulate consumer characteristic and trends for all three markets.

Under the assumption that these attributes are part of the sustainably-produced food market, this research contributes to defining trends for the SPT product market. Our research also contributes to the literature by using respondents from a diverse geographical area. By surveying consumers from across the U.S., preferences dependent on geographical location emerge and can be tested. Prior literature uses a confined sample of in-state or nearby consumers.

### ***3.1.3 Survey Section II: Psychographics***

Both Nurse et al. (2008) and Seyfang (2006) discuss the idea of perceived consumer effectiveness, though Seyfang refers to the concept as ecological citizenship. The central foundation of the concept is that as individuals' awareness of the people and places around them



increases their feelings of responsibility for the fate of their surroundings will also increase. It is hypothesized that as feelings of responsibility increase so will the preference for products with sustainable attributes. Both studies have shown that this relationship holds. Our contribution is to distinguish between local surroundings and global surroundings to determine if there is a significant difference.

Survey respondents were asked to rank the extent they believed their individual actions could influence a local change; the same question was then repeated for a global change. Our specific hypothesis is that the belief will be stronger that individual actions can influence a local change. Also, that there will be a positive relationship between belief in perceived consumer effectiveness and frequency of purchase of products with sustainable attributes.

### ***3.1.4 Survey Section III: Consumer Perceptions of Attributes***

Food is produced to be consumed. For this simple fact it is important to not only know how attributes are legally defined but also how they are perceived by *consumers*. We were able to analyze consumer perceptions about these products by presenting short phrases to respondents and asking them to rate the level of applicability of the defining statement to their perception about the food product. Table 3.2 shows the groups of different defining statements. Each group of statements was pieced together from the literature and attempts to capture potential perception of food with the specific attribute.

**Table 3.2 Attribute defining statements**

<b>Abbreviation</b>	<b>Defining Statement</b>
Organic Attribute	
onochemfert	Organic food is always grown without chemical fertilizers
onochempest	Organic food is always grown without chemical pesticides
onopreserv	Organic food has no preservatives
ohealthy	Organic food defines a healthy lifestyle
osafer	Organic food products are much safer than traditional products
oenvfriend	Organic food products are always more environmentally friendly than traditional food products
osust	Organic production techniques are always more sustainable than traditional production techniques
Local Attribute	
lfarmer	I know the farmer who produced my local food
lnochemfert	Local food is always grown without chemical fertilizers
lfresher	Local food is always fresher than traditional food
lnomachin	Local food producers do not use machines in their production
lenvfriend	Local food is more environmentally friendly than traditional food
lsust	Local food is always more sustainable than traditional food
ltastier	Local food always tastes better than traditional food
Small Farm Attribute	
sfnochemfert	Small farm products are always grown without chemical fertilizers
sfnomachin	Small farm products are never produced with machines
sfenvfriend	Small farm products are more environmentally friendly than traditional products
sfsust	Small farm food production techniques are more sustainable than traditional food production techniques
sftastier	Small farm products just taste better

We can analyze how consumers perceive food with these sustainable attributes based on their indication of the extent to which each phrase captures their idea of the attribute. This analysis helps address the hypothesis that there is a significant difference between the characteristics of food across different sustainable attributes. These defining differences may influence how consumers perceive food with the attributes, how often they purchase, and whether or not they are willing to pay a premium for SPT food.

## 3.2 Data Overview

The data used in this study were obtained from a primary survey conducted in the spring of 2011. All of the responses to survey questions were self-reported and had no way of being verified as survey respondents remained completely anonymous for the purpose of this survey. A total of 104 consumers participated in the study.

Table 3.3 shows how the survey data used for this study compares to demographic characteristics of the U.S. population. The standard deviations are provided for the survey data to give an indication of the distribution. The survey sample was only slightly different from the U.S. population. Survey respondents have about 0.5 more people and children per household. The proportion of males in the survey data is much higher than that of the U.S. population as was the proportion of respondents with a bachelor's degree or higher. This may not be completely accidental because the survey was executed online and some minimum level of education is required to participate in surveys such as these. As a result of the foregoing, it was unsurprising that the average weekly at-home food budget for the survey respondents was more than \$25 higher than the U.S. average.

Survey respondents' characteristics that cannot be compared to the U.S. population include the PCE-L and PCE-G, defining the perceived consumer effectiveness at the local and global level respectively. They define the extent to which respondents believe their actions influence local and global change. The average PCE-L and PCE-G averaged 3.5 and 2.5 respectively on a 5-point scale. This implies that on average respondents in this survey believed their actions influenced local change more than they influenced global change – an expected result given the consumption patterns revealed in the data that are discussed later.

**Table 3.3 Survey data compared to U.S. demographic characteristics**

<u>Characteristic</u>	<u>U.S. Population</u>	<u>Survey Data</u>	
		Mean	Standard Deviation
Household Size	2.6	3.17	1.426
Children per household	1.19	1.76	1.154
Gender	Male = 49.3%	Male = 61.9%	0.486
High School or higher	84.6%	98.41%	
Bachelor's or higher	27.5%	50.79%	
At home food budget	\$72.17/week	\$96.76/week	\$34.83

Consumers, on average, purchased organic, local and small farm fruits and vegetables eight to 12 times per year, six to seven times per year, and five to six times per year respectively. Only 14 percent of respondents indicated that they had not purchased local fruits and vegetables in the last year compared to 32 percent and 35 percent for organic and small farms.

Consumers of small farm products are almost entirely also consumers of local food products. In fact, 98.5 percent of respondents (n = 66) who indicated purchasing small farm fruits and vegetables also purchased local fruits and vegetables. The correlation coefficient between local purchasing frequency and small farm purchasing frequency was 0.7169 and had a p-value of 0.000. There is, therefore, a certain perception among consumers of small farm products that these products are by default local. The interesting result is that the relationship is not bidirectional: a relatively smaller proportion of consumers indicating consuming local products indicated that they also purchase products from small farms. This result is used later in the analyses to assess the effect of consumer perspectives about local products on consumers of small farm products.

The data used in this study provided some limitations for the data analysis that could be done. The sample size was quite small and the survey respondents were more educated and had a higher food budget each week. The education and food budget result could have been a characteristic of the average sustainably-produced food consumer or it could have been the survey instrument self-selecting respondents. There was also a low level of variability in the data set. This could affect significant variables within the models or the significance of the

model itself. This factor could have affected the results by making variables insignificant predictors within their models simply because the responses on that point were very similar.

### 3.3 Conceptual Models

#### 3.3.1 *Categorical dependent variable model*

A consumer's frequency of purchase of sustainably-produced fruits and vegetables is hypothesized to be a function of socio-economic and behavioral variables. A model is specified for each sustainable attribute using the categorical dependent variable, frequency of purchase. The RP category was organized into three sub-categories based on the frequency of their purchases of the SPT products: Intermittent Purchasers (IP) who purchase between three and seven times per year, Frequent Purchasers (FP) who purchase between eight and 12 times per year, and Constant Consumers (CC) who purchase more than 12 times per year or will only purchase fruits and vegetables with the specified attribute. Thus, the following model was specified:

$$A_f = \sum_{k=1}^K \beta_k X_{ik} + \varepsilon$$

Where  $A_f$  represents a model for each attribute – organic, local, or small farm – with a category for each purchasing frequency – IP, FP, and CC. The  $\beta_k$ 's are the regression coefficients associated with the  $k_{th}$  predictor. Because the dependent variable is a logit distribution rather than a mean, the regression coefficients can only be interpreted based on the sign associated with the coefficient. The magnitude of the coefficient is irrelevant unlike those that are produced by estimating a linear regression. To interpret the magnitude of the impact of the predictors on the dependent variables, marginal effects must be estimated. The  $\beta_k$ 's include gender, education, household size, weekly household “at home” food budget, and the perception of one's self to influence local or global change (depending on the attribute in question). The small farm model included an independent variable for the frequency of local purchases. The frequency of local purchases is included because small farm consumers are a subset of local consumers. The behavior of local consumers may aid in explaining behavior of small farm

consumers. The  $X_{ik}$ 's are the independent variables explaining the frequency of purchasing for each attribute,  $A_f$ .

0 = Intermittent if  $A_f \leq 2$

1 = Frequent if  $2 \leq A_f \leq \mu_1$

2 = Constant if  $\mu_2 \leq A_f$

The  $\mu$ 's are unknown parameters, known as cut-off points, to be estimated with  $\beta_k$ 's from the equation above. The models, their significance, and the marginal effects associated with each  $\beta_k$  are discussed in Chapter 4.

This model only focuses on respondents who identified themselves as having purchased at least three times in the last year. Those who had purchased SPT products two times or less were studied as ultra low frequency purchasers (ULFP). The cut-off for ULFP is subjective and was meant to be applicable to the U.S. population as a whole where some of these product types may be less available.

### ***3.3.2 Binary dependent variable model***

A consumer's willingness to pay a premium for SPT fruits and vegetables may be a composite decision, based on many factors including perception. Individuals' perceptions are a strong force in their creation of preferences which are of great influence in their decision making process (Deaton and Muellbauer, 1980). By using respondents' rankings of the defining statements for each attribute, their willingness to pay a premium for SPT products gains a new dimension.

Regular purchasers, those respondents who had purchased at least three times in the last year, were separated on the basis of whether they paid a premium for fruits and vegetables with a specific sustainable attribute. This yes or no response is used in the construction of the binary variable used for this model (yes = 1, no = 0). The individual's perceptions, associated with each statement are used as the explanatory variables for the willingness to pay a premium dependent variable.

A logit model is used for regression output though the probit model is also a legitimate option. The logit and probit models are very similar, both being used for binary dependent variables. The difference between the two models is in the assumptions about the distribution

and the nature of the tails. The probit model assumes the underlying distribution is normal, thus having thinner tails, i.e. approaches the axes much faster, and the underlying event is not truly binary but proportion. Contrarily, the logit model does not make such a strong assumption about the distribution, thereby presenting flatter tails, and assumes the event being considered is true binary. The confidence in the binary nature of the endogenous variable persuaded the use of the logit model in the rest of the research wherever binary endogenous variables are considered.

A unique model is specified for each of the three sustainable attributes: organic, local, and small farm. The model is specified as follows:

$$A_p = \sum_{k=1}^K \beta_k X_{ik} + \varepsilon$$

The premium model looks very similar to the frequency model because a binary dependent variable model is a subset of the categorical dependent variable model. The binary dependent variable for this model is  $A_p$  which is binary variable (1 = yes; 0 = no) for their willingness to pay a premium response. The  $\beta_k$ 's are the regression coefficients, interpreted with the same guiding principles as in the fore-mentioned categorical dependent variable model. The  $X_{ik}$ 's are the explanatory variables which are made up of each individual's level of agreement with each of the defining statements.

## **Chapter 4 - Analysis and Results**

The analysis presented in this chapter is divided into three sections, a section addressing each objective. The first objective seeks to determine the characteristics of those purchasing SPT products. This analysis uses a statistical approach based on socio-economic factors, splitting respondents into two groups: ultra low frequency purchasers (ULFP) and regular purchasers (RP). Summary statistics are presented for the two groups and then the groups are examined more closely. The ULFP group is evaluated based on their reasons for not purchasing more frequently while the RP group was asked to evaluate statements to define their perceptions of organic, local, and small farm food products.

The second objective focused on identifying factors influencing the likelihood of frequent purchasing of SPT products. The model involved ordered logistic regressions, with the endogenous variable defined as three segments of regular purchasers: intermittent (IP), frequent purchasers (FP), and constant consumers (CC) for the three SPT products. The independent variables were socio-economic variables – age, household size, education, etc.

The third section focuses on assessing respondents' willingness to pay a premium for SPT products. A logistic regression is used and incorporated the ranked defining statements as explanatory variables. The chapter is concluded with a discussion of implications and recommendations for producers and marketers based on the findings presented in the chapter.

### **4.1 Characteristics of SPT Product Consumers**

The results showed that 68 percent of respondents are regular purchasers of organic fruits and vegetables, compared to 86 percent for local and 65 percent for small farm. The foregoing implies that 35 percent of respondents purchasing small farm products were ULFP.

Table 4.1 shows the summary statistics for regular purchasers (RP) and ultra low frequency purchasers (ULFP) of organic fruits and vegetables. Respondents that identified as RP of organic fruits and vegetables have a lower average household size and fewer children. However, RP felt a greater ability to influence both local and global change than ULFP. A stronger perception of individual effectiveness may be indicative of a stronger preference for organic products. The food budget and education variables' means are in proportions. Because these variables are dummy variables for each category of the independent variable, the



proportion represents the distribution of respondents in each category. ULFP have a lower weekly at home food budget on average which may be a constraining factor on organic purchasing frequency. RP of organic also tend to have a higher education level than ULFP. Females in both groups accounted for 36.5 percent of each group.

