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How Do the Perceived Barriers, Attitudes, and Knowledge of Grocery Store Personnel Affect Availability of Organic Food Products?

Rachel Adams

HOW DO THE PERCEIVED BARRIERS, ATTITUDES, AND KNOWLEDGE OF GROCERY STORE PERSONNEL AFFECT AVAILABILITY OF ORGANIC FOOD PRODUCTS?

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RACHEL ADAMS

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ABSTRACT

Organic food is one of the fastest-growing segments of food production and consumption in the U.S. Even though organic foods are becoming more widely available, some studies suggest they may not be equally available to all populations because people in some areas are being excluded from the organics market either geographically or financially. The purpose of this study was to examine how individual and local characteristics affect the attitudes of grocery store personnel toward organic food products and how these attitudes affect availability. Grocery store personnel were surveyed about their attitudes toward organic foods, their perceptions of the barriers to offering organic foods, their knowledge of organic foods, and the availability of organic foods in their stores. The survey data was then matched to contextual statistics about the local environment from the USDA's Food Environment Atlas based on the store locations. Multi-variate regression analyses were conducted to determine which individual, store, and county characteristics influenced store personnel attitudes and how their attitudes influenced the availability of organic foods at their stores. The results showed that store type was a strong predictor of attitudes, especially regarding perceived barriers and customer demand. Out of the types of stores examined, personnel from natural/gourmet food stores reported lower perceived barriers and more positive attitudes about customer demand, and personnel from convenience stores reported higher perceived barriers and more negative attitudes about customer demand. Among the county-level characteristics, relative price of milk and percentage of white residents proved to be the strongest predictors of attitudes toward organics. Attitude toward customer demand for organic products was the strongest positive predictor of availability, while perceived

barriers had the strongest negative correlation. This is a logical conclusion, and it supports previous findings that organics are more likely to be made available if store managers perceive barriers to be low and customer demand to be high. Other significant findings about availability were that younger age and white race are correlated with greater availability of organic products. There was also a strong negative association between convenience stores and organic availability.

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CHAPTER 1: INTRODUCTION

Organic food is one of the fastest-growing segments of food production and consumption in the U.S. Most organics are sold to consumers at conventional grocery stores, natural foods stores, or farmers markets, and fresh produce is the top-selling organic product (Dimitri and Greene, 2002). Organic product sales rose from $1 billion in 1990 to $21.1 billion in 2008 and are still increasing (Crinnion, 2010). The purpose of this study was to examine how individual and local characteristics affect the attitudes of grocery store personnel toward organic food products and how these attitudes affect availability.

Organic food products may support healthier lifestyles because they contain lower levels of pesticides and possibly higher levels of certain nutrients, and organic farmers also tend to incorporate more sustainable practices to help maintain and protect their local environments (Crinnion, 2010). Even though organic foods are becoming more widely available, especially with the increased popularity of farmers markets and natural foods stores, some studies suggest they may not be equally available to all populations because people in some areas are being excluded from the organics market either geographically or financially (Zepeda, Chang, & Leviten-Reid, 2006; Wadsworth & Coyle, 2007; Webber & Dollahite, 2008; Lawrence, 2010).

Research Objectives

Though there have been numerous studies conducted on consumer attitudes toward organic foods, there is little literature available on grocery store personnel attitudes (Dahm, Samonte, & Shows, 2009; Gotschi, Vogel, Lindenthal, & Larcher, 2010). As decision-makers in

the retail grocery industry, these individuals may influence the availability and sales of organic foods and they could provide important insights into recent trends.

This study surveyed grocery store personnel involved in marketing and product selection about their attitudes toward organic foods, their perceptions of the barriers to offering organic foods, their knowledge of organic foods, and the availability of organic foods in their stores. The survey data was then matched to contextual statistics about the local environment from the USDA's Food Environment Atlas based on store locations (http://ers.usda.gov/foodatlas/). Based on information gathered from the survey, the study determined whether the availability of organic food products was influenced by store personnel attitudes and perceptions when individual, store, and local characteristics were held constant.

CHAPTER 2: LITERATURE REVIEW

This section will summarize some of the background literature on organic foods and their potential benefits, availability, consumer attitudes, and the influence of grocery stores.

Background on Organic Foods

The Organic Foods Production Act and the United States Department of Agriculture's (USDA) National Organic Program (NOP) require that products labeled as organic come from farms certified by an accredited entity. Crops must be raised without conventional pesticides or petroleum-based or sewage sludge-based fertilizers. Animals must be fed organic feed, given access to the outdoors, and cannot be given antibiotics or growth hormones. The NOP also prohibits the use of genetic engineering. For a food product to display the USDA Organic Seal, it must be made from at least 95% organically produced ingredients (USDA, 2008).

In addition, the USDA's National Organic Standards Board defines organic agriculture as "an ecological production management system that promotes and enhances biodiversity, biological cycles, and soil biological activity…These goals are met, where possible, through the use of cultural, biological, and mechanical methods, as opposed to using synthetic materials to fulfill specific functions within the system" (USDA, 2010).

Benefits of Organic Foods

Currently, there is still limited scientific evidence to prove that organic foods have higher overall nutritional value than conventionally produced foods, and many dieticians remain

unconvinced of their health benefits (Dangour, Allen, Lock, & Uauy, 2010; Ojha, Amanatidis, Petocz, & Samman, 2007). However, some studies have suggested that organic foods are better sources of some nutrients, including vitamin C, iron, magnesium, phosphorus, essential fatty acids, and antioxidants. This is significant given that the vitamin C, iron, and phosphorus content of conventionally grown foods has declined in the past 50 years (Crinnion, 2010).

In addition to possibly having higher nutritional value, organic foods have also been shown to have lower pesticide residues than conventionally produced foods. In a study that analyzed data from the USDA Pesticide Data Program, the Marketplace Surveillance Program of the California Department of Pesticide Regulation, and private tests by the Consumers Union, researchers discovered that organic foods consistently had about one-third of the pesticide residues found in conventionally grown foods (Baker, Benbrook, Groth, & Lutz Benbrook, 2002). This is significant because pesticide exposure has been linked to cancers and various other health risks, especially among children (Jurewicz et al., 2006).

In terms of environmental impact, a comprehensive comparison was conducted in 2003 between organic and conventional farming methods. Areas examined included encouragement of biodiversity, resource use, and management of soil, water, and air quality. Organic farming was found to be more environmentally friendly by almost all measures, although the benefits also depended on the size of the farm and different management methods employed by the individual farmer (Shepherd et al., 2003).

Availability of Organic Foods

Research has shown that accessibility is a crucial predictor of organic purchasing habits. One study confirmed that demographic variables had less influence on organic food purchases

than search costs and availability. The conclusion was that an increase in the availability of shopping venues or the availability of organic foods in already existing conventional grocery stores could possibly decrease search costs and increase purchasing habits (Jinghan, Zepeda, & Gould, 2007).

