THE IMPACT OF SOCIOECONOMIC FACTORS OF CONSUMERS ON THE PERCEPTIONS OF MEAT ATTRIBUTES OF LOCALLY OR REGIONALLY PRODUCED LIVESTOCK AND PRODUCTS IN ALABAMA

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Abstract

Perceptions on meat attributes is of interest to researchers. Thus, this study focused on the impact of socioeconomic factors of consumers on the perceptions of meat attributes of locally or regionally produced livestock and products in Alabama. Data were obtained from a sample of participants from South Central Alabama, and were analyzed using descriptive statistics and ordinal logistic analysis. The respondents comprised more middle-aged or younger persons, with a fairly good education, and with low to moderate household incomes. Moreover, most (at least 67%) agreed or strongly agreed with statements on meat attributes; the exceptions were with "no difference in safety" and "hygiene", where respondents largely (at least 53%) disagreed or strongly disagreed with statements. The ordinal logistic results revealed that race/ethnicity had a significant effect on "safety"; gender had a significant effect on "no difference in safety"; age had a significant effect on "availability"; age also had a significant effect on "quality"; age and education had significant effects on "desirability"; and household size, age, education, and household income had significant effects on "hygiene." The findings suggest that, though socioeconomic factors play a major part in the perceptions of consumers, age, in particular, seems to play a prominent role.

Keywords: Socioeconomic Factors, Meat Attributes, Locally or Regionally Produced, Livestock Products

INTRODUCTION

The meaning of the terms "local" or "regional" have generated a lot of debate over the years, and various criteria have been used to define the terms. For instance, Smith & Mackinnon (2007) used a 100-mile radius as the limit for local foods. Further, Harris, Burress, Mercer, Oslund, & Rose (2000) used the criterion of foods produced within or near one's county, state, or neighboring states to define local foods. However, Hu, Woods, & Bastin (2009) and James, Rickard, & Rossman (2009) used the criterion of a product that has a state label to define local food. Additionally, Johnson (2016) viewed locally produced products from four perspectives, geography (or distance), marketing outlets, attributes of products, and issue of food deserts. However, in examining geography, she added the term "regionally produced" to the definition of locally produced, based on the definition in the 2008 Farm Bill; the quote is verbatim: "the locality or region in which the final product is marketed, so that the total distance that the product is transported is less than 400 miles from the origin of the product; or any agricultural food product that raised, produced, and distributed in…the state in which the product is produced." Johnson argued that most consumers believe that the locally marketed

foods that they purchase in those communities are produced by small farmers in their communities; thus, assuming smaller distances than is usually the case.

On the criterion of marketing outlets, she stressed that food is marketed through two main outlets, direct-to-consumer (e.g., farmers markets, roadside stands, on-farm sales, and community supported agriculture) and intermediated markets (e.g., grocery stores, restaurants, and wholesalers). In addressing attributes, she mentioned attributes such as products produced on a small family farm, an urban farm, and a farm with sustainable practices. Other notable attributes were better product quality, freshness, the support for local farmers and economy, environmentally-friendly production practices, and natural practices (no use of antibiotics or hormones). On the criterion of food deserts, Johnson pointed out that some groups see locally produced products as a way of dealing with the problem of food deserts, a way to provide fresh produce to low-income communities.

We (the authors) view local from two perspectives, the narrow sense and the broad sense. In the narrow sense, a locally produced product is any product produced in a county or surrounding counties; in the broad sense, a locally produced product is any product that is produced within a state. In defining a regionally produced product, we will go along with the USDA definition, and that is, a product that is transported and sold less than 400 miles from where the product was produced. In short, a locally or regionally produced product is one that is produced at least within one's county of residence or at most one that is produced and transported less than 400 miles.

Indeed, the local food system is one of the fastest growing agricultural sectors, and thus, it creates opportunities for small producers and local communities to enhance their agricultural marketing arena. Delate, Martin-Schwarze, & DeWittlowa (2005) emphasized that when food is grown and sold locally farmers gain, consumers gain, communities gain, and the environment gains. The farmers capture local revenues, consumers get to know their farmers and get fresh and tasty produce, communities gain because there is social positivity, and the environmental pressure is less because most of the local farmers use non-industrial methods of production. Also, Guptill & Wilkins (2002) stressed that there is a growing preference for locally produced foods among consumers, because of their preference for high quality