**Table 4.1 Summary statistics of regular and ultra low frequency purchasers of Organic fruits and vegetables**

Variable	Code	Observations		Mean		Standard Deviation		Min	Max
		RP	ULFP	RP	ULFP	RP	ULFP		
Household Size	hh	42	18	2.714	3.556	1.195	1.756	1	7
Number of Children	cdn	54	26	1.648	1.769	1.135	1.210	1	6
Local Change	locchg	53	24	3.792	2.417	1.246	1.176	1	5
Global Change	gblchg	53	25	2.717	2.12	1.406	1.536	1	5
Food Budget \$0-60	fdD1	59	29	18.6%	17.2%	0.393	0.384	0	1
Food Budget \$61-100	fdD2	59	29	33.9%	41.4%	0.477	0.501	0	1
Food Budget \$101-160	fdD3	59	29	22.0%	37.9%	0.418	0.494	0	1
Food Budget \$161-225	fdD4	59	29	16.9%	0.0%	0.378	0	0	1
Food Budget \$226+	fdD5	59	29	8.5%	3.4%	0.281	0.186	0	1
Edu (Some H.S., H.S., GED)	eduD1	51	25	5.9%	12.0%	0.238	0.332	0	1
Edu (Assoc. Deg, Vo-Tech)	eduD2	51	25	33.3%	56.0%	0.476	0.507	0	1
Edu (Bachelor's Degree)	eduD3	51	25	33.3%	16.0%	0.476	0.374	0	1
Edu (Master's, PhD, Other)	eduD4	51	25	27.5%	16.0%	0.451	0.374	0	1
Gender	femaleN	51	25	37.3%	36.0%	0.488	0.490	0	1

The differences between RP and ULFP purchasing behavior of local fruits and vegetables are shown in Table 4.2. ULFP of local fruits and vegetables have a higher average household size and more children. Similarly to organic regular purchasers, local RP felt a greater ability to influence local change while ULFP had a higher perception of being able to influence global change than RP. Local RP have a higher weekly at home food budget on average. Unlike the organic case, RP and ULFP of local fruits and vegetables only exhibited a small difference in education level; RP were slightly higher. The ULFP group had more females than the RP group but both groups had more males than females.

**Table 4.2 Summary statistics of regular and ultra low frequency purchasers of Local fruits and vegetables**

Variable	Code	Observations		Mean		Standard Deviation		Min	Max
		<i>RP</i>	<i>ULFP</i>	<i>RP</i>	<i>ULFP</i>	<i>RP</i>	<i>ULFP</i>		
Household Size	hh	52	8	2.962	3.00	1.386	1.773	1	7
Number of Children	cdn	69	11	1.71	1.545	1.189	0.934	1	6
Local Change	locchg	67	10	3.507	2.40	1.341	1.265	1	5
Global Change	glblchg	67	11	2.522	2.545	1.460	1.572	1	5
Food Budget \$0-60	fdD1	75	13	13.3%	46.2%	34.2%	51.9%	0	1
Food Budget \$61-100	fdD2	75	13	38.7%	23.1%	49.0%	43.9%	0	1
Food Budget \$101-160	fdD3	75	13	26.7%	30.8%	44.5%	48.0%	0	1
Food Budget \$161-225	fdD4	75	13	13.3%	0.0%	34.2%	0.0%	0	1
Food Budget \$226+	fdD5	75	13	8.0%	0.0%	27.3%	0.0%	0	1
Edu (Some H.S., H.S., GED)	eduD1	65	11	7.7%	9.1%	26.9%	30.2%	0	1
Edu (Assoc. Deg, Vo-Tech)	eduD2	65	11	40.0%	45.5%	49.4%	52.2%	0	1
Edu (Bachelor's Degree)	eduD3	65	11	26.2%	36.4%	44.3%	50.5%	0	1
Edu (Master's, PhD, Other)	eduD4	65	11	26.2%	9.1%	44.3%	30.2%	0	1
Gender	femaleN	65	11	35.4%	45.5%	48.2%	52.2%	0	1

RP and ULFP of small farm fruits and vegetables are compared in Table 4.3. The small farm case compares to the organic and local cases on the household size characteristic; RP have fewer household members than ULFP. However the small farm case differs from both of the fore-mentioned cases in that RP actually have more children on average. Regarding the local and global change variables, the small farm case is similar to the local case. RP of small farm fruits and vegetables have a higher weekly at home food budget but are only slightly more educated than the ULFP group. The small farm groups were very similar in gender distribution with approximately 36 percent in each group being female.

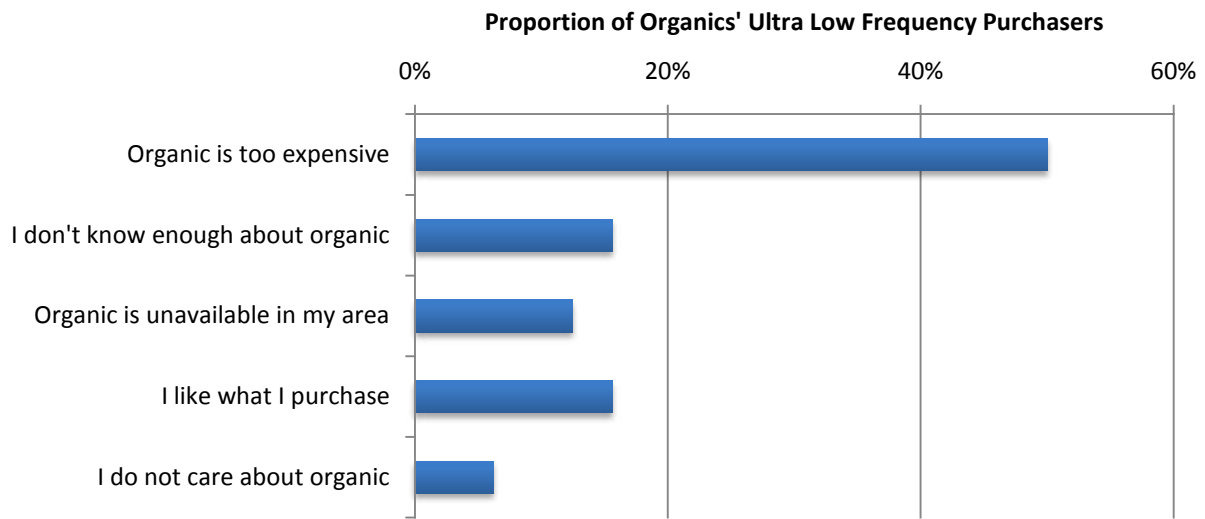
**Table 4.3 Summary statistics of regular and ultra low frequency purchasers of Small Farm fruits and vegetables**

Variable	Code	Observations		Mean		Standard Deviation		Min	Max
		RP	ULFP	RP	ULFP	RP	ULFP		
Household Size	hh	39	21	2.923	3.048	1.476	1.359	1	7
Number of Children	cdn	53	27	1.736	1.593	1.288	0.844	1	6
Local Change	locchg	52	25	3.5	3.08	1.321	1.470	1	5
Global Change	glblchg	52	26	2.5	2.577	1.515	1.391	1	5
Food Budget \$0-60	fdD1	59	29	11.9%	31.0%	0.326	0.471	0	1
Food Budget \$61-100	fdD2	59	29	42.4%	24.1%	0.498	0.435	0	1
Food Budget \$101-160	fdD3	59	29	23.7%	34.5%	0.429	0.484	0	1
Food Budget \$161-225	fdD4	59	29	13.6%	6.9%	0.345	0.258	0	1
Food Budget \$226+	fdD5	59	29	8.5%	3.4%	0.281	0.186	0	1
Edu (Some H.S., H.S., GED)	eduD1	51	25	9.8%	4.0%	0.300	0.200	0	1
Edu (Assoc. Deg, Vo-Tech)	eduD2	51	25	35.3%	52.0%	0.483	0.510	0	1
Edu (Bachelor's Degree)	eduD3	51	25	29.4%	24.0%	0.460	0.436	0	1
Edu (Master's, PhD, Other)	eduD4	51	25	25.5%	20.0%	0.440	0.408	0	1
Gender	femaleN	51	25	37.3%	36.0%	0.488	0.490	0	1

After examining the summary statistics for RP and ULFP for each of the three attributes, the trends between the attributes begin to emerge. By understanding who consumers are in each group, the drivers of their consumption are also understood. Similarly, after acknowledging the characteristics of the ULFP group, their reasoning for not purchasing more frequently can be qualified. The RP and ULFP groups are examined more closely for each attribute in the following sections.

#### ***4.1.1 Ultra Low Frequency Purchasers' Motives Revealed***

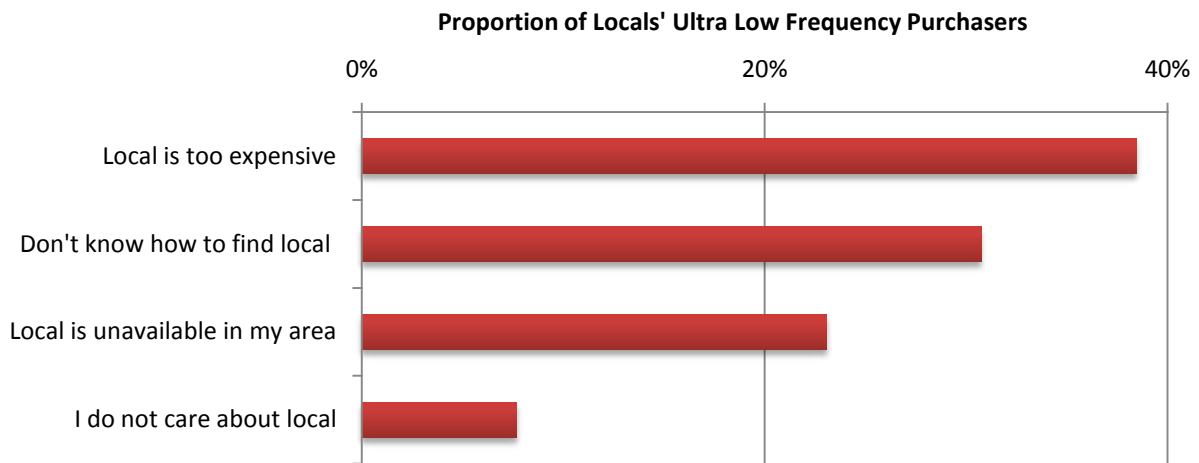
The individual reasons for not purchasing fruits and vegetables with each attribute are portrayed in Figure 4.1, Figure 4.2, and Figure 4.3. There are similarities and differences between each attribute and the next. For example, as shown in Figure 4.1, the most commonly chosen reason for choosing traditional over organic fruits and vegetables is that the traditional products cost less than sustainably-produced products. The same reason is most commonly chosen for ULFP of local products, shown in Figure 4.2.



**Figure 4.1 Why Organics' ULFP choose not to purchase more frequently**

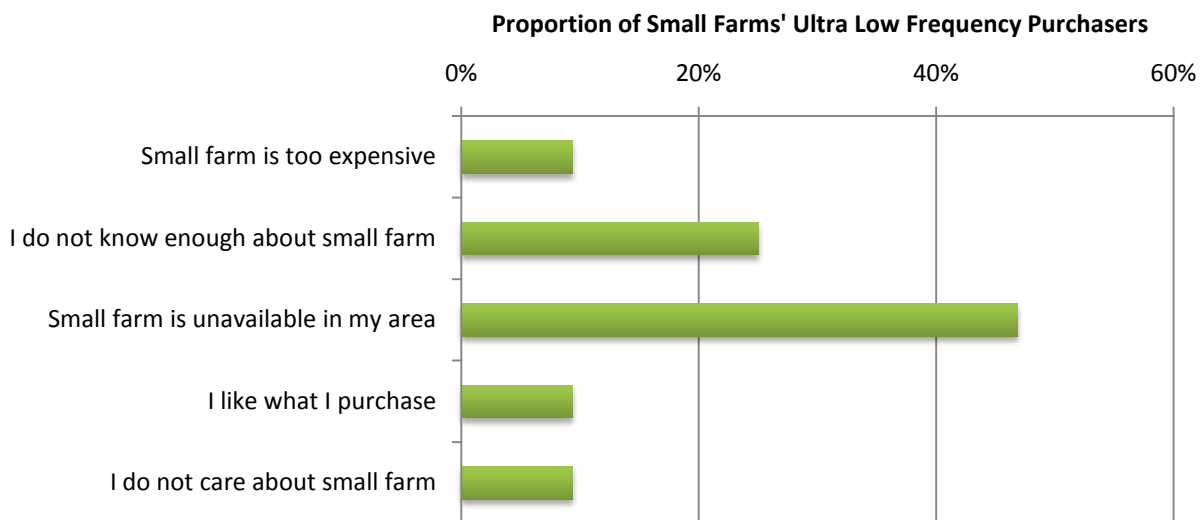
The local ULFP differ from the organic ULFP in that the local ULFP reasons are much more distributed than the organic. The less popular choices for not purchasing organic fruits and vegetables more often are so small in proportion compared with the cost factor that they seem relatively unimportant. The reasons that ranked as second and third most popular for not purchasing local fruits and vegetables more frequently were that respondents could not find local products and that local products were unavailable in their areas.

All survey respondents, that chose unavailability as the reason for not purchasing the sustainably-produced option over the traditional product, said that they would purchase more frequently if the product was more available. This response is indicative of a demand for sustainably-produced fruits and vegetables that is not being met with supply. This disconnect may be the result of low production in the area or could be the result of an improper diagnosis of the demand of the population.



**Figure 4.2 Why Locals' ULFP choose not to purchase more frequently**

Figure 4.3 shows the distribution of explanations for not purchasing small farm fruits and vegetables more frequently. The small farm attribute is unique from organic and local in that the most popular reason for not purchasing more often is that small farm products are unavailable in the respondent's area. The second most common reason is that the respondent does not know enough about small farm products.