Organic farmers are also more likely to market their foods directly to the consumer, such as at a farmers market or through a community-supported agriculture (CSA) program, than conventional farmers (Dimitri & Greene, 2002). In terms of food equity, while farmers markets are open to the public, they have limited operating hours and locations, and are often perceived as having higher prices than conventional grocery stores (Grace, Grace, Becker, & Lyden, 2007). CSAs are often advertised by word of mouth and come with high up-front fees, which also excludes lower socioeconomic populations (Macias, 2008).

In addition to economic exclusion, many of the farmers markets and CSAs are located in population centers and not in remote rural areas, which limits access for individuals living outside of urban areas. One study examining food accessibility in Minnesota's North Country found there were 78 farmers markets in Minnesota, but only nine of these served the rural areas of the state, meaning most of the food being produced in the agricultural areas was being transported and sold in urban centers (Lawrence, 2010).

In a study examining the availability of organic foods in a rural county in Nova Scotia, researchers discovered there was high demand among consumers but limited access. Focus group participants reported that there were not enough stores in their area selling organic products, and there was a lack of variety in the stores that did sell them. Accessibility was an even bigger issue for lower-income residents, who said they wanted to buy organic foods, but they were too expensive (Wadsworth & Coyle, 2007).

Several other studies have focused specifically on accessibility to organic foods in low-income areas. Though organic products are becoming more widely available, they are still more likely to be sold at food cooperatives, health food stores, and grocery stores in affluent neighborhoods. In addition to lack of availability in poor neighborhoods, studies have also found that price is a main barrier to purchasing organic foods for low-income shoppers (Zepeda, Chang, & Leviten-Reid, 2006; Webber & Dollahite, 2008).

Economic availability is a key factor given that consumers often pay price premiums for organic foods. A study found that an all-organic diet could cost up to 49% more per week for a family of four than a non-organic diet (Brown & Sperow, 2005). In another study evaluating the price elasticity of various food items, some products, including meat, fruit, cereal, and milk, were more elastic than others, meaning demand for the product declined as the price increased (Andreyeva, Long, & Brownell, 2010).

Several studies have focused on consumers' willingness to pay price premiums on organic food items. Nearly half of the respondents in a survey on organic olive oil reported that they would choose the organic version if the prices were equal, but they were not willing to pay a premium on the organic product (Nikos, Stella, George, & Prodromos, 2009). Another study found that consumers tended to be more willing to pay price premiums for fresh, as opposed to processed, organic products (Gifford & Bernard, 2008).

Attitudes Toward Organic Foods

Various studies have found consumer attitudes toward organic foods to be favorable overall. A survey of university students examining how attitudes toward organic foods influenced purchasing behaviors found that knowledge and age were important factors in

influencing attitudes toward organic products, as younger students who were more knowledgeable about organics were more likely to have favorable opinions. The study found that positive attitudes did significantly affect behaviors and increase purchases of organic products (Dahm, Samonte, & Shows, 2009).

Another study found that primary socialization was a stronger predictor of shopping behaviors than knowledge of organic foods. Family influence and cultural perspectives, such as concern for the environment, were found to be important in shaping attitudes toward organic products and purchasing decisions. In the study, it was also determined that females in general had more positive attitudes toward organic products than males (Gotschi, Vogel, Lindenthal, & Larcher, 2010). However, in terms of gender, other evidence has indicated that while women tend to have more positive views toward purchasing organic foods, men are more willing to pay price premiums (Ureña, Bernabéu, & Olmeda, 2008).

One study that examined firefighters' perceptions toward alternative food networks acknowledged that there is a common stereotype that organic foods are mainly purchased by "rich, educated, Caucasian" women, although studies are now showing that people of all races and genders are purchasing organics (Scholten, 2006). In focus groups involving African-American and Caucasian shoppers, researchers found that while the African-American groups has less overall knowledge of organic food products, their attitudes toward organics tended to be more positive and receptive (Zepeda, Chang, & Leviten-Reid, 2006).

Though there were numerous studies in the literature examining consumer attitudes toward organic foods, there was limited research found regarding grocery store personnel attitudes and opinions of organic foods. One isolated study was found and will be discussed in the subsequent section.

Influence of Grocery Stores

Supermarkets, or lack thereof, have a significant impact on the dietary habits of communities based on where they are located, what food products they sell, and what prices they set for these products. Many choices about what foods to offer are based on a supermarket's desire to compete with other nearby stores, meaning that where there is less competition, such as in a rural area, there also tends to be less variety. Less variety often means less diversity in consumer diets, which can lead to poor diet quality (Hawkes, 2008).

A study conducted in New Mexico examining store manager attitudes toward organic products indicated that one of the main reasons a store might not offer organic products is lack of availability in their distribution channels. However, the study also found that in stores where organic products were available, managers perceived customer demand to be high and believed offering organic products was a good marketing strategy, while at stores where organics were not available, managers perceived customer demand to be low and did not believe offering organic products was an effective marketing strategy (Ireland & Falk, 1990).

In addition to availability, store managers can influence consumer purchasing habits through their in-store marketing efforts. Studies have shown that the quality and variety of fruits and vegetables available at a grocery store can significantly impact the store's image, and display size and placement are crucial to purchase decisions (Durham, Johnson, & McFetridge, 2007).

Outside of the studies above, there was little research found about the attitudes and influence of grocery store personnel on product availability and marketing. The current study will attempt to fill some of the gaps in the literature.

There were two research objectives in this study. The first objective was to identify which factors affect the attitudes, perceptions, and knowledge of grocery store personnel toward

organic foods, including their individual characteristics, store characteristics, and local market characteristics. The second objective was to determine whether the attitudes, perceptions, and knowledge of grocery store personnel affect the availability of organic food products at their stores.

CHAPTER 3: METHODOLOGY

Participants

This study surveyed a nationwide sample of grocery store personnel involved in marketing and product selection through an on-line survey. The e-mail addresses were obtained from the "Supermarket, Grocery, and Convenience Store" database available through www.marketresearch.com. The site defined convenience stores as stores that are relatively small and sell only basic food items and general merchandise, while grocery stores may be small or large but offer a wider array of food and household items. The database provided contact information for 24,057 representatives of chain superstores, supermarkets, specialty stores, and convenience stores across the country, as well as information about each store's size, total sales, locations, and product offerings. Individuals without e-mail addresses or with duplicate e-mail addresses were eliminated, leaving 16,079 e-mail contacts from the database.

The contacts from the database were sent an e-mail containing a link to an on-line survey administered through Survey Monkey. The body of the e-mail included a brief description of the purpose of the study, an explanation of informed consent, and a request for their participation. A second e-mail was sent several days later to follow-up and remind them again to fill out the survey. See appendices for the survey instrument and the cover letter contained in the e-mail.

Of the contacts obtained through the "Supermarket, Grocery, and Convenience Store" database, 173 responded to the survey. Surveys that did not contain full responses to the attitude and knowledge scales in the survey were eliminated, resulting in a sample of 129 responses that were included in the analysis.

Instruments

The survey questionnaire included a section for demographic information of the individual, including gender, age, race, and education level; questions about the location and type of store they operate; and questions about the availability of organic foods at their store, such as what types of items are sold and how many different types of items. The survey also contained multi-item attitudinal scales on organic products, and respondents were asked to rate their agreement on a five-point Likert scale to determine their perceptions of barriers to offering organic food products, their general attitudes toward organic products, and their knowledge of organic products.

The questionnaire was developed based on components from several existing surveys found in the literature (Brown, 2003; Dahm, Samonte, & Shows, 2009; Ireland & Falk, 1990). The instrument was reviewed by qualified experts, including two university faculty members involved in food or retail marketing research and an experienced grocery store manager, to check for content validity prior to the study.

For the measure of perceived barriers to offering organic products, respondents ratings for five possible barriers ranging from 1 (not a barrier at all) to 5 (strong barrier) were added up. The barrier total may range from 5 to 25, with greater numbers indicating higher overall perceived barriers.

For the attitude scales regarding the quality, environmental impact, and customer demand for organic products, respondents ratings for a series of statements ranging from 1 (strongly disagree) to 5 (strongly agree) were added up. The quality total may range from 5 to 25, with greater numbers indicating more positive attitudes toward the quality of organic foods. The environmental impact total may range from 4 to 20, with greater numbers indicating more

positive attitudes toward the environmental benefits of organic foods. The customer demand total may range from 5 to 25, with greater numbers indicating more positive attitudes toward customer demand for organic foods.

For the measure of knowledge, respondents ratings for two statements about their knowledge and awareness of organic foods ranging from 1 (strongly disagree) to 5 (strongly agree) were added up, and then they were asked to identify which criteria an organic product must meet to display the USDA Organic Seal. The knowledge total may range from 2 to 16, with greater numbers indicating greater knowledge and awareness about organic foods. Items included under each measure are listed in Table 1.

A reliability test using the Cronbach's alpha statistic was conducted after data collection to measure the reliability of the instrument and the internal consistency within the attitudinal measures.

The availability of organic foods at the stores was measured using an item in the survey that asked store personnel which types of organic products were sold at their stores. They were given a list of 14 product categories, including fruits, vegetables, dairy/milk products, eggs, meat/poultry/seafood, dry goods, baked goods, canned goods, frozen foods, beverages, snack foods, ready-to-eat items, pet foods, and baby food, and asked to select all that apply. There was also an "Other" option that allowed the respondents to write in additional items. The number of types of organics reported ranged from 0 to 16.

The collected data were merged with county-level geographical contextual information using the USDA's Food Environment Atlas data to determine the local environmental characteristics of each store location, based on the county reported by each respondent. The Food Environment Atlas provides data on 168 county, state, and regional food environment indicators,

such as access to grocery stores and food prices, that may impact the health and wellness of area residents. It also lists various community characteristics, such as demographic composition and median income, that may affect the food environment. For the purposes of this study, the county-level variables of Number of Grocery Stores, Grocery Stores Per 1000 Residents, Relative Price of Milk (defined as the regional average price of low-fat milk relative to the national average price), Number of Farms with Direct Sales, Number of Farmers Markets, Percentage Caucasian/White, Median Income, Poverty Rate, and Metro Counties were selected for analysis from the Food Environment Atlas. The measure of farms with direct sales indicates the number of farms in the county that sell directly to consumers. This variable, along with the number of farmers markets, was included in the study to represent the local food environment of the counties. Metropolitan counties are defined as urbanized areas containing cities with 50,000 or more residents, including any outlying counties that are economically tied to the central metropolitan county (USDA, 2003).

Analysis

The first research question addressed in this study was "What are the determinants of grocery store personnel's perceived barriers, attitudes, and knowledge toward organic foods?" Multi-variate regression analyses were conducted for the five dependent variables of perceived barriers, knowledge, and attitudes related to the quality, environmental impact, and customer demand for organic products to determine which individual, store, and county characteristics are important predictors.

The second research question was "Do the perceived barriers, attitudes, and knowledge of grocery store personnel affect the availability of organic foods at their stores?" Multi-variate

regression analyses were conducted for the dependent variable of organic availability, using perceived barriers, the three attitude scales, and knowledge as the independent variables. The tests were run alone, and then again controlling for individual, store, and county characteristics. All analyses were conducted using SPSS statistical software.

CHAPTER 4: RESULTS

Descriptive statistics for the survey responses are reported in Table 1. Overall, respondents reported a moderate level of Barriers (Means=2.160-2.780 on a five-point scale), with "Higher Prices" being the greatest reported barrier to offering organic foods and "Shorter Shelf Life of Products" being the lowest.

The respondents had somewhat positive attitudes toward organic foods based on the measures of Quality (Means=3.080-3.550 on a five-point scale), Environmental Impact (Means=3.510-4.260 on a five-point scale), and Customer Demand (Means=3.430-3.950 on a five-point scale). Within the quality measure, the statement agreed with most was that organic foods are "healthier" than non-organics, while the statement with the lowest agreement was that organic foods "taste better." Within the environmental impact measure, the statement agreed with most was that organic foods have lower levels of pesticides, while the statement with the lowest agreement was that organic foods promote more humane treatment of animals. Within the customer demand measure, the statement agreed with most was that offering organic foods improves a store's image, while the statement with the lowest agreement was that organic foods are popular among customers.

The respondents also reported somewhat high levels of Knowledge (Means=3.760-3.770 on a five-point scale, and 4.500 on a six-point scale). The reported levels of attitudes and knowledge support findings from previous studies which have found that attitudes toward organic foods are generally favorable and that knowledge is positively correlated with opinion (Dahm, Samonte, & Shows, 2009).

Respondents were grouped into five job title categories, including Manager/Department Manager (N=34, 26.4%), Marketing Personnel (N=27, 20.9%), Owner/Chief Officer (N=23, 17.8%), Buyer/Procurement Specialist (N=19, 14.7%), and Other Personnel (N=26, 20.2%), which included individuals not considered to be directly involved with product selection or marketing, such as accounting, human resources, information technology, and real estate personnel. They were also categorized by age groups, including 29-39 (N=22, 18.3%), 40-49 (N=39, 32.5%), 50-59(N=44, 36.7%), and 60 and up (N=15, 12.5%), and by education level, including High School/GED/2-year Degree (N=38, 30.9%), 4-year Degree (N=56, 45.5%), and Post-Graduate Degree (N=29, 23.6%). The majority of the respondents were male (N=86, 69.9%) and Caucasian/white (N=114, 92.7%).