**Figure 4.3 Why Small Farms' ULFP choose not to purchase more frequently**

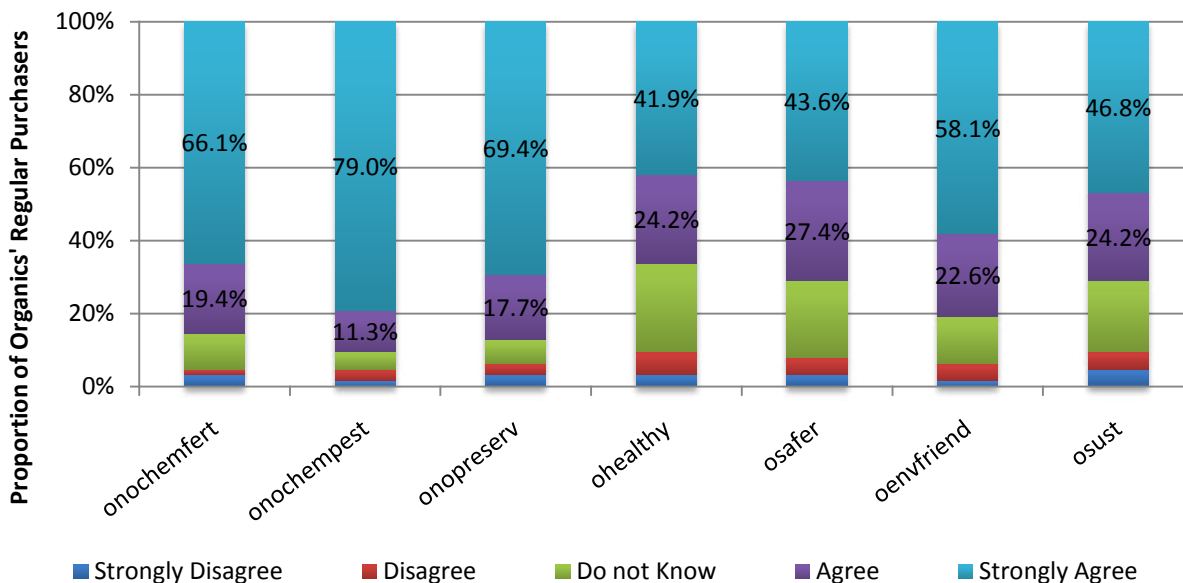
Only a very small proportion of all respondents, six to nine percent, said that they do not purchase SPT products because they do not care about the attribute. Understanding why some respondents choose not to purchase fruits and vegetables with certain sustainable attributes, may allow those justifications to be overcome.

#### ***4.1.2 Regular Purchasers and SPT Products***

The examination of regular purchasers of SPT products is relevant for reasons that differ from the importance of understanding those who do not purchase more regularly. Regular purchasers of organic, local, and small farm purchasers ranked a series of defining statements to explain how strongly they agreed with each statement. **Error! Reference source not found.** provides a list of the statements for each attribute as well as the abbreviation for each. Only respondents that answered yes to purchasing at least three times in the past year ranked the attribute defining statements. It is important for marketers to understand what factors are drawing consumers to their products. The ultra low frequency purchasers are important to analyze based on what barriers keeps them from purchasing more frequently.

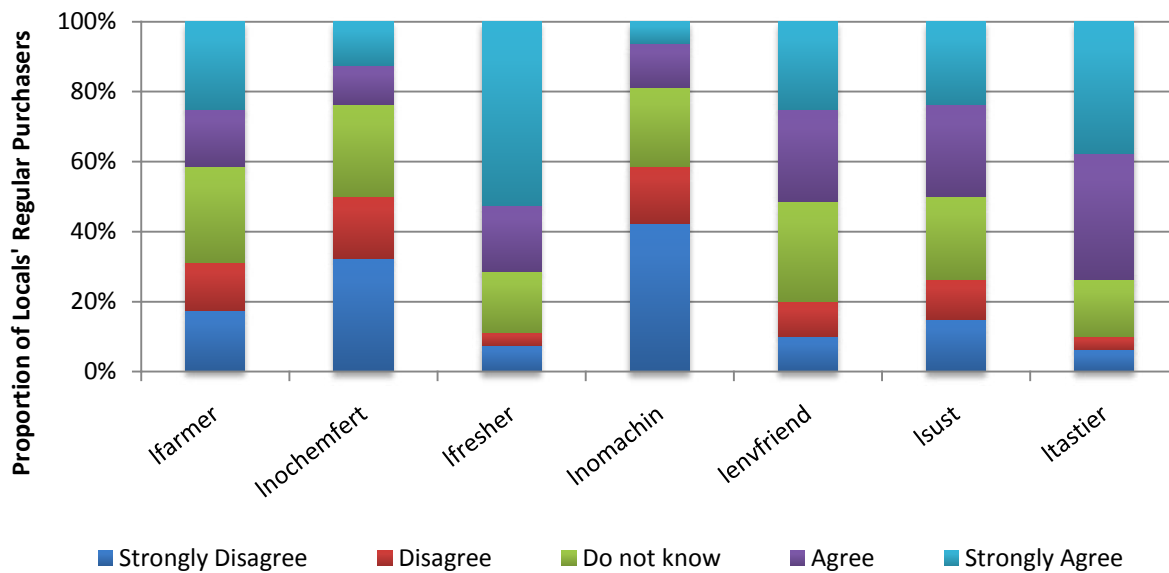
The organic statements' rankings are shown in **Error! Reference source not found.** the abbreviations for each statement coincide with the abbreviations in Table 3.2. The organic regular purchasers ranked all of the statements relatively high compared with the more dispersed rankings of the local and small farm statements. At least 66 percent of regular purchasers of organic fruits and vegetables strongly agreed with the statement that chemical fertilizers are not used in the production of organic fruits and vegetables compared with 79 percent for chemical pesticides, and 70 percent for preservatives. The level of strong agreement with the statements about healthy lifestyle, safety, environmental friendliness and sustainability were between 42 percent and 58 percent. Overall, between 60 and 90 percent of regular purchasers agreed or strongly agreed with each of the statements presented about the factors influencing the definition of an organic fruit or vegetable.

This result implies that organic consumers know what organic products' attributes are. The respondents having extensive knowledge of organic products explains the consistently high rankings for each defining statement. Respondents' certainty of what organic products are



**Figure 4.4 Purchasers' rankings for each Organic defining statement**

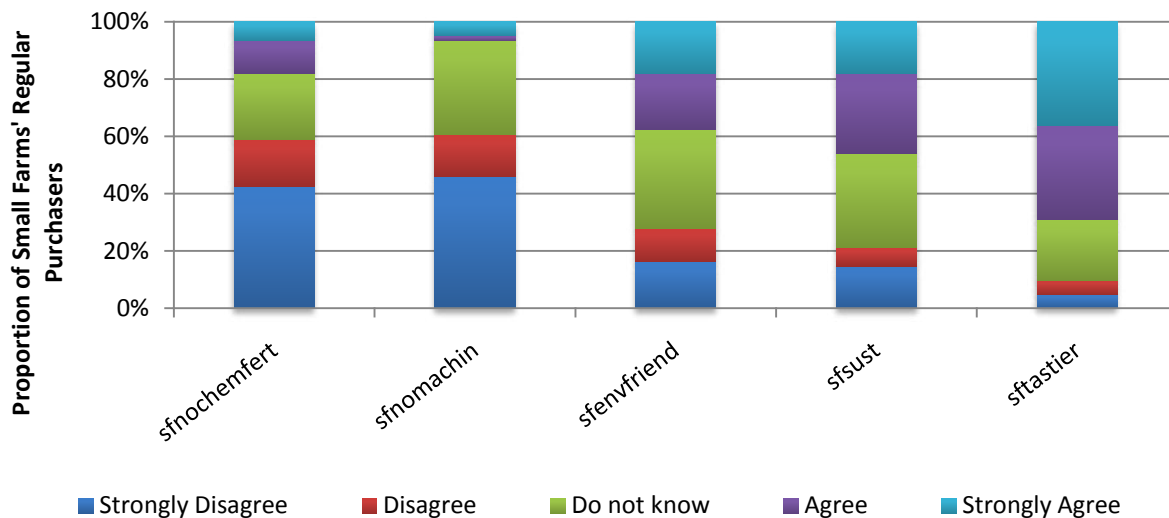
As shown by Figure 4.4, the rankings of the definitional characteristics for locally produced fruits and vegetables are much more dispersed than the organic statements' rankings. Approximately 70 percent of regular purchasers of local fruits and vegetables strongly agreed or agreed with both freshness and taste being important characteristics of local fruits and vegetables. The lowest overall rankings were for the statements that no machines were used in production and no chemical fertilizers were used in the production of local fruits and vegetables. There is no legal definition for local production but local products are generally grown with synthetic chemical fertilizers and machines. This result demonstrates that in this regard, local consumers have a good idea of what local products are not. The amount of respondents that indicated they neither agreed nor disagreed with the statements is much higher for the local attribute than the organic attribute but not as widespread as in the small farm statements. Local regular purchasers were the most unsure about whether or not local products were more environmentally friendly than traditional products.



**Figure 4.5 Purchasers' rankings for each Local defining statement**

The small farm statements' rankings differed from the local and organic statements in that there were relatively large proportions for each statement that disagreed or strongly disagreed. Also, of the three sustainable attributes, the small farm statements were most commonly ranked as unsure. However, there were some statements that received higher rankings. For example, approximately 70 percent of respondents agreed or strongly agreed with the statement that small farm products taste better than traditional products. The lowest ranked statement among respondents was that small farm products are produced using no machinery with approximately 90 percent indicating that they disagreed or strongly disagreed. When compared with organic and local consumers, small farm consumers are less sure that the statements they were ranking provide a true definition of small farm food products.





**Figure 4.6 Purchasers' rankings for each Small Farm defining statement**

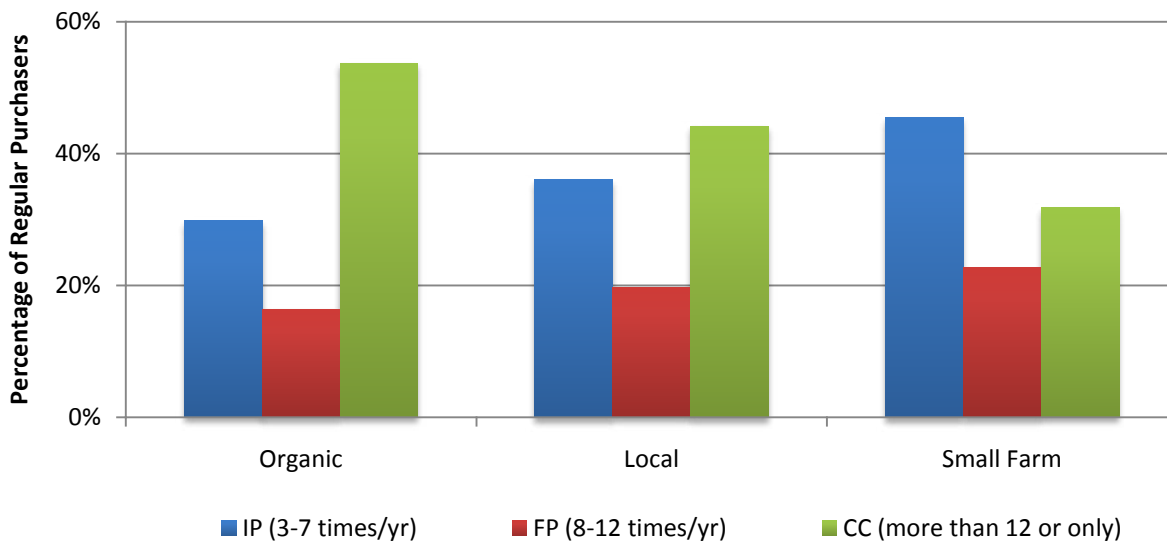
After studying survey respondents in the RP and ULFP groups we can distinguish between them based on socio-economic factors. The motives for why ultra low frequency purchasers choose to not purchase more often have been revealed for each of the three attributes. Also, the regular purchasers have identified their individual beliefs about products containing each of the three sustainable attributes.

## 4.2 Factors affecting frequency of purchase

The second objective sought to determine the factors influencing frequency of purchase for the different SPT fruits and vegetables. The hypothesis associated with this objective is that there will be significant differences in the frequency of purchase of SPT fruits and vegetables across varying socio-economic characteristics.

### 4.2.1 Intermittent, Frequent, and Constant Consumers

Figure 4.6 shows how the regular purchasers are separated into each of the three subcategories. Organic has the largest group of constant consumers (over 50 percent) while small farm has the smallest (only 30 percent). Small farm has the largest group of intermittent purchasers with approximately 45 percent of their regular purchasers falling into that category. The three groups are the most similar in the FP category.



**Figure 4.7 Regular purchasers' frequencies of purchase**

#### *4.2.2 Socio-economic differences*

Table 4.4 shows the regression output from the organic ordered logit regression. The relevant socio-economic characteristics for organic purchasing frequency were respondents' gender, education, household size, the belief that their consumption patterns had *global* impact and their weekly expenditure on food to be prepared at home. The model statistics indicate that the overall goodness of fit of the model is significant at the 5 percent level, given a probability greater than chi-square of 0.0127.

There are three variables that are significant within this model at the 10 percent level or higher. The variables education and household size are both significant at the 5 percent level while gender is significant at the 10 percent level. As indicated by positive signs on the regression coefficients, the factors positively influencing organic purchasing frequency are gender, education, and household size.