The majority of the respondents worked for Large Supermarkets/Super Stores (N=73, 56.6%), with other store type categories including Small Grocery Stores (N=15, 11.6%), Natural/Gourmet Food Stores (N=33, 25.6%), and Convenience Stores (N=8, 5.4%). There was one respondent who worked for a liquor store who was included in the Convenience Store category. The stores were also grouped by type of chain, including Independently Owned (N=37, 28.7%), State Chain, or a chain operating within a single state, (N=21, 16.3%), and Regional or National Chain (N=71, 55.0%).

The average number of grocery stores in the counties where the respondents worked was 216.550 (SD=405.158), while the average number of grocery stores per 1,000 residents was 0.199 (SD=0.086). The average relative price of milk was 0.990 (SD=0.133), the average number of direct sale farms was 112.14 (SD=118.872), and the average number of farmers markets was 14.93 (SD=20.755). In terms of demographic information, the average percentage of Caucasian/white residents in the counties was 69.974 (SD=17.429), the average median

income was 55.217 (SD=14.102), and the average poverty rate was 12.605 (SD=4.002). The mean for the Metro variable was 0.88 (SD=0.331), which indicates that the majority of the counties were considered metro counties.

The reliability test conducted using the Cronbach's alpha statistic showed strong internal consistency for each of the measures of perceived barriers, attitudes, and knowledge for organic products, especially among the attitude measures. This justifies the use of totals for the barrier, attitude, and knowledge scales for subsequent statistical tests in the study. The results of the reliability test are shown in Table 2.

In addition, correlation coefficients were computed among the five scales. The results of the correlational analyses presented in Table 3 show that the grocery store personnel's perceived barriers, attitudes, and knowledge are significantly correlated with each other. Perceived barriers were negatively correlated with attitudes and knowledge, while all attitude scales and knowledge were positively correlated.

The results of the multi-variate regression analyses that were conducted for the five dependent variables of perceived barriers, attitudes, and knowledge are shown in Table 4. In the analyses of the relationship between the five job title categories – owner/chief officer, manager, marketing personnel, buyer, other personnel – and perceived barriers to offering organic foods, the group of other personnel reported significantly lower barriers than store managers [B= -2.140(1.038), $p<0.05$]. The owner/chief officer and marketing personnel also reported lower barriers compared to store managers, but these differences were not statistically significant. Among the other individual characteristics of gender, age, ethnicity, and education no significant results were found regarding perceived barriers.

The analyses showed store type to be a strong predictor of perceived barriers. Compared to the personnel at large supermarkets and super stores, those who worked at natural/gourmet food stores reported significantly lower barriers [B= -3.520(1.187), $p<0.01$] and personnel at convenience stores reported significantly greater barriers [B=7.240(1.342), $p<0.001$]. Small grocery store personnel reported slightly higher barriers to offering organic foods than those at large supermarkets and super stores on average, but the difference was not statistically significant. Type of chain was also not a significant predictor of barriers.

Among the county characteristics, there was a weak negative correlation between metro counties and perceived barriers [B= -2.059(1.211), $p<0.10$] and a weak positive correlation for relative price of milk [B=6.550(3.572), $p<0.10$]. No other statistically significant relationships were found among the county characteristics.

There were no significant differences found among the individual characteristics related to attitudes about the quality of organic foods. Among the store characteristics, personnel from small grocery stores reported significantly more negative attitudes [B= -3.248(1.689), $p<0.10$] than personnel from large supermarkets and super stores. While personnel at natural/gourmet food stores and convenience stores tended to have more positive attitudes than those at large supermarkets, the differences were not statistically significant. Personnel from state-wide chains [B= -3.016(1.526), $p<0.10$] and regional/national chains [B= -2.294(1.331), $p<0.10$] reported slightly lower attitudes toward quality than personnel from independently owned stores.

Among the county characteristics, there was a strong negative correlation between the percentage of white residents and attitudes about the quality of organic foods [B= -0.164(0.055), $p<0.01$]. There was also a negative correlation between the average price of milk in the county and store personnel's attitudes about the quality of organic foods [B= -9.338(5.035), $p<0.10$].

In the regression of attitudes toward the environmental impact of organic foods, males were found to have a slightly more negative attitude [B= -1.703(0.939), $p<0.10$], but there were no other significant differences found among the individual characteristics related to environmental impact. Among the store characteristics, personnel at Small Grocery Stores were found to have more negative attitudes toward the environmental impact of organic foods than other store types [B= -3.194(1.423), $p<0.05$]. No significant correlations were found between county characteristics and attitudes about the environmental impact of organic foods.

In the regression of customer demand for organic foods, there were no significant correlations among the individual characteristics, but store and county characteristics were both strong predictors. Among the different store types, personnel at natural/gourmet food stores were found to have significantly more positive attitudes toward customer demand than large supermarkets and super stores [B= 2.856(1.365), $p<0.05$], which personnel at convenience stores had significantly more negative attitudes [B= -5.772(1.648), $p<0.01$]. There were no significant differences found between the types of chains.

Among county characteristics affecting the attitudes toward customer demand for organic foods, the number of grocery stores showed a somewhat strong negative correlation [B= -0.006(0.003), $p<0.05$], while the number of stores per 1,000 people showed a somewhat strong positive correlation [B= 13.153(6.159), $p<0.05$]. A slight negative correlation was found for the relative price of milk [B= -8.366(4.239), $p<0.10$], and a strong negative correlation was found for the percentage of white residents [B= -0.125(0.046), $p<0.01$].

For the measure of knowledge of organic foods, individuals with post-graduate degrees were found to have significantly higher reported knowledge [B= 1.073(0.576), $p<0.10$] than individuals with four-year degrees. Individuals with two-year degrees reported less knowledge,

but not significantly less. No other significant differences were found among the individual characteristics.

Personnel at convenience stores reported significantly less knowledge [B= -3.535(0.923), $p<0.001$] than personnel at large supermarkets and super stores. Personnel at small grocery stores reported less knowledge and natural/gourmet food stores reported more knowledge on average, but were not statistically significant. Among the store characteristics, personnel at regional and national chains also reported slightly less knowledge [B= -1.065(0.627), $p<0.10$] than independently owned stores. Among the county characteristics, relative price of milk [B= -4.354(2.373), $p<0.10$] and percentage of white residents [B= -0.079(0.026), $p<0.01$] were found to have significantly negative correlations with the store personnel's knowledge.