**Table 4.4 Ordered logistic regression results for Organic frequency model**

Number of obs=	42
LR chi2(5)=	14.5
Prob > chi2=	0.0127
Pseudo R2=	0.1726
Log likelihood =	-34.764

Variable	Code	Coef.	Std. Err.	z	P>z
Gender (fem=1)	femaleN	1.273*	0.734	1.73	0.083
Education (>=univ degree=1)	eduD	1.506**	0.751	2.01	0.045
Household Size	hh	0.862**	0.355	2.43	0.015
Global Change	glblchg	0.355	0.250	1.42	0.156
Food Budget (>100=1)	fdD	0.184	0.398	0.46	0.644

\*=0.1, \*\*=0.05, \*\*\*=0.01

Table 4.5 shows the regression output from the local ordered logit regression. The relevant socio-economic characteristics for local purchasing frequency were respondents' gender, education, household size, the belief that their consumption patterns had *local* impact and their weekly expenditure on food to be prepared at home. The only differing variable was the dismissal of global change in favor of including local change. The model statistics indicate that the overall goodness of fit of the model is not significant at the 5 or 10 percent level, given a Likelihood Ratio chi-square of 5.91 and a probability greater than chi-square of 0.32.

The local ordered logit model was tested for multicollinearity using two different tests in Stata<sup>®</sup>. The first test was run following linear regression model estimation using the “vif” command. The VIF is an index of how much multicollinearity has increased the variance of an estimated coefficient. Table 4.6 shows the output from the vif (variance inflation factors) test. Allison (1999) suggests greater than 2.5 as an unacceptable vif score. However, Studenmund (2006) uses 5 as the cut-off and UCLA Academic Technology Services recommends further investigation for vif scores over 10. Regardless of the cut off used, the mean vif score, as well as each variable's individual vif score is acceptable. This test does not indicate multicollinearity in this model.

**Table 4.5 Ordered logistic regression results for Local frequency model**

Number of obs=	51
LR chi2(5)=	5.91
Prob > chi2=	0.3152
Pseudo R2=	0.0544
Log likelihood =	-51.313

Variable	Code	Coef.	Std. Err.	z	P>z
Gender (fem=1)	femaleN	-0.25	0.576	-0.43	0.665
Education (>=univ degree=1)	eduD	0.340	0.572	0.59	0.552
Household Size	hh	0.068	0.185	0.37	0.712
Local Change	locchg	0.397*	0.210	1.89	0.059
Food Budget (>100=1)	fdD	0.135	0.174	0.78	0.438

\*=0.1, \*\*=0.05, \*\*\*=0.01

**Table 4.6 VIF statistics for Local frequency model**

Variable	Code	VIF	1/VIF
Education (>=univ degree=1)	eduD	1.14	0.87811
Food Budget (>100=1)	fdD	1.1	0.906648
Gender (fem=1)	femaleN	1.03	0.966966
Local Change	locchg	1.03	0.972627
Household Size	hh	1.01	0.991204
<b>Mean VIF</b>		<b>1.06</b>	

The second test used to check for multicollinearity checks the explanatory variables independently from model estimation using the “collin” command. The output from the collin test is shown in Table 4.7. The results from the collin test are extremely similar to the results from the vif test; neither test show multicollinearity in the local frequency model. From this we conclude that multicollinearity is not causing the model itself to be insignificant. Therefore it is necessary to test the model for misspecification.

**Table 4.7 Multicollinearity diagnostics for Local frequency model**

Variable	Code	VIF	SQRT VIF	Tolerance	R-Squared
Education (>=univ degree=1)	femaleN	1.05	1.02	0.9565	0.0435
Food Budget (>100=1)	hh	1.02	1.01	0.9762	0.0238
Gender (fem=1)	eduD	1.12	1.06	0.8901	0.1099
Local Change	fdD	1.09	1.05	0.9138	0.0862
Household Size	locchg	1.03	1.01	0.9738	0.0262
<b>Mean VIF</b>		<b>1.06</b>			

The test for misspecification uses the command “linktest” in Stata. The test regresses the dependent variable on the predicted ( $\hat{y}$ ) and square of the predicted ( $\hat{y}^2$ ) and if they are both statistically significant, then the model is deemed misspecified. As observed from the results in Table 4.8, the coefficients on both  $\hat{y}$  and  $\hat{y}^2$  are significant at the 5 percent level. Additionally, the chi square is significant. Together, these results suggest that model is misspecified.

**Table 4.8 Misspecification test for Local frequency model**

LR chi2(2) = 12.81  
 Prob > chi2 = 0.0017  
 Pseudo R2 = 0.118

	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
$\hat{y}$	-6.219	2.969	-2.09	0.036	-12.038	-0.400
$\hat{y}^2$	2.089	0.872	2.4	0.017	0.380	3.799

Table 4.9 shows the regression output from the small farm ordered logit regression. The relevant socio-economic characteristics for small farm purchasing frequency were respondents’ gender, education, household size, the belief that their consumption patterns had local impact, their weekly expenditure on food to be prepared at home and the frequency of purchase of local fruits and vegetables. The small farm model includes the local change variable which is similar to the local model. The inclusion of the local frequency variable represents the fact that small farm consumers are a subset of local consumers. Therefore, local variables are used in an attempt to better explain small farm purchasing frequency.

The model statistics indicate that the overall goodness of fit of the model is significant at the 5 percent level, given a Likelihood Ratio chi-square of 41.76 and a probability greater than chi-squared of zero. There are five variables that are significant within this model at the 10 percent level or higher. The variables household size and food budget are only significant at the 10 percent level while education, local change, and frequency of purchase of local fruits and vegetables are significant at the 5 percent level. The factors positively influencing small farm purchasing frequency are frequency of local purchases, local change, and food budget. Education and household size represent the negative influences on small farm purchasing frequency.

**Table 4.9 Ordered logistic regression results for Small Farm frequency model**

Number of obs=	38
LR chi2(6)=	41.76
Prob > chi2=	0.000
Pseudo R2=	0.5375
Log likelihood =	-17.964

Variable	Code	Coef.	Std. Err.	z	P>z
Gender (fem=1)	femaleN	0.536	0.955	0.56	0.575
Education (>=univ degree=1)	eduD	-2.269**	1.072	-2.12	0.034
Household Size	hh	-0.803*	0.485	-1.66	0.098
Frequency of local purchases	IFREQ	4.904***	1.293	3.79	0.000
Local Change	locchg	0.912**	0.389	2.34	0.019
Food Budget (>100=1)	fdD	3.867*	2.080	1.86	0.063

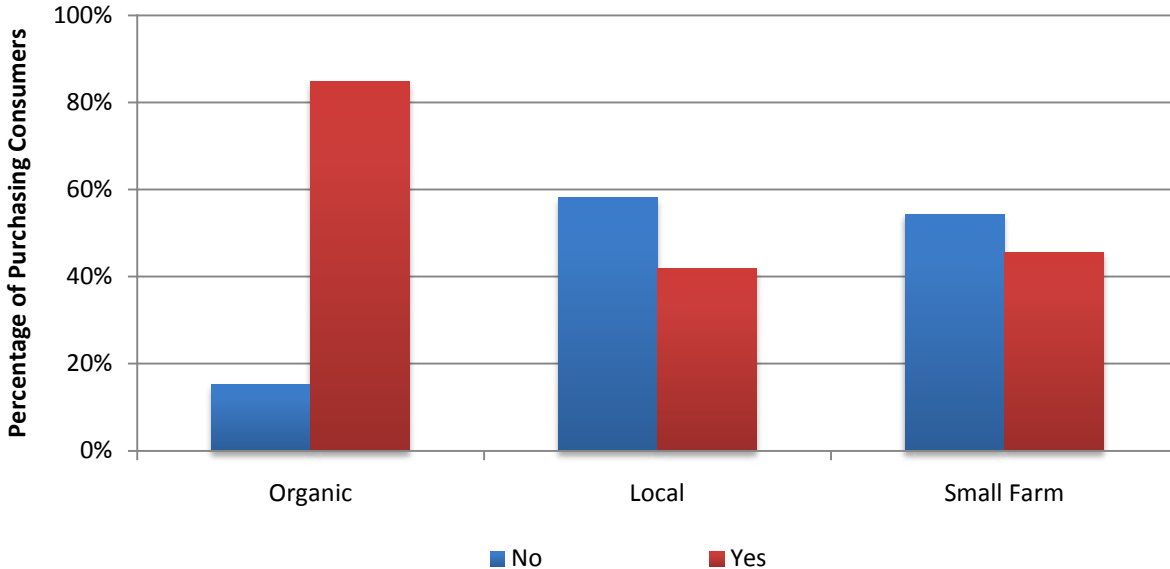
\*=0.1, \*\*=0.05, \*\*\*=0.01

### 4.3 Consumers' perceptions

The third objective is to examine the influences and impact of consumers' perception of SPT products on their willingness to pay a premium for those products. The hypothesis associated with this objective is that a consumer's perception of the sustainable attribute will create a significant difference in their willingness to pay a premium for a product with that attribute.

### 4.3.1 Premium willingness to pay

Figure 4.8 shows the willingness to pay profile of the regular purchasers of SPT products. Nearly 85 percent of organic regular purchasers indicated a willingness to pay a premium for their organic fruits and vegetables while only 42 percent and 45 percent of local and small farm consumers indicated a willingness to pay a premium.



**Figure 4.8 Percentage of consumers that pay a premium for their SPT product**

### 4.3.2 The influence of perception

The models in this section estimate the probability of a regular purchaser being willing to pay a premium for a product with one of the three sustainable attributes. For each of the logit regression models, the output is reported along with the marginal effects, calculated by two different methods: numerically and analytically. Both marginal effects were calculated using Stata 10.0<sup>®</sup>. To get the numerical marginal effects, the command “mfx” was used while the command “margeff” calculates the marginal effect for each variable, analytically. There are some major differences between the two estimation methods. The numerical marginal effects use an approximation of the derivative to calculate, while analytical marginal effects use the actual derivative as specified by the model. Both approaches limit the calculations of the marginal effects to the sample used in the estimation.

The results from the organic logit are provided in Table 4.10. These results include the standard logit regression output. The goodness of fit for the model is significant at the 5 percent level as shown by a Likelihood Ratio chi-square of 21.49 and a probability greater than chi-square of 0.0031. However, the only variable with a significant coefficient is that organic products are part of a healthy lifestyle. Remember from **Error! Reference source not found.** that the distribution of consumers' ranking for the ohealthy statement was more widely distributed than for the other organic statements. The sign on the ohealthy variable is positive. A positive sign indicates that the more the consumer agreed with the statement, the more likely they will pay a premium for organic fruits and vegetables. Thus, there may not be enough variations in the other statements for regular purchasers.

**Table 4.10 Logistic regression results for Organic premium model**

Number of obs=	59
LR chi2(7)=	21.49
Prob > chi2=	0.0031
Pseudo R <sup>2</sup> =	0.4265
Log likelihood=	-14.4525

Variable	Coef.	Std. Err.	z	P>z
onochemfert	0.830	0.627	1.32	0.185
onochempest	-0.420	1.149	-0.37	0.715
onopreserv	-1.025	0.841	-1.22	0.223
ohealthy	1.868***	0.717	2.61	0.009
oenvfriend	0.518	0.686	0.76	0.45
osafer	-0.174	0.772	-0.23	0.821
osust	0.414	0.446	0.93	0.353
_cons	-4.505	5.479	-0.82	0.411

\*=0.1, \*\*=0.05, \*\*\*=0.01

The marginal effects are presented in Table 4.11. The estimated marginal effect represents the impact of an explanatory variable on the dependent variables with respect to the reference category of the explanatory variable, ceteris paribus. The marginal effect of the ohealthy variable is positive in both cases, but only significant when calculated analytically. The analytical marginal effect for ohealthy states that a one unit increase in the respondent's agreement with the



ohealthy statement will increase the likelihood of paying a premium by 14 percent. None of the other marginal effects are statistically significant (i.e.  $P > z \leq 0.05$ ) but that result is not surprising, because none of the other estimated coefficients are significant.

**Table 4.11 Organic premium numerical (Nmr) and analytical (Anl) marginal effects**

Variable	dy/dx		Std. Err.		z		P>z	
	<i>Nmr</i>	<i>Anl</i>	<i>Nmr</i>	<i>Anl</i>	<i>Nmr</i>	<i>Anl</i>	<i>Nmr</i>	<i>Anl</i>
onochemfert	0.029	0.063	0.025	0.045	1.16	1.41	0.245	0.159
onochempest	-0.015	-0.032	0.038	0.088	-0.39	-0.37	0.700	0.714
onopreserv	-0.036	-0.078	0.036	0.061	-1.01	-1.29	0.313	0.196
<b>ohealthy</b>	<b>0.065</b>	<b>0.143***</b>	<b>0.046</b>	<b>0.040</b>	<b>1.43</b>	<b>3.54</b>	<b>0.153</b>	<b>0.000</b>
oenvfriend	0.018	-0.013	0.025	0.059	0.72	-0.23	0.474	0.821
osafer	-0.006	0.040	0.027	0.052	-0.22	0.77	0.822	0.444
osust	0.015	0.032	0.015	0.034	1	0.94	0.318	0.348

\*=0.1, \*\*=0.05, \*\*\*=0.01

The regression output for the local logit model is shown in Table 4.12. The Likelihood Ratio chi-square of 32.34 and a probability greater than chi-square of zero indicates that the goodness of fit for this model is significant at the 5 percent level. Unlike the organic model, the constant in this model is significant. A significant constant indicates that there is more variability in the dependent variable that is being accounted for by the constant instead of the independent variables.