The results of the multi-variate regression of availability of organic products for perceived barriers, knowledge, and attitudes are shown in Table 5. Four regression models were estimated with different sets of control variables. Attitude toward customer demand was found to be the strongest predictor of organic availability [B= 0.378(0.087), $p<0.001$], which remained consistently significant as individual variables [B= 0.402(0.097), $p<0.001$], store variables [B= 0.395(0.095), $p<0.001$], and local variables [B= 0.335(0.099), $p<0.01$] were added to the model. There was a significant negative correlation between perceived barriers and organic availability [B= -0.314(0.080), $p<0.001$], which remained significant when individual variables [B= -0.319(0.087), $p<0.001$] were controlled for. Perceived barriers became a weaker predictor of availability as store variables were controlled for [B= -0.180(0.100), $p<0.10$], and became completely insignificant when county variables were added. This is not surprising as the earlier regression showed that perceived barriers are significantly determined by store types and county characteristics, such as metro/non-metro. Attitude toward the quality of organic foods showed a

significant negative correlation with availability only when controlling for individual variables [B= -0.206(0.102), $p<0.05$], but not when store and store and county characteristics were controlled for.

Controlling for attitudes, perception, and knowledge, organic availability was positively correlated with individuals in the 29 to 39 age group [B= 1.684(1.012), $p<0.10$], which remained significant when store variables were controlled for [B= 1.707(0.979), $p<0.10$], but not county variables. Availability was found to be lower when the store personnel was non-white [B= -2.299(1.364), $p<0.10$], which remained significant as store and county variables were controlled for [B= -3.126(1.345), $p<0.05$] and [B= -3.410(1.651), $p<0.05$, respectively].

In addition to store personnel's attitude, perception, and knowledge, convenience stores were shown to have a consistent strong negative correlation with organic availability when controlling for individual and store variables [B= -5.868(1.515), $p<0.001$] and county variables [B= -6.933(1.641), $p<0.001$]. No other store characteristics were found to be significant predictors of availability. Among the county characteristics, a slight positive correlation was found between organic availability and metro counties [B= 2.231(1.201), $p<0.10$].

CHAPTER 5: DISCUSSION

Even with the growing popularity of organic foods, previous studies have indicated that certain barriers, including geographic location and cost, prevent some consumers from accessing these products (Zepeda, Chang, & Leviten-Reid, 2006; Wadsworth & Coyle, 2007; Webber & Dollahite, 2008; Lawrence, 2010). The purpose of this study was to determine what factors might affect the availability of organic foods by examining the potential influence of grocery store personnel.

The first research objective was to identify which factors affect the attitudes, perceptions, and knowledge of grocery store personnel toward organic foods, including individual-, store-, and county-level characteristics. Individual characteristics, including job title, gender, age, ethnicity, and education, were not found to be strong predictors of attitudes. Previous studies have found that gender is influential, with women tending to have more positive attitudes than men (Gotschi, Vogel, Lindenthal, & Larcher, 2010; Ureña, Bernabéu, & Olmeda, 2008). While the findings in this study do support this as male personnel reported slightly more negative attitudes, the difference was not statistically significant. Previous research has also shown that younger individuals tend to have more favorable opinions of organic products, but these findings did not support this (Dahm, Samonte, & Shows, 2009).

Store type was found to be a strong predictor of attitudes, especially regarding perceived barriers and customer demand. Out of the types of stores examined, personnel from natural/gourmet food stores had significantly lower perceived barriers and more positive attitudes about customer demand for organics, and personnel from convenience stores had

significantly higher perceived barriers and more negative attitudes about customer demand. This should be expected given that natural food stores are probably more likely to carry high-priced food products and cater to health-conscious consumers, while convenience stores carry a wide range of non-food consumer essentials and a substantially limited variety of food products.

Among the county-level characteristics, relative price of milk and percentage of white residents proved to be the strongest predictors of attitudes toward organics. The findings indicate that as the price of milk increases, perceived barriers increase and knowledge and attitudes toward organics will decrease. This variable may be representative of overall food costs, so it would make sense that in areas with higher food costs, consumers may be less willing to pay price premiums on organic foods, so attitudes toward organics may be more negative.

It is unclear why counties with more white residents would have more negative attitudes toward organic foods, especially when controlling for other variables, such as median income and metro counties. However, this does support the findings from the literature that organic shoppers no longer fit a single stereotype and that people of all races, particularly African Americans, have been shown to have positive attitudes toward organics (Scholten, 2006; Zepeda, Chang, & Leviten-Reid, 2006). It is also possible that white consumers may be more likely to seek out local food sources, so they may have a negative view of the non-local organic foods sold in grocery stores.

The second objective in the study was to determine whether the attitudes and knowledge of grocery store personnel affect the availability of organic foods at their stores. Attitude toward customer demand for organic products was the strongest positive predictor of availability, while perceived barriers had the strongest negative correlation. This is a logical conclusion, and it supports previous findings from New Mexico groceries that organics are more likely to be made

available if store managers perceive barriers to be low and customer demand to be high (Ireland & Falk, 1990). Moreover, it is noteworthy that the effect of perceived barriers is weakened as store and county characteristics are accounted for, while the effect of attitudes regarding customer demand is persistent in all four regression models. Though similar to the study conducted in New Mexico, this study provides stronger evidence because it involved a nationwide sample, used multi-item scales, and controlled for individual, store, and county characteristics in the results.

Other significant findings about organic availability were that younger age and white race are correlated with greater availability of organic products. Whether this is an indication of the positive influence of store personnel from a younger generation and from a white racial group on adoption of organic product lines, or it simply reflects that while younger individuals are more likely to be hired in stores where organics are available could not be determined in this study. Given the lack of a significant relationship between age and attitudes toward organic products in this study, the latter may be more likely true.

There was also a strong negative association between convenience stores and organic availability, which is in line with the findings about the perceptions regarding barriers and customer demand among convenience store personnel. Moreover, the finding that convenience stores were a strong negative predictor of organic availability even after controlling for their attitudes regarding customer demand supports the explanation that these types of stores carry significantly different products than larger grocery stores and suggests potential disadvantages for people who have few alternative grocery outlets.

Some of the limitations in this study include the low response rate, which is to be expected for an on-line questionnaire, but it could have strengthened the research and made the

findings more generalizable if a larger group had been surveyed. Generalizability also could have been improved if the sample had been more racially diverse, although the sample was quite diverse in terms of age, education level, and geographic location. One possible explanation for the low response rate could be the high participant burden caused by the length of the survey. It may have been unreasonable to expect respondents to devote so much time to filling out the survey, especially given that grocery store personnel have demanding schedules and may not spend the majority of their day working at a computer.