There are five significant variables in this model. The coefficient for knowing the farmer that produced the local food is significant at the 5 percent level and negative. By knowing the farmer who produced the local food being consumed, the respondent is less likely to perceive that they are paying a premium for the local product. The statement that no chemical fertilizers are used in local production is significant, but only at the 10 percent level and is positive. Thus, perceiving absence of chemical fertilizers in the production process positively influenced a willingness to pay a premium. Also significant at the 10 percent level are the statements that local products are more sustainable than traditional products and local products taste better than traditional products. Both statements have a positive impact on willingness to pay a premium for local fruits and vegetables.

**Table 4.12 Logistic regression results for Local premium model**

Number of obs=	74
LR chi2(7)=	32.34
Prob > chi2=	0.000
Pseudo R <sup>2</sup> =	0.321
Log likelihood=	-34.148

Variable	Coef.	Std. Err.	z	P>z
lfarmer	-0.655**	0.271	-2.42	0.016
Inochemfert	0.525*	0.302	1.74	0.083
lfresher	-0.426	0.313	-1.36	0.173
Inomachin	0.009	0.272	0.03	0.973
lenvfriend	0.254	0.389	0.65	0.515
lsust	0.673*	0.350	1.92	0.054
ltastier	0.809*	0.457	1.77	0.077
_cons	-4.588***	1.772	-2.59	0.010

\*=0.1, \*\*=0.05, \*\*\*=0.01

The analytical and marginal effects for the local premium model are shown in Table 4.13. In the case of the local logit model, the two differing methods for calculating marginal effects yield consistent results with regard to impact (i.e. sign of marginal effect coefficient), magnitude, and significance.

**Table 4.13 Local premium numerical (Nmr) and analytical (Anl) marginal effects**

Variable	dy/dx		Std. Err.		z		P>z	
	<i>Nmr</i>	<i>Anl</i>	<i>Nmr</i>	<i>Anl</i>	<i>Nmr</i>	<i>Anl</i>	<i>Nmr</i>	<i>Anl</i>
lfarmer	-0.145**	-0.100***	0.057	0.035	-2.53	-2.86	0.012	0.004
Inochemfert	0.116*	0.080*	0.067	0.042	1.72	1.89	0.086	0.059
lfresher	-0.094	-0.065	0.068	0.046	-1.38	-1.42	0.168	0.156
Inomachin	0.002	0.001	0.060	0.042	0.03	0.03	0.973	0.973
lenvfriend	0.056	0.039	0.086	0.059	0.65	0.66	0.513	0.511
lsust	0.149**	0.103**	0.075	0.048	1.97	2.13	0.049	0.033
ltastier	0.179*	0.123*	0.097	0.064	1.85	1.92	0.064	0.055

\*=0.1, \*\*=0.05, \*\*\*=0.01

The small farm logit model is unique from the other two in that it includes a new variable. The same statement variables are included as well as a new explanatory variable. The

new variable is a dummy variable for the willingness to pay a premium for local (lppremN) fruits and vegetables. In this case, because of the similarity between local and small farm consumers' behavior, using lppremN greatly enhances the predictive ability of the small farm model.

The regression output and marginal effects for the small farm logit model are shown in Table 4.14 and Table 4.15. Similarly to the local and organic models, the goodness of fit proves to be significant with a Likelihood Ratio chi-square of 33.11 and a probability greater than chi-square of zero. Also similar to the local model, the constant in this model is significant. This result demonstrates another way that the small farm and local models are more alike than the small farm and organic models. The unaccounted for variability in the local premium model may be the same variability that is not being accounted for in the small farm premium model.

There are two significant variables in this model including the statement that small farm products are more sustainable than traditional products (sfsust) and the willingness to pay a premium for local products (lppremN). LppremN and sfsust are significant at the 5 percent and 10 percent levels, respectively; both of the significant variables have a positive impact on willingness to pay a premium. As respondent's agreement with the statement that small farm products are more sustainable than traditional products, they are more likely to be willing to pay a premium for small farm products. This finding reinforces the similarity of behavior between local and small farm consumers.

**Table 4.14 Logistic regression results for Small Farm premium model**

Number of obs=	56
LR chi2(6)=	33.11
Prob > chi2=	0.00
Pseudo R2=	0.428
Log likelihood=	-22.1201

Variable	Coef.	Std. Err.	z	P>z
sfnochemfert	-0.362	0.511	-0.71	0.479
sfnomachin	0.341	0.552	0.62	0.536
sfenvfriend	-0.424	0.458	-0.93	0.355
sfsust	0.945*	0.509	1.86	0.063
sftastier	0.402	0.424	0.95	0.343
lppremN	2.992***	0.840	3.56	0.000
_cons	-4.814**	1.959	-2.46	0.014

\*=0.1, \*\*=0.05, \*\*\*=0.01

The small farm marginal effects differ only slightly between calculation methods. The numerical marginal effect of the lsust variables is significant at the 10 percent level while calculated analytically it is significant at the 5 percent level. Respondents that are willing to pay a premium for local products are 63 percent (numerical) or 54 percent (analytical) more likely to be willing to pay a premium for small farm products, depending on the method of calculation. Regardless of the calculation method, the marginal effect for willingness to pay a premium for local products is significant at the 5 percent level.

**Table 4.15 Small farm premium numerical (Nmr) and analytical (Anl) marginal effects**

Variable	dy/dx		Std. Err.		z		P>z	
	<i>Nmr</i>	<i>Anl</i>	<i>Nmr</i>	<i>Anl</i>	<i>Nmr</i>	<i>Anl</i>	<i>Nmr</i>	<i>Anl</i>
sfnochemfert	-0.089	-0.044	0.126	0.062	-0.7	-0.71	0.481	0.475
sfnomachin	0.084	0.042	0.136	0.067	0.62	0.62	0.537	0.533
sfenvfriend	-0.104	-0.052	0.112	0.054	-0.93	-0.95	0.353	0.34
sfsust	0.233*	0.116**	0.124	0.057	1.87	2.03	<b>0.061</b>	<b>0.043</b>
sftastier	0.099	0.049	0.104	0.051	0.95	0.97	0.342	0.333
lppremN	0.634***	0.535***	0.126	0.129	5.03	4.15	0.000	0.000

\*=0.1, \*\*=0.05, \*\*\*=0.01

## **4.4 Recommendations**

The final objective is to identify the implications of the study' results and develop some recommendations for producers and marketers of SPT products. Additionally, suggestions for future research are presented. The first section presents recommendations for producers and marketers supported by the research results and the second section presents some insights for future research.

### ***4.4.1 Industry Action***

The research clarified the most important dimension of organic fruits and vegetables of interest to consumers: 66 percent of regular purchasers of organic fruits and vegetables agreed or strongly agreed that organic products define a healthy lifestyle. The idea of the sustainability dimension of this production technology did not seem important to these consumers. The strategic thrust for the industry must therefore be a focus on the healthy dimensions of organic fruits and vegetables. The research also indicated that more than 80 percent of regular purchasers of organic fruits and vegetables were willing to pay some premium for these products. This implies that a careful appreciation of the customers' needs and perceptions about the products could position producers and marketers to extract rents from these customers, over and above the market profit. Unfortunately, the study could not provide any direction for the industry to segment the market of regular purchasers on the demographic and psychographic basis.

The study revealed that a psychographic characteristic that influenced the purchasing habits of local product consumers is their belief that their actions have local change effects. For this group of consumers, it was not about gender or education or budgets, but the potential for them to effect these local changes. Thus, a unit increase in the belief that their purchasing decisions had a local change impact was found to enhance the likelihood of their purchasing frequency by 39.7 percent compared to infrequent purchasers. Therefore, local producers of fruits and vegetables will do well to identify their clients who purchase frequently and engage them in social change activities. For example, donating products to local food banks or helping with sales donation to the local Boys and Girls Club could enhance loyalty. Thus, while our study showed that local consumers were unwilling to pay any premiums for local products, they were willing to increase their frequency of purchasing if they believe that their actions influence

local change. Additionally, the initiatives by local farmers' markets and their collaborations with USDA and state agencies could be leveraged to position local products as supporting rural development and contribute to community growth.

Consumers of fruits and vegetables from small farm presented the most interesting case by far. For example, while gender was unimportant in explaining the frequency of purchasing fruits and vegetables from small farms, all other demographic and psychographic variables exhibited statistically significant influences. For example, consumers without university degrees were less likely to purchase fruits and vegetables regularly from small farms as were those with large household sizes. There was a 91.2 percent likelihood that regular purchasers of fruits and vegetables from small farms were consumers who believed their consumption patterns had local change impacts. This, like in the case of local produce, then becomes an engagement point for these producers and their customers. However, unlike the local producer, small farm producers should also identify consumers of local fruits and vegetables and work with them to move their product. Indeed, they can use their smallness as a distinguishing factor in any potential competition with local produce.

#### ***4.4.2 Future Research***

A number of results were inconclusive, making it impossible for hypotheses to be tested for specific issues. For example, it was not possible to determine the demographic characteristics that influenced the purchasing frequency of local fruits and vegetables. However, it is believed that this information will be important to facilitate market segmentation. To this end, it is suggested that a more focused study be conducted to attempt to address this challenge. There could be a number of issues related to the data used in this study that resulted in this problem. Using another data set would confirm our conclusion that demographics are insignificant variables in the frequency of organic fruit and vegetable purchases. This new work may be accomplished using focus group interviews or direct interviews with a broader distribution of consumers and/or frequency of purchasing.

The model describing the frequency of purchase of local fruits and vegetables was not statistically significant. Further tests revealed that there were no definitional or structural problems with the model. The potential therefore exist for further work on identifying other factors that could explain the frequency with which these regular purchasers purchased local

fruits and vegetables. Undertaking this effort is very important because there has been a significant growth in local produce market. While the study indicated that consumers saw these products as fresher and tastier, the characteristics of the consumers did not explain the differences. Therefore, using a more varied sample of respondents could help address this knowledge gap.

A thorough study of the relationship between small farm and local products would be a large contribution to the literature. For instance, how common is it for small farm consumers to also purchase local? Was that finding unique to our data or is it a widespread phenomenon that can be capitalized on? Incorporating a broader base of definitional statements would allow researchers to fully comprehend small farm consumers' exact perception of small farm products. The results of this study suggest that above the definitional statements provided, small farm products are most like local products in nature. An important extension of this research is to understand why.

Using a targeted sample, the sensitivity of preferences of regular purchasers should be tested; given a change in prices or income level, how does consumers purchasing behavior change? Also, more diversity within the sample in terms of socio-demographic characteristics like education and a greater proportion of females would be more representative of the U.S. population.

## Chapter 5 - Conclusion

### *5.1 Summary of Study*

The overall objective of this research was to determine the key factors that explained consumers' disposition to purchase SPT fruits and vegetables regularly and their willingness to pay a premium for them. This research gives an empirical analysis of characteristics of survey responses on such topics as demographic characteristics, frequency of purchase of SPT products, perceptions of those products and a willingness to pay a premium for them.

Previous literature has not approached sustainably-produced food on a market literature instead opting for a single product study. This research was designed to gain insight into the sustainably-produced food market by examining three segments of the market: organic, local, and small farm products. The analysis included statistical tools including summary statistics and analytical tools such as logit and ordered logit regressions. The objectives were to determine the difference in socio-economic characteristics between those purchasing and not purchasing sustainably-produced food, determine socio-economic factors affect consumers' purchasing frequency, determine how consumers' perceptions of sustainably-produced food influences the premium they are willing to pay for them, and to provide recommendations for industry action and future research.

The analysis included statistical tools and analytical tools such as OLS, logit, and ordered logit regressions. Ordered logit regression was used for the premium models while logit regression was used for the frequency models. The findings of this study provide a picture of regular purchasers and ultra low frequency purchasers of organic, local, and small farm fruits and vegetables. The story begins with basic characteristics of both groups. Regular purchasers of organic, local, and small farm all had greater number of household members than ULFP. Organic RP had the greatest sense of being able to influence both local and global change over local and small farm RP.

Organic and local ULFP shared the most common reason for not purchasing more frequently which was because traditional products cost less. Small farm ULFP do not purchase more regularly because small farm products are not available in their areas. Not being able to find local products was also a common reason cited for not purchasing local products more frequently.



Most RP of organic products agreed or strongly agreed with the defining statements provided in the study. However, it was not a similar situation for the local attributes. The rankings for the local attribute were much more spread out over the different levels of agreement. However, freshness and taste were commonly ranked highly amongst RP of local produce. The consensus from small farm RP is that the statements used in the study were not characteristic of small farm production technology. The only statements with more than 50 percent agreeing or strongly agreeing was that small farm products taste better than traditional products and are more sustainable. Small farm and local RP both agreed on the attribute of taste. This commonality could be due to the finding that small farm consumers are a subset of local consumers. Of small farm RP, 98.5 percent were also local RP. This was a very interesting finding. This may explain small farm RP dislike of the small farm definitional statements; they may have been holding out for statements closer to those presented for the local attribute.

Education, household size, and gender are positive influences on organic purchasing frequency, as shown by the ordered logit frequency model. Given that the local frequency model showed no signs of multicollinearity we concluded that socio-economic factors do not influence frequency of local purchase. This lack of significance could be due to a lack of variability in the local consumers' data. A stunning 86 percent of respondents were local RP. Local frequency of purchase was positive and highly significant in determining the likelihood of small farm purchasing frequency.