In conclusion, these findings indicate that despite the growing popularity of organic products, grocery store personnel's perceived barriers to offering organic foods and their perceptions of customer demand influence availability. In addition, previous studies have indicated that accessibility is an important predictor of organic purchasing habits, and consumers living in areas where organics were not widely sold reported that they may purchase them if they were available (Jinghan, Zepeda, & Gould, 2007; Wadsworth & Coyle, 2007). This might be an indication that the assumptions of store personnel regarding customer demand can be spurious.

There is limited literature on this topic, and more research should be conducted on grocery store personnel attitudes and how they influence the availability of certain products at their stores. Grocery stores play an important role in the health of their communities by influencing what foods their customers have access to. Store personnel should recognize the impact that their opinions can have and try to make decisions based on the best interests of their customers. Availability was especially limited at convenience stores, and because organic foods may offer several health benefits to consumers, this could negatively impact the health of consumers who have limited access to larger supermarkets and natural food stores. Convenience stores might be an appropriate target for future research and interventions. While these are

generally smaller stores with limited variety, in some neighborhoods they serve as the main food source for residents, so the choices that convenience store personnel make are equally important in promoting the health and nutritional status of their customers.

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APPENDICES

APPENDIX A: TABLES

Table 1 – Sample Characteristics (N=129)

Variables	Mean	SD
# Types of Organics Available[1]	10.470	4.380
Barrier, Attitude, and Knowledge Measures		
Barrier Total[2]	**12.000**	**4.491**
Higher Prices	2.780	1.325
Limited Availability from Suppliers	2.490	1.215
Lack of Demand from Customers	2.430	1.405
Not Enough Space in Store	2.250	1.234
Shorter Shelf Life of Products	2.160	1.133
Quality Total	**16.496**	**5.318**
Higher Quality	3.230	1.266
Taste Better	3.080	1.196
Healthier	3.550	1.212
More Nutrients	3.300	1.177
Worth Higher Price	3.330	1.148
Environment Total	**15.271**	**4.081**
Better for Environment	3.810	1.074
Humane Treatment of Animals	3.510	1.213
Sustainable Farming	3.690	1.211
Lower Levels of Pesticides	4.260	0.986
Customer Demand Total	**18.295**	**4.810**
Popular	3.430	1.191
Draw Customers	3.480	1.225
Use Advertising to Market	3.540	1.275
Improve Image	3.950	0.971
Growing Market	3.890	0.954
Knowledge Total	**12.031**	**2.654**
Consider Myself Knowledgeable	3.760	1.014
Stay Up to Date	3.770	0.988
Organic Seal Criteria	4.500	1.398
Individual Characteristics		
Job Title:		
Owner/Chief Officer	17.8%	
Manager/Department Manager	26.4%	
Marketing Personnel	20.9%	
Buyer/Procurement Specialist	14.7%	
Other Personnel	20.2%	
Gender[3]:		
Female	30.1%	
Male	69.9%	

Age Group[4]:		
Age 29-39	18.3%	
Age 40-49	32.5%	
Age 50-59	36.7%	
Age 60 and up	12.5%	
Ethnicity/Race[5]:		
White	92.7%	
Non-White	7.3%	
Education Level[6]:		
High School/GED or 2-year Degree	30.9%	
4-year Degree	45.5%	
Post-Graduate Degree	23.6%	
Store Characteristics		
Type of Store:		
Large Supermarket/Super Store	56.6%	
Small Grocery Store	11.6%	
Natural/Gourmet Foods Store	25.6%	
Convenience Store	6.2%	
Independent or Chain:		
Independently Owned	28.7%	
State Chain	16.3%	
Regional or National Chain	55.0%	
County Characteristics		
# of Grocery Stores	216.500	405.158
Stores per 1000 People	0.199	0.086
Relative Price of Milk[7]	0.990	0.133
# of Farms with Direct Sales	112.140	118.872
# of Farmers Markets	14.930	20.755
Percent White	69.974	17.429
Median Income (in 1000s)	55.217	14.102
Poverty Rate	12.605	4.002
Metro	0.880	0.331

Notes:

1) N=128 due to missing values
2) N=119 due to missing values
3) N=123 due to missing values
4) N=120 due to missing values
5) N=123 due to missing values
6) N=123 due to missing values
7) N=127 due to missing values

Table 2 – Reliability of Perceived Barrier, Attitudes, & Knowledge Scales

Scale	Cronbach's Alpha	Mean	Standard Deviation
Barriers	0.767	12.00	4.491
Quality	0.932	16.50	5.318
Environment	0.928	15.27	4.081
Customer Demand	0.904	18.29	4.810
Knowledge	0.657	12.03	2.654

Table 3 – Correlations Among the Perceived Barrier, Attitude, and Knowledge Scales

	Barriers	Quality	Environment	Customer Demand	Knowledge
Barriers	1.000				
Quality	-0.258**	1.000			
Environment	-0.192*	0.728***	1.000		
Customer Demand	-0.536***	0.486***	0.469***	1.000	
Knowledge	-0.302***	0.296**	0.334***	0.487***	1.000