The only significant statement in the organic premium model was organic products define a healthy lifestyle. The lack of significance of the organic statements could be due to the consistently high rankings by organic RP. The local premium model had several significant statements. The positive influences were from associating local production with chemical-free production, sustainability and great taste. Negatively impacting RP willingness to pay a premium for a local product is associating local with knowing the farmer who produced the food. The willingness to pay a premium for local products was significant and positive in determining willingness to pay a premium for small farm products.

## ***5.2 Limitations of Study***

The data used in this study provided some limitations for the data analysis that could be done. First, the sample size was quite small as the technical nature of the research narrowed the

list of potential respondents. Therefore, the data is not as close to the U.S. population as would be necessary to draw conclusions based on the U.S. population as a whole. Instead, the survey respondents were more educated and had a higher food budget each week. This result could have been a consumer characteristic of the average sustainably-produced food consumer or it could have been the survey instrument self-selecting respondents.

The limited number of responses also provided for a low level of variability in the data set. This factor could have affected the results by making variables insignificant predictors within their models simply because the responses on that point were very similar. The local model specifically was insignificant. This result leaves much to be desired for this study but a great opportunity for future research. Small farm consumers' ranking of agreement with the small farm definitional statements was very distributed. Therefore small farm consumers' perceptions of the small farm attribute is still not fully understood.

### ***5.3 Policy and Strategy Implications***

As for producers and marketers of sustainably-produced food products, organic, local, and small farm products all present different opportunities. While organics' market is very well established, there is still plenty of room for U.S. producers to narrow the gap between domestic demand and domestic supply. Local consumers seem to be very interested in local production while not necessarily being willing to pay a premium for the products.

State-led programs, created to heighten the visibility of local production, could shift their focus to promoting the added value that local production gives to the product. Their main focus thus far has been to gain momentum in demand which seems to have been accomplished because 86 percent of survey respondents are regular purchasers of local products.

This study showed that small farm consumers are also local consumers because 98.5 percent of the time small farm consumers also consume local products. The small farm and local consumers shared several factors of their perceptions of small farm and local products. Further study is required to truly understand the subset of the population that makes up small farm consumers.

### ***5.4 Suggestions for Future Research***

Dimensions of this research produced a greater number of questions than concrete results. Those questions and therefore suggestions for future research are discussed in this final

section. Recommendations are made for each individual attribute as well as for further exploration into the relationships between them.

Further research into organic consumers could focus on understanding how and why these characteristics impact the decision to purchase. Because organic consumers consistently know the characteristics of the product they are purchasing and are willing to pay a premium for it, a focus group to elicit deeper information could be helpful. By asking organic consumers more extensively about their inferences about organic production technology and labeling, marketing efforts could be enhanced.

The growth of the local food market has created a large population of interested consumers that are unwilling to pay a premium for local products. A study to confirm the socio-economic factors among local consumers would be beneficial to those trying to market their local products. Of greater importance is the understanding of why consumers are unwilling to pay a premium for the local attribute. Conducting interviews with consumers who purchase frequently but do not want to pay a premium for local may shed light on why these products are not yet being viewed as value-added. Simply gaining this information may help marketers to shift their technique to compensate for consumers' desire to have the value-added product at the same cost.

Further research is recommended to understand how or why small farm consumers also are regular purchasers of local products. Small farm consumers and local consumers are equally unwilling to pay a premium for their product. This result further enforces the similarities between the two groups. A more thorough understanding of how consumers view small farm products may provide opportunities for small farms to differentiate themselves within the market place. Disassociating themselves from local products may create a stronger following with an increased likelihood of paying a premium for the small farm attribute.

Other future research in this area could substitute different sampling techniques to increase the robustness of the data. There may be different findings if frequent purchasers of sustainably-produced food are targeted specifically instead of a mass offering. The sensitivity of preferences to changing prices and income levels needs to be analyzed. The finding that many local and small farm consumers do not want to pay a premium for these products warrants an examination of the change in their preferences due to an increase in price.

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**Appendix I: Axio® Survey Instrument Used in Data Collection**

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## **Consumer Perceptions and Preferences for Organic, Local, and Small Farm Production Technologies: Fruits and Vegetables TEST**

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### **Survey Description**

Organic, local and small farm production technologies are becoming an increasingly popular area of interest for consumers and researchers alike. This survey is an attempt to determine the extent to which consumers are interested in these different production technologies.

The three different production technologies addressed in this survey are organic, local, and small farm. In attempting to evaluate key characteristics of each of these three food markets, we will ask you a variety of questions. Your complete responses to the following questions allow us to draw conclusions that we would otherwise be unable to draw.

Throughout the survey, we will refer to several types of food production technologies. Organic food is produced without antibiotics, hormones, genetic engineering, radiation, or synthetic pesticides or fertilizers. Local food is sold within a community near the place of production. Small farm food is produced by a farm with annual revenues of less than \$20,000 and produced on less than 200 acres. Traditional food products are products that are not classified as organic, local, or produced on a small farm.

The product type, focused on in this research, are fruits and vegetables. This classification is meant to include **all** fruits and **all** vegetables.

Your participation is extremely important to the success of this study and is always strictly voluntary. Your refusal to participate will involve no penalty and you may choose to discontinue your participation at any time without penalty. More importantly, any information you provide will be confidential and will **never** be used in any way that reveals your identity.

Please feel free to contact Carly Whorton at Kansas State University by email ([carlyw@ksu.edu](mailto:carlyw@ksu.edu)) or by phone (785-364-6301) or Dr. Vincent Amanor-Boadu at Kansas State University by email ([Vincent@ksu.edu](mailto:Vincent@ksu.edu)) or by phone (785-532-3520) if you have any questions about the survey. In case you need to discuss any aspect of this research with a Kansas State University official, you may contact Dr. Rick Scheidt, Chair, Committee on Research Involving Human Subjects, Institutional Review Board, or Dr. Jerry Jaax, Associate Provost for Research Compliance by phone at 785-532-3224 or by mail at 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506.

Thank you.

### **Opening Instructions**

Please read and answer each question as completely as possible. Again, your responses are confidential and the time you take to complete this survey is creating an important contribution to the research community.

This survey should take approximately 22 minutes to complete.



**Page 1**

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Organic food is produced without antibiotics, hormones, genetic engineering, radiation, or synthetic pesticides or fertilizers. Traditional food products are products that are not classified as organic, local, or produced on a small farm.

**Question 1** *\*\* required \*\**

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In the last year, have you purchased organic fruits and vegetables more than twice?

- Yes  
 No

**Page 2**

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Local food is sold within a community near the place of production. Traditional food products are products that are not classified as organic, local, or produced on a small farm.

**Question 2** *\*\* required \*\**

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In the last year, have you purchased local fruits and vegetables more than twice?

- Yes  
 No

**Page 3**

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Small farm food is produced by a farm with annual revenues of less than \$20,000 and produced on less than 200 acres. Traditional food products are products that are not classified as organic, local, or produced on a small farm.

**Question 3** *\*\* required \*\**

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In the last year, have you purchased fruits and vegetables produced on a small farm more than twice?

- Yes  
 No

## Page 4

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Fill out this page only if you answered:

- **No** on question [1. In the last year, have you purch...](#) on [page 1](#) .

Organic food is produced without antibiotics, hormones, genetic engineering, radiation, or synthetic pesticides or fertilizers. Traditional food products are products that are not classified as organic, local, or produced on a small farm.

### Question 4 **\*\* required \*\***

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You indicated that you do not purchase organic fruits and vegetables. Which of the following best explains why you choose not to purchase organic fruits and vegetables?

- Traditional products cost less
- The organic products I get in my area do not look nice or fresh
- I don't know enough about organic fruits and vegetables
- Organic fruits and vegetables are unavailable in my area
- I like what I purchase, no need to change it
- I just do not care about organic foods

## Page 5

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Fill out this page only if you answered:

- **No** on question [2. In the last year, have you purch...](#) on [page 2](#) .

Local food is sold within a community near the place of production. Traditional food products are products that are not classified as organic, local, or produced on a small farm.

### Question 5 **\*\* required \*\***

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You indicated that you do not purchase local fruits and vegetables. Which of the following best explains why you choose not to purchase local fruits and vegetables?

- Traditional products cost less
- The local products do not look nice or fresh
- I do not know how to find local fruits and vegetables in my area
- Local fruits and vegetables are unavailable in my area
- I like what I purchase, no need to change it
- I do not care about local products

## Page 6

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Fill out this page only if you answered:

- **No** on question **3. In the last year, have you purch...** on **page 3** .

Small farm food is produced by a farm with annual revenues of less than \$20,000 and produced on less than 200 acres. Traditional food products are products that are not classified as organic, local, or produced on a small farm.

### Question 6 **\*\* required \*\***

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You indicated that you do not purchase fruits and vegetables from small farm production. Which of the following best explains why you choose not to purchase fruits and vegetables from a small farm?

- Traditional products cost less
- I don't know enough about fruits and vegetables from a small farm
- Fruits and vegetables from a small farm are unavailable in my area
- I like what I purchase, no need to change it
- I do not care about small farm production technology

## Page 7

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Fill out this page only if you answered:

- **Yes** on question **1. In the last year, have you purch...** on **page 1** .

Organic food is produced without antibiotics, hormones, genetic engineering, radiation, or synthetic pesticides or fertilizers. Traditional food products are products that are not classified as organic, local, or produced on a small farm.

### Question 7 **\*\* required \*\***

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You told us that you have purchased organic fruits and vegetables more than twice in the last year. How often do you purchase organic fruits and vegetables?

- 3-4 times per year
- 5-7 times per year
- 8-12 times per year
- At least once per month
- Every time I purchase fruits and vegetables, I buy organic

## Page 8

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**Fill out this page only if you answered:**

- **Yes** on question **2. In the last year, have you purch...** on **page 2** .

Local food is sold within a community near the place of production. Traditional food products are products that are not classified as organic, local, or produced on a small farm.

**Question 8 *\*\* required \*\****

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You told us that you have purchased local fruits and vegetables more than twice in the last year. How often do you purchase local fruits and vegetables?

- 3-4 times per year
- 5-7 times per year
- 8-12 times per year
- At least once per month
- Every time I purchase fruit or vegetables, I buy local

**Page 9**

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**Fill out this page only if you answered:**

- **Yes** on question **3. In the last year, have you purch...** on **page 3** .

Small farm food is produced by a farm with annual revenues of less than \$20,000 and produced on less than 200 acres. Traditional food products are products that are not classified as organic, local, or produced on a small farm.

**Question 9 *\*\* required \*\****

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You told us that you have purchased fruits and vegetables from a small farm more than twice in the last year. How often do you purchase fruits and vegetables from a small farm?

- 3-4 times per year
- 5-7 times per year
- 8-12 times per year
- At least once per month
- I always purchase my fruit or vegetables from small farmers

**Page 10**

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Fill out this page only if you answered:

- [Organic fruits and v...](#) on question [4. You indicated that you do not pu...](#) on [page 4](#) .
- AND [No](#) on question [1. In the last year, have you purch...](#) on [page 1](#) .

**Question 10** *\*\* required \*\**

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If organic fruits and vegetables were more readily available in your area, would you purchase them more frequently?

- Yes
- No

---

**Page 11**

Fill out this page only if you answered:

- [No](#) on question [2. In the last year, have you purch...](#) on [page 2](#) .
- AND [Local fruits and veg...](#) on question [5. You indicated that you do not pu...](#) on [page 5](#) .

**Question 11** *\*\* required \*\**

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If local fruits and vegetables were more readily available in your area, would you purchase them more frequently?

- Yes
- No

---

**Page 12**

Fill out this page only if you answered:

- [No](#) on question [3. In the last year, have you purch...](#) on [page 3](#) .
- AND [Fruits and vegetable...](#) on question [6. You indicated that you do not pu...](#) on [page 6](#) .

**Question 12** *\*\* required \*\**

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If fruits and vegetables produced on a small farm were more readily available in your area, would you purchase them more frequently?

- Yes
- No

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**Page 13**

Fill out this page only if you answered:

- **8-12 times per year** OR **At least once per mo...** OR **5-7 times per year** OR **3-4 times per year** OR **Every time I purchas...** on question **7. You told us that you have purcha...** on **page 7** .
- AND **Yes** on question **1. In the last year, have you purch...** on **page 1** .

### Question 13 **\*\* required \*\***

Please indicate the extent to which each of the following captures your idea of "**organic**" products. (1=Does not capture my idea of organic at all; 5=Completely captures my idea of organic)

	1	2	3	4	5
<b>13.1</b> Organic food is always grown without chemical fertilizers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>13.2</b> Organic food is always grown without chemical pesticides	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>13.3</b> Organic food has no preservatives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>13.4</b> Organic food defines a healthy lifestyle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>13.5</b> Organic food products are much safer than traditional food products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>13.6</b> Organic food products are always more environmentally friendly than traditional food products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>13.7</b> Organic production techniques are always more sustainable than traditional production techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Page 14

Fill out this page only if you answered:

- **Yes** on question **2. In the last year, have you purch...** on **page 2** .
- AND **8-12 times per year** OR **3-4 times per year** OR **5-7 times per year** OR **Every time I purchas...** OR **At least once per mo...** on question **8. You told us that you have purcha...** on **page 8** .