Notes: Pearson r is reported. *** p<0.001, ** p<0.01, * p<0.05

Table 4 – Regression of Perceived Barriers, Attitudes, and Knowledge

	Perceived Barriers	Quality	Environment	Customer Demand	Knowledge
Individual Characteristics					
Job Title:					
Owner/Chief Officer	-0.960(1.200)	1.507(1.681)	-1.346(1.416)	0.921(1.415)	-0.082(0.792)
Manager/Dept. Manager					
Marketing Personnel	-1.585(1.065)	0.172(1.532)	-0.603(1.291)	1.678(1.289)	0.502(0.722)
Buyer/Procurement	0.303(1.104)	1.065(1.532)	-0.535(1.291)	0.396(1.290)	-0.501(0.722)
Other Personnel	-2.140(1.038)**	1.524(1.472)	-0.615(1.240)	0.624(1.239)	-0.122(0.694)
Gender:					
Female					
Male	-0.822(0.853)	-1.683(1.114)	-1.703(0.939)*	-1.285(0.938)	-0.201(0.525)
Age Group:					
Age 29-39	-0.302(1.097)	1.999(1.459)	0.705(1.229)	-1.709(1.228)	-0.921(0.688)
Age 40-49	-1.089(0.841)	0.789(1.171)	0.747(0.986)	-0.873(0.986)	-0.191(0.552)
Age 50-59					
Age 60 and up	-0.491(1.207)	-0.615(1.635)	1.842(1.377)	-0.392(1.376)	0.500(0.771)
Ethnicity/Race:					
White					
Non-White	2.168(1.712)	-0.362(2.177)	0.407(1.834)	-1.449(1.833)	-0.382(1.026)
Education Level:					
HS/GED or 2-year Degree	-0.331(0.925)	-0.451(1.269)	0.557(1.069)	-0.816(1.068)	-0.458(0.598)
4-year Degree					
Post-Graduate Degree	-1.038(0.883)	-0.658(1.222)	-0.485(1.030)	-0.378(1.029)	1.073(0.576)*
Store Characteristics					
Type of Store:					
Large Supermarket/Super Store					
Small Grocery Store	2.187(1.325)	-3.248(1.689)*	-3.194(1.423)**	-0.811(1.422)	-0.799(0.796)
Natural/Gourmet Foods Store	-3.520(1.187)***	1.489(1.621)	1.095(1.366)	2.856(1.365)**	0.918(0.764)
Convenience Store/Liquor Store	7.240(1.342)****	1.078(1.958)	-1.173(1.650)	-5.772(1.648)***	-3.535(0.923)****
Independent or Chain:					
Independently Owned					
State Chain	0.373(1.090)	-3.016(1.526)*	-0.362(1.286)	1.402(1.285)	0.413(0.719)
Regional or National Chain	0.895(0.985)	-2.294(1.331)*	0.193(1.121)	0.485(1.120)	-1.065(0.627)*
County Characteristics					
# of Grocery Stores	0.002(0.003)	-0.005(0.004)	-0.003(0.003)	-0.006(0.003)**	-0.003(0.002)
Grocery Stores per 1000	-7.178(5.338)	10.563(7.315)	-0.159(6.164)	13.153(6.159)**	-2.610(3.448)
Price of Milk	6.550(3.572)*	-9.338(5.035)*	-1.406(4.242)	-8.366(4.239)*	-4.354(2.373)*
Farms with Direct Sales	-0.003(0.004)	0.003(0.005)	0.000(0.005)	0.000(0.005)	-0.004(0.003)
Farmers Markets	-0.014(0.046)	-0.020(0.066)	-0.009(0.056)	0.067(0.056)	0.028(0.031)
Percent White	0.032(0.041)	-0.164(0.055)***	-0.057(0.046)	-0.125(0.046)***	-0.079(0.026)

Median Income (in 1000s)	-0.059(0.075)	-0.052(0.085)	0.016(0.071)	-0.069(0.071)	-0.021(0.040)
Poverty Rate	-0.042(0.266)	-0.406(0.282)	-0.042(0.237)	-0.388(0.237)	-0.127(0.133)
Metro	-2.059(1.211)*	-1.109(1.717)	-0.536(1.447)	1.786(1.446)	0.993(0.809)
R^2	0.474	0.126	-0.008	0.281	0.255
Constant Coefficient	12.101(9.249)	47.126(11.857)	22.861(9.991)	40.742(9.982)	25.855(5.589)
N	108	118	118	118	118

Notes: **** p<0.001, *** p<0.01, ** p<0.05, *p<0.10
Ordinary Least Square regression coefficients are reported, with standard errors in parentheses.

Table 5 – Determinants of Availability

	1	2	3	4
Perceived Barriers	-0.314(0.080)****	-0.319(0.087)****	-0.180(0.100)*	-0.107(0.108)
Attitudes: Quality	-0.119(0.085)	-0.206(0.102)**	-0.150(0.102)	-0.145(0.108)
Attitudes: Environment	0.126(0.109)	0.145(0.128)	0.094(0.124)	0.152(0.131)
Attitudes: Customer Demand	0.378(0.087)****	0.402(0.097)****	0.395(0.095)****	0.335(0.099)***
Knowledge	0.094(0.129)	0.153(0.147)	0.047(0.143)	-0.031(0.161)
Individual Characteristics				
Job Title:				
Owner/Chief Officer		-0.464(1.150)	0.810(1.115)	1.093(1.189)
Manager/Department Manager				
Marketing Personnel		-0.856(0.983)	0.250(0.968)	0.817(1.037)
Buyer/Procurement Specialist		1.336(1.093)	1.826(1.034)*	1.525(1.060)
Other Personnel		0.691(0.991)	1.246(0.929)	1.524(1.028)
Gender:				
Female		-0.097(0.798)		
Male			0.515(0.764)	0.940(0.826)
Age Group:				
Age 29-39		1.684(1.012)*	1.707(0.979)*	1.765(1.083)
Age 40-49		0.344(0.797)	0.290(0.753)	0.704(0.814)
Age 50-59				
Age 60 and up		-0.595(1.113)	-0.653(1.040)	-0.801(1.175)
Ethnicity/Race:				
White				
Non-White		-2.299(1.364)*	-3.126(1.345)**	-3.410(1.651)**
Education Level:				
High School/GED or 2-year Degree		-0.347(0.818)	0.092(0.817)	0.629(0.897)
4-year Degree				
Post-Graduate Degree		-0.178(0.860)	0.369(0.820)	1.185(0.885)
Store Characteristics				
Type of Store:				
Large Supermarket/Super Store				
Small Grocery Store			-1.944(1.235)	-1.309(1.333)
Natural/Gourmet Foods Store			-0.355(0.965)	0.248(1.198)
Convenience Store/Liquor Store			-5.868(1.515)****	-6.933(1.641)****
Independent or Chain:				
Independently Owned				
State Chain			-0.862(1.058)	-0.210(1.108)
Regional or National Chain			-0.010(0.933)	0.690(1.006)
County Characteristics				
# of Grocery Stores				-0.004(0.003)
Grocery Stores per 1000				8.302(5.234)
Price of Milk				-1.558(3.674)
Farms with Direct Sales				0.003(0.004)
Farmers Markets				0.060(0.044)
Percent White				-0.023(0.041
Median Income (in 1000s)				-0.083(0.071)
Poverty Rate				-0.202(0.252)
Metro				2.231(1.201)*

R^2	0.435	0.437	0.514	0.530
Constant Coefficient	6.283(2.299)	6.245(2.664)	5.416(2.716)	10.209(9.825)
N	119	110	110	108

Notes: **** p<0.001, *** p<0.01, ** p<0.05, * p<0.10
Ordinary Least Square regression coefficients are reported, with standard errors in parentheses.

APPENDIX B: STATEMENT OF INFORMED CONSENT

Statement of Informed Consent

(Included in the body of e-mail sent with link to the on-line survey): This survey of grocery store personnel is being conducted as part of a graduate research project on organic foods. Your input is very valuable and we greatly appreciate your time and participation. The survey should take less than 20 minutes to complete, and any information you share will be kept anonymous. Your participation is voluntary, and the act of completing this survey represents your consent to participate in the study. If you have any questions or concerns, please contact Rachel Adams at rahodge@olemiss.edu.