### Question 14 **\*\* required \*\***

Please indicate the extent to which each of the following captures your idea of "**local**" products. (1=Does not capture my idea of local at all; 5=Completely captures my idea of local)

	1	2	3	4	5
<b>14.1</b> I know the farmer who produced it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>14.2</b> Local food is always grown without chemical fertilizers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14.3 Local food is always fresher than traditional food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.4 Local food producers do not use machines in their production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.5 Local food is more environmentally friendly than traditional food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.6 Local food is always more sustainable than traditional food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.7 Local food always tastes better than traditional food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Page 15

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Fill out this page only if you answered:

- *I always purchase my...* OR *8-12 times per year* OR *3-4 times per year* OR *At least once per mo...* OR *5-7 times per year* on question **9. You told us that you have purcha...** on **page 9** .
- AND **Yes** on question **3. In the last year, have you purch...** on **page 3** .

### Question 15 **\*\* required \*\***

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Please indicate the extent to which each of the following captures your idea of "**small farm**" products. (1=Does not capture my idea of small farm at all; 5=Completely captures my idea of small farm)

	1	2	3	4	5
15.1 Small farm products are always grown without chemical fertilizers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.2 Small farm products are never produced with machines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.3 Small farm products are more environmentally friendly than traditional products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.4 Small farm food production techniques are more sustainable than traditional food production techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.5 Small farm products just taste better	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Page 16

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Fill out this page only if you answered:

- *I always purchase my...* OR *8-12 times per year* OR *3-4 times per year* OR *At least once per mo...* OR *5-7 times per year* on question **9. You told us that you have purcha...** on **page 9** .
- AND **Yes** OR **No** on question **2. In the last year, have you purch...** on **page 2** .

- AND *Traditional products...* OR *I like what I purcha...* OR *I don't know enough ...* OR *Organic fruits and v...* OR *The organic products...* OR *I just do not care a...* on question **4. You indicated that you do not pu...** on **page 4** .
- AND **Yes** OR **No** on question **3. In the last year, have you purch...** on **page 3** .
- AND *I do not care about ...* OR *Local fruits and veg...* OR *The local products d...* OR *I do not know how to...* OR *I like what I purcha...* OR *Traditional products...* on question **5. You indicated that you do not pu...** on **page 5** .
- AND *I don't know enough ...* OR *I like what I purcha...* OR *I do not care about ...* OR *Fruits and vegetable...* OR *Traditional products...* on question **6. You indicated that you do not pu...** on **page 6** .
- AND *3-4 times per year* OR *Every time I purchas...* OR *At least once per mo...* OR *5-7 times per year* OR *8-12 times per year* on question **7. You told us that you have purcha...** on **page 7** .
- AND *8-12 times per year* OR *Every time I purchas...* OR *5-7 times per year* OR *3-4 times per year* OR *At least once per mo...* on question **8. You told us that you have purcha...** on **page 8** .
- AND **Yes** OR **No** on question **1. In the last year, have you purch...** on **page 1** .
- AND **Yes** OR **No** on question **10. If organic fruits and vegetables...** on **page 10** .
- AND **Yes** OR **No** on question **11. If local fruits and vegetables w...** on **page 11** .
- AND **Yes** OR **No** on question **12. If fruits and vegetables&nb...** on **page 12** .

**Question 16** *\*\* required \*\**

The United States Bureau of Labor Statistics (2009) estimates that approximately 59% of a household's food budget is spent on food to be prepared 'at home'. Please indicate which of the following best describes your household's **weekly 'at home'** food budget?

**Question 17** *\*\* required \*\**

Of your household's weekly 'at home' food budget, what proportion of the budget do you spend on each of the following?

1 - 0% - 10% | 2 - 11% - 20% | 3 - 21% - 35% | 4 - 36% - 50%  
5 - 51% - 75% | 6 - 76% - 100%

	1	2	3	4	5	6
<b>17.1</b> Fruits and Vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>17.2</b> Fresh Meats (meat that you purchase unfrozen)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>17.3</b> Consumer Packaged Goods (cereal, canned goods, bread, beverages, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Fill out this page only if you answered:

- *I like what I purcha...* OR *The organic products...* OR *I just do not care a...* OR *Organic fruits and v...* OR *I don't know enough ...* OR *Traditional products...* on question **4. You indicated that you do not pu...** on **page 4** .
- AND **No** on question **1. In the last year, have you purch...** on **page 1** .
- AND **Yes** OR **No** on question **10. If organic fruits and vegetables...** on **page 10** .

### Question 18

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How much more (or less) would you be willing to pay for organic fruits and vegetables compared to traditional fruits and vegetables?

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### Page 18

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Fill out this page only if you answered:

- **No** on question **2. In the last year, have you purch...** on **page 2** .
- AND *I do not care about ...* OR *I like what I purcha...* OR *Local fruits and veg...* OR *The local products d...* OR *I do not know how to...* OR *Traditional products...* on question **5. You indicated that you do not pu...** on **page 5** .
- AND **No** OR **Yes** on question **11. If local fruits and vegetables w...** on **page 11** .

### Question 19

---

How much more (or less) would you be willing to pay for locally-produced fruits and vegetables compared to traditionally-produced fruits and vegetables?

---



### Page 19

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Fill out this page only if you answered:

- **No** on question **3. In the last year, have you purch...** on **page 3** .
- AND *I like what I purcha...* OR *Traditional products...* OR *I do not care about ...* OR *Fruits and vegetable...* OR *I don't know enough ...* on question **6. You indicated that you do not pu...** on **page 6** .
- AND **No** OR **Yes** on question **12. If fruits and vegetables&nb...** on **page 12** .

### Question 20

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How much more (or less) would you be willing to pay for fruits and vegetables produced on a small farm compared to traditionally-produced fruits and vegetables?

## Page 20

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Fill out this page only if you answered:

- *At least once per mo...* OR *8-12 times per year* OR *5-7 times per year* OR *3-4 times per year* OR *Every time I purchas...* on question *7. You told us that you have purcha...* on *page 7* .
- AND *Yes* on question *1. In the last year, have you purch...* on *page 1* .

### Question 21 **\*\* required \*\***

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Do you pay a premium for organic fruits and vegetables?

## Page 21

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Fill out this page only if you answered:

- *Yes* on question *21. Do you pay a premium for organic...* on *page 20* .
- AND *5-7 times per year* OR *3-4 times per year* OR *8-12 times per year* OR *At least once per mo...* on question *7. You told us that you have purcha...* on *page 7* .
- AND *Yes* on question *1. In the last year, have you purch...* on *page 1* .

### Question 22

---

How much is the premium you pay for organic fruits and vegetables?

## Page 22

---

Fill out this page only if you answered:

- *Yes* on question *2. In the last year, have you purch...* on *page 2* .
- AND *8-12 times per year* OR *3-4 times per year* OR *5-7 times per year* OR *Every time I purchas...* OR *At least once per mo...* on question *8. You told us that you have purcha...* on *page 8* .

### Question 23 **\*\* required \*\***

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Do you pay a premium for local fruits and vegetables?

## Page 23

---

Fill out this page only if you answered:

- [Yes](#) on question [23. Do you pay a premium for lo...](#) on [page 22](#) .
- AND [Yes](#) on question [2. In the last year, have you purch...](#) on [page 2](#) .
- AND [At least once per mo...](#) OR [5-7 times per year](#) OR [8-12 times per year](#) OR [Every time I purchas...](#) OR [3-4 times per year](#) on question [8. You told us that you have purcha...](#) on [page 8](#) .

## Question 24

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How much is the premium you pay for local fruits and vegetables?

## Page 24

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Fill out this page only if you answered:

- [I always purchase my...](#) OR [8-12 times per year](#) OR [5-7 times per year](#) OR [3-4 times per year](#) OR [At least once per mo...](#) on question [9. You told us that you have purcha...](#) on [page 9](#) .
- AND [Yes](#) on question [3. In the last year, have you purch...](#) on [page 3](#) .

## Question 25 **\*\* required \*\***

---

Do you pay a premium for fruits and vegetables from a small farm?

## Page 25

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Fill out this page only if you answered:

- [Yes](#) on question [25. Do you pay a premium for fr...](#) on [page 24](#) .
- AND [8-12 times per year](#) OR [I always purchase my...](#) OR [At least once per mo...](#) OR [5-7 times per year](#) OR [3-4 times per year](#) on question [9. You told us that you have purcha...](#) on [page 9](#) .
- AND [Yes](#) on question [3. In the last year, have you purch...](#) on [page 3](#) .

**Question 26**

How much is the premium you pay for small farm fruits and vegetables?

**Page 26**

Fill out this page only if you answered:

- *I don't know enough ...* OR *The organic products...* OR *Organic fruits and v...* OR *Traditional products...* on question *4. You indicated that you do not pu...* on *page 4* .
- AND *No* on question *1. In the last year, have you purch...* on *page 1* .
- AND *Yes* on question *10. If organic fruits and vegetables...* on *page 10* .

**Question 27**

Using the labels across the top of the table, indicate how your purchasing of **organic fruits and vegetables** would change in response to each one of the statements on the left hand side.

1 - My purchases will decline by more than 10%

2 - My purchases will decline by between 5% and 10% | 3 - My purchases will decline by between 1% and 5%

4 - My purchases will not change | 5 - My purchases will increase by between 1% and 5%

6 - My purchases will increase by between 5% and 10% | 7 - My purchases will increase by more than 10%

	1	2	3	4	5	6	7
<b>27.1</b> Your income increased by 5%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>27.2</b> Your income increased by 10%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>27.3</b> Your income increased by 15%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>27.4</b> Your income increased by 20%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Page 27**

Fill out this page only if you answered:

- *No* on question *2. In the last year, have you purch...* on *page 2* .
- AND *The local products d...* OR *I do not know how to...* OR *Local fruits and veg...* OR *Traditional products...* on question *5. You indicated that you do not pu...* on *page 5* .
- AND *Yes* on question *11. If local fruits and vegetables w...* on *page 11* .

**Question 28**

Using the labels across the top of the table, indicate how your purchasing of **local fruits and vegetables** would change in response to each one of the statements on the left hand side.

1 - My purchases will decline by more than 10%

2 - My purchases will decline by between 5% and 10% | 3 - My purchases will decline by between 1% and 5%

4 - My purchases will not change | 5 - My purchases will increase by between 1% and 5%

6 - My purchases will increase by between 5% and 10% | 7 - My purchases will increase by more than 10%

	1	2	3	4	5	6	7
<b>28.1</b> Your income increased by 5%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>28.2</b> Your income increased by 10%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>28.3</b> Your income increased by 15%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>28.4</b> Your income increased by 20%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Page 28

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Fill out this page only if you answered:

- **No** on question **3. In the last year, have you purch...** on **page 3** .
- AND **Traditional products...** OR **Fruits and vegetable...** OR **I don't know enough ...** on question **6. You indicated that you do not pu...** on **page 6** .
- AND **Yes** on question **12. If fruits and vegetables&nb...** on **page 12** .

## Question 29

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Using the labels across the top of the table, indicate how your purchasing of **fruits and vegetables from a small farm** would change in response to each one of the statements on the left hand side.

1 - My purchases would decline by more than 10%

2 - My purchases would decline by between 5% and 10% | 3 - My purchases would decline by between 1% and 5%

4 - My purchases would not change | 5 - My purchases would increase by between 1% and 5%

6 - My purchases would increase by between 5% and 10% | 7 - My purchases would increase by more than 10%

	1	2	3	4	5	6	7
<b>29.1</b> Your income increased by 5%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>29.2</b> Your income increased by 10%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>29.3</b> Your income increased by 15%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>29.4</b> Your income increased by 20%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Page 29

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Fill out this page only if you answered:

- *I don't know enough ...* OR *The organic products...* OR *Organic fruits and v...* OR *Traditional products...* on question *4. You indicated that you do not pu...* on *page 4* .
- AND *No* on question *1. In the last year, have you purch...* on *page 1* .
- AND *Yes* on question *10. If organic fruits and vegetables...* on *page 10* .

### Question 30

Using the labels across the top of the table, indicate how your purchasing of **organic fruits and vegetables** would change in response to each one of the statements on the left hand side.

1 - My purchases would decline by more than 10%

2 - My purchases would decline by between 5% and 10% | 3 - My purchases would decline by between 1% and 5%

4 - My purchases would not change | 5 - My purchases would increase by between 1% and 5%

6 - My purchases would increase by between 5% and 10% | 7 - My purchases would increase by more than 10%

	1	2	3	4	5	6	7
<b>30.1</b> The price of organic fruits and vegetables decreased by 5%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>30.2</b> The price of organic fruits and vegetables decreased by 10%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>30.3</b> The price of organic fruits and vegetables decreased by 15%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>30.4</b> The price of organic fruits and vegetables decreased by 20%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Page 30

Fill out this page only if you answered:

- *No* on question *2. In the last year, have you purch...* on *page 2* .
- AND *Local fruits and veg...* OR *I do not know how to...* OR *The local products d...* OR *Traditional products...* on question *5. You indicated that you do not pu...* on *page 5* .
- AND *Yes* on question *11. If local fruits and vegetables w...* on *page 11* .

### Question 31

Using the labels across the top of the table, indicate how your purchasing of **local fruits and vegetables** would change in response to each one of the statements on the left hand side.