APPENDIX C: SURVEY INSTRUMENT

Survey Instrument

1) What best describes your position/job title at the store where you work?
    a. Owner
    b. Manager
    c. Assistant Manager
    d. Department Manager, Produce, Dairy, etc. (please specify): _____
    e. Marketing Director
    f. Buyer
    g. Customer Service
    h. Other (please specify): _____

2) What term(s) best describes the type of grocery store you work for? (Select all that apply.)
    a. Super store
    b. Large supermarket
    c. Small grocery store
    d. Health foods/whole foods market
    e. Gourmet foods store
    f. Ethnic foods store
    g. Produce market
    h. Butcher shop
    i. Convenience store/mini-mart
    j. Other (please specify): _____

3) Is your store: (If independently owned, skip to question #5.)
    a. Independently owned
    b. Franchise
    c. Chain

4) What best describes the franchise or chain your store is a part of?
    a. National
    b. Regional (more than one state, but not nationwide)
    c. State (operating within one state)

5) Location of the store where you work (if upper management and don't work in store, use location of office):
    State: _____ Zip Code:_____
    County: _____

6) What types of food products are available at your store? (Select all that apply)
    a. Fruits
    b. Vegetables
    c. Dairy/milk products
    d. Eggs
    e. Meat, poultry, seafood
    f. Dry goods (beans, rice, pasta, grains, etc.)
    g. Baked goods
    h. Canned goods
    i. Frozen foods
    j. Beverages
    k. Snack foods
    l. Ready to eat items
    m. Pet foods
    n. Baby food

7) Are ORGANIC food products available at your store? (If no, skip to question #10.)
    a. Yes
    b. No

8) What types of ORGANIC food products are available at your store? (Select all that apply)
    a. Fruits
    b. Vegetables
    c. Dairy/milk products
    d. Eggs
    e. Meat/poultry/seafood
    f. Dry goods (beans, rice, pasta, grains, etc.)
    g. Baked goods
    h. Canned goods
    i. Frozen foods
    j. Beverages
    k. Snack foods
    l. Ready to eat items
    m. Pet foods
    n. Baby food
    o. Other (please specify): _____

9) About what percentage of products at your store are ORGANIC? (Give rough estimate, does not need to be exact.) _____

10) Are the following factors barriers to offering ORGANIC foods at your store? (Circle a number between 1-Not a barrier to 5-Strong barrier)

	Not a barrier at all	Slight barrier	Somewhat of a barrier	Somewhat strong barrier	Strong barrier
Higher prices	1	2	3	4	5
Limited availability from suppliers	1	2	3	4	5
Lack of demand from customers	1	2	3	4	5
Not enough space in store	1	2	3	4	5
Shorter shelf life of products	1	2	3	4	5

11) Rate your agreement with the following statements about the QUALITY OF ORGANIC FOODS. (1-Strongly Disagree to 5-Strongly Agree)

	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
Organic foods are higher quality than non-organic foods.	1	2	3	4	5
Organic foods taste better than non-organic foods.	1	2	3	4	5
Organic foods are healthier than non-organic foods.	1	2	3	4	5
Organic foods contain more nutrients than non-organic foods.	1	2	3	4	5
Organic foods are worth paying higher prices for.	1	2	3	4	5

12) Rate your agreement with the following statements about the ENVIRONMENTAL IMPACT OF ORGANIC FOODS. (1-Strongly Disagree to 5-Strongly Agree)

	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
Organic foods are better for the environment than non-organic foods.	1	2	3	4	5
Organic foods promote more humane treatment of animals than non-organic foods.	1	2	3	4	5
Organic foods promote more sustainable farming practices than non-organic foods.	1	2	3	4	5
Organic foods contain lower levels of pesticides and pollutants than non-organic foods.	1	2	3	4	5

13) Rate your agreement with the following statements about CUSTOMER DEMAND FOR ORGANIC FOODS. (1-Strongly Disagree to 5-Strongly Agree)

	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
Organic foods are popular among the customers at my store.	1	2	3	4	5
The selection of organic foods at my store is a draw for customers.	1	2	3	4	5
I often use advertisements and/or in-store displays to promote organic foods.	1	2	3	4	5
Offering organic foods improves my store’s image.	1	2	3	4	5
Organics are one of the fastest growing food markets in the U.S.	1	2	3	4	5

14) Rate your agreement with the following statements about your KNOWLEDGE AND AWARENESS OF ORGANIC FOODS. (1-Strongly Disagree to 5-Strongly Agree)

	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
I consider myself to be knowledgeable about organic foods.	1	2	3	4	5
I try to stay up to date on new products and information involving organic foods.	1	2	3	4	5

15) Which of the following criteria must foods meet to display the USDA Organic Seal? (Select all that apply.)
    a. Must not use conventional pesticides
    b. Must not use synthetic or sewage sludge fertilizers
    c. Must not be genetically modified
    d. Animals must have access to the outdoors
    e. Animals must not be given growth hormones or antibiotics
    f. At least 95% of a food's ingredients must be organic to carry the USDA Organic Seal

16) Your gender:
    a. Female
    b. Male

17) Your age: _____

18) Your ethnicity:
    a. African-American/Black
    b. Asian or Pacific Islander
    c. Caucasian/White
    d. Hispanic/Latino
    e. Native American
    f. Other (please specify): _____

19) Your education level:
    a. Did not complete high school
    b. High school diploma or GED
    c. Some college
    d. College graduate (2-year degree)
    e. College graduate (4-year degree)
    f. Post-graduate degree (Master's, PhD, etc.)

Thank you for taking the time to complete this survey. Your contribution to this research is greatly appreciated. This study has been reviewed by the University of Mississippi's Institutional Review Board (IRB). The IRB has determined that this study fulfills the human research subject protection obligations required by state and federal law and university policies. If you have any questions, concerns, or reports regarding your rights as a participant of research, please contact the IRB at (662) 915-7482. Thank you.

VITA

Education
Master of Science, Food and Nutrition Services
The University of Mississippi – Oxford, MS (2010-2012)

Bachelor of Science, Hospitality Management
The University of Mississippi – Oxford, MS (2001-2005)

Professional Experience
ServSafe Instructor
The University of Mississippi – Oxford, MS (2012)

Graduate Assistant
National Food Service Management Institute – Oxford, MS (2010-present)

Part-Time Office Manager
Oxford Lafayette Humane Society – Oxford, MS (2009-present)

Lifestyles Editor
The Greenwood Commonwealth – Greenwood, MS (2007-2009)

Contributing Writer
Oxford Town – Oxford, MS (2005-2006)

Awards
The University of Mississippi, Department of Nutrition and Hospitality Management
Outstanding Graduate Student (2012)

Louisiana-Mississippi Associated Press Managing Editors Awards
Second and Third Place – Lifestyles Feature Story (2009)
First Place – Lifestyles Feature Story (2008)

Mississippi Press Association Better Newspaper Contest
First Place – Lifestyles Page or Section (2009)
Second Place – Lifestyles Page or Section (2008)