1 - My purchases would decline by more than 10%

2 - My purchases would decline by between 5% and 10% | 3 - My purchases would decline by between 1% and 5%

4 - My purchases would not change | 5 - My purchases would increase by between 1% and 5%

6 - My purchases would increase by between 5% and 10% | 7 - My purchases would increase by more than 10%

	1	2	3	4	5	6	7
<b>31.1</b> The price of local fruits and vegetables decreased by 5%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>31.2</b> The price of local fruits and vegetables decreased by 10%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>31.3</b> The price of local fruits and vegetables decreased by 15%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>31.4</b> The price of local fruits and vegetables decreased by 20%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Page 31

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Fill out this page only if you answered:

- **No** on question **3. In the last year, have you purch...** on **page 3** .
- AND **Traditional products...** OR **Fruits and vegetable...** OR **I don't know enough ...** on question **6. You indicated that you do not pu...** on **page 6** .
- AND **Yes** on question **12. If fruits and vegetables&nb...** on **page 12** .

## Question 32

---

Using the labels across the top of the table, indicate how your purchasing of **fruits and vegetables from a small farm** would change in response to each one of the statements on the left hand side.

1 - My purchases would decline by more than 10%

2 - My purchases would decline by between 5% and 10% | 3 - My purchases would decline by between 1% and 5%

4 - My purchases would not change | 5 - My purchases would increase by between 1% and 5%

6 - My purchases would increase by between 5% and 10% | 7 - My purchases would increase by more than 10%

	1	2	3	4	5	6	7
<b>32.1</b> The price of fruits and vegetables from a small farm decreased by 5%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>32.2</b> The price of fruits and vegetables from a small farm decreased by 10%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>32.3</b> The price of fruits and vegetables from a small farm decreased by 15%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>32.4</b> The price of fruits and vegetables from a small farm decreased by 20%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Page 32

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Fill out this page only if you answered:

- **No** OR **Yes** on question **21. Do you pay a premium for organic...** on **page 20** .
- AND **At least once per mo...** OR **5-7 times per year** OR **Every time I purchas...** OR **3-4 times per year** OR **8-12 times per year** on question **7. You told us that you have purcha...** on **page 7** .
- AND **Yes** on question **1. In the last year, have you purch...** on **page 1** .

### Question 33

Using the labels across the top of the table, indicate how your purchasing of **organic fruits and vegetables** would change in response to each one of the statements on the left hand side.

1 - My purchases would decline by more than 10%

2 - My purchases would decline by between 5% and 10% | 3 - My purchases would decline by between 1% and 5%

4 - My purchases would not change | 5 - My purchases would increase by between 1% and 5%

6 - My purchases would increase by between 5% and 10% | 7 - My purchases would increase by more than 10%

	1	2	3	4	5	6	7
<b>33.1</b> Your income decreased by 5%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>33.2</b> Your income decreased by 10%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>33.3</b> Your income decreased by 15%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>33.4</b> Your income decreased by 20%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Page 33

Fill out this page only if you answered:

- **Yes** OR **No** on question **23. Do you pay a premium for lo...** on **page 22** .
- AND **Yes** on question **2. In the last year, have you purch...** on **page 2** .
- AND **5-7 times per year** OR **At least once per mo...** OR **8-12 times per year** OR **Every time I purchas...** OR **3-4 times per year** on question **8. You told us that you have purcha...** on **page 8** .

### Question 34

Using the labels across the top of the table, indicate how your purchasing of **local fruits and vegetables** would change in response to each one of the statements on the left hand side.

1 - My purchases would decline by more than 10%

2 - My purchases would decline by between 5% and 10% | 3 - My purchases would decline by between 1% and 5%

4 - My purchases would not change | 5 - My purchases would increase by between 1% and 5%

6 - My purchases would increase by between 5% and 10% | 7 - My purchases would increase by more than 10%



	1	2	3	4	5	6	7
<b>34.1</b> Your income decreased by 5%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>34.2</b> Your income decreased by 10%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>34.3</b> Your income decreased by 15%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>34.4</b> Your income decreased by 20%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Page 34

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Fill out this page only if you answered:

- **Yes** OR **No** on question **25. Do you pay a premium for fr...** on **page 24** .
- AND **I always purchase my...** OR **At least once per mo...** OR **5-7 times per year** OR **3-4 times per year** OR **8-12 times per year** on question **9. You told us that you have purcha...** on **page 9** .
- AND **Yes** on question **3. In the last year, have you purch...** on **page 3** .

## Question 35

---

Using the labels across the top of the table, indicate how your purchasing of **fruits and vegetables from a small farm** would change in response to each one of the statements on the left hand side.

**1 - My purchases would decline by more than 10%**

**2 - My purchases would decline by between 5% and 10% | 3 - My purchases would decline by between 1% and 5%**

**4 - My purchases would not change | 5 - My purchases would increase by between 1% and 5%**

**6 - My purchases would increase by between 5% and 10% | 7 - My purchases would increase by more than 10%**

	1	2	3	4	5	6	7
<b>35.1</b> Your income decreased by 5%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>35.2</b> Your income decreased by 10%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>35.3</b> Your income decreased by 15%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>35.4</b> Your income decreased by 20%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Page 35

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Fill out this page only if you answered:

- **No** OR **Yes** on question **21. Do you pay a premium for organic...** on **page 20** .

- AND *At least once per mo...* OR *5-7 times per year* OR *Every time I purchas...* OR *3-4 times per year* OR *8-12 times per year* on question **7. You told us that you have purcha...** on **page 7** .
- AND **Yes** on question **1. In the last year, have you purch...** on **page 1** .

### Question 36

Using the labels across the top of the table, indicate how your purchasing of **organic fruits and vegetables** would change in response to each one of the statements on the left hand side.

- 1 - My purchases would decline by more than 10%
- 2 - My purchases would decline by between 5% and 10% | 3 - My purchases would decline by between 1% and 5%
- 4 - My purchases would not change | 5 - My purchases would increase by between 1% and 5%
- 6 - My purchases would increase by between 5% and 10% | 7 - My purchases would increase by more than 10%

	1	2	3	4	5	6	7
<b>36.1</b> The price of organic fruits and vegetables increased by 5%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>36.2</b> The price of organic fruits and vegetables increased by 10%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>36.3</b> The price of organic fruits and vegetables increased by 15%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>36.4</b> The price of organic fruits and vegetables increased by 20%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Page 36

Fill out this page only if you answered:

- **Yes** OR **No** on question **23. Do you pay a premium for lo...** on **page 22** .
- AND **Yes** on question **2. In the last year, have you purch...** on **page 2** .
- AND *5-7 times per year* OR *At least once per mo...* OR *8-12 times per year* OR *Every time I purchas...* OR *3-4 times per year* on question **8. You told us that you have purcha...** on **page 8** .

### Question 37

Using the labels across the top of the table, indicate how your purchasing of **local fruits and vegetables** would change in response to each one of the statements on the left hand side.

- 1 - My purchases would decline by more than 10%
- 2 - My purchases would decline by between 5% and 10% | 3 - My purchases would decline by between 1% and 5%
- 4 - My purchases would not change | 5 - My purchases would increase by between 1% and 5%

6 - My purchases would increase by between 5% and 10% | 7 - My purchases would increase by more than 10%

	1	2	3	4	5	6	7
<b>37.1</b> The price of local fruits and vegetables increased by 5%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>37.2</b> The price of local fruits and vegetables increased by 10%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>37.3</b> The price of local fruits and vegetables increased by 15%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>37.4</b> The price of local fruits and vegetables increased by 20%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Page 37

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Fill out this page only if you answered:

- **Yes** OR **No** on question **25. Do you pay a premium for fr...** on **page 24** .
- AND **I always purchase my...** OR **5-7 times per year** OR **At least once per mo...** OR **3-4 times per year** OR **8-12 times per year** on question **9. You told us that you have purcha...** on **page 9** .
- AND **Yes** on question **3. In the last year, have you purch...** on **page 3** .

## Question 38

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Using the labels across the top of the table, indicate how your purchasing of **fruits and vegetables from a small farm** would change in response to each one of the statements on the left hand side.

1 - My purchases would decline by more than 10%

2 - My purchases would decline by between 5% and 10% | 3 - My purchases would decline by between 1% and 5%

4 - My purchases would not change | 5 - My purchases would increase by between 1% and 5%

6 - My purchases would increase by between 5% and 10% | 7 - My purchases would increase by more than 10%

	1	2	3	4	5	6	7
<b>38.1</b> The price of fruits and vegetables from a small farm increased by 5%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>38.2</b> The price of fruits and vegetables from a small farm increased by 10%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>38.3</b> The price of fruits and vegetables from a small farm increased by 15%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>38.4</b> The price of fruits and vegetables from a small farm increased by 20%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Page 38

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**Fill out this page only if you answered:**

- **No** OR **Yes** on question **23. Do you pay a premium for lo...** on **page 22** .
- AND **No** OR **Yes** on question **25. Do you pay a premium for fr...** on **page 24** .
- AND **3-4 times per year** OR **At least once per mo...** OR **I always purchase my...** OR **8-12 times per year** OR **5-7 times per year** on question **9. You told us that you have purcha...** on **page 9** .
- AND **No** OR **Yes** on question **21. Do you pay a premium for organic...** on **page 20** .
- AND **Yes** OR **No** on question **2. In the last year, have you purch...** on **page 2** .
- AND **The organic products...** OR **I like what I purcha...** OR **I don't know enough ...** OR **Traditional products...** OR **I just do not care a...** OR **Organic fruits and v...** on question **4. You indicated that you do not pu...** on **page 4** .
- AND **Yes** OR **No** on question **3. In the last year, have you purch...** on **page 3** .
- AND **Traditional products...** OR **I do not care about ...** OR **Local fruits and veg...** OR **The local products d...** OR **I do not know how to...** OR **I like what I purcha...** on question **5. You indicated that you do not pu...** on **page 5** .
- AND **Traditional products...** OR **I do not care about ...** OR **I like what I purcha...** OR **Fruits and vegetable...** OR **I don't know enough ...** on question **6. You indicated that you do not pu...** on **page 6** .
- AND **At least once per mo...** OR **8-12 times per year** OR **3-4 times per year** OR **Every time I purchas...** OR **5-7 times per year** on question **7. You told us that you have purcha...** on **page 7** .
- AND **5-7 times per year** OR **At least once per mo...** OR **8-12 times per year** OR **Every time I purchas...** OR **3-4 times per year** on question **8. You told us that you have purcha...** on **page 8** .
- AND **No** OR **Yes** on question **1. In the last year, have you purch...** on **page 1** .
- AND **Yes** OR **No** on question **10. If organic fruits and vegetables...** on **page 10** .
- AND **No** OR **Yes** on question **11. If local fruits and vegetables w...** on **page 11** .
- AND **Yes** OR **No** on question **12. If fruits and vegetables&nb...** on **page 12** .

**Question 39**

How many people live in your household right now?

**Question 40 \*\* required \*\***

How many children (persons under the age of 17) currently live in your household?

- None  
 1  
 2  
 3  
 4  
 5

6 7+**Page 39****Fill out this page only if you answered:**

- **No** OR **Yes** on question **23. Do you pay a premium for lo...** on **page 22** .
- AND **Yes** OR **No** on question **25. Do you pay a premium for fr...** on **page 24** .
- AND **At least once per mo...** OR **8-12 times per year** OR **5-7 times per year** OR **3-4 times per year** OR **I always purchase my...** on question **9. You told us that you have purcha...** on **page 9** .
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- AND **No** OR **Yes** on question **11. If local fruits and vegetables w...** on **page 11** .
- AND **Yes** OR **No** on question **12. If fruits and vegetables&nb...** on **page 12** .

**Question 41**

**41.1** Please indicate your involvement in the food purchasing decisions of your household on the scale of 1 to 5 (1 being NO involvement and 5 being HIGH involvement).

1	2	3	4	5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Question 42**

Please indicate the extent to which you believe that your individual actions and choices can influence each of the following. (1 represents NO influence and 5 represent HIGH influence)

	1	2	3	4	5
42.1 A local change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
42.2 A global change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Page 40**

Fill out this page only if you answered:

- **Yes** OR **No** on question **23. Do you pay a premium for lo...** on **page 22** .
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- AND **8-12 times per year** OR **At least once per mo...** OR **I always purchase my...** OR **3-4 times per year** OR **5-7 times per year** on question **9. You told us that you have purcha...** on **page 9** .
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- AND **Yes** OR **No** on question **11. If local fruits and vegetables w...** on **page 11** .
- AND **No** OR **Yes** on question **12. If fruits and vegetables&nb...** on **page 12** .

**Question 43**

In which state do you reside?

#### Question 44

What is your gender?

#### Question 45

Which of the following best describes the highest level of education you have completed?

### Page 41

Fill out this page only if you answered:

- **Yes** OR **No** on question **23. Do you pay a premium for lo...** on **page 22** .
- AND **No** OR **Yes** on question **25. Do you pay a premium for fr...** on **page 24** .
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- AND **No** OR **Yes** on question **12. If fruits and vegetables&nb...** on **page 12** .

**Question 46**

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How would you best describe your race? If you prefer not to answer, for any reason, please enter N/A in the blank for Not Applicable.

Characters Remaining: 100

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**Closing Message**

Thank you again for your participation. Your contribution to this research has made a real difference by providing insight for successfully constructing food policy. If you would like a copy of the results from this survey please do not hesitate to contact us.

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Again, in case you need to discuss any aspect of this research with a Kansas State University official, you may contact Dr. Rick Scheidt, Chair, Committee on Research Involving Human Subjects, Institutional Review Board, or Dr. Jerry Jaax, Associate Provost for Research Compliance by phone at 785-532-3224 or by mail at 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506.

- End of Survey -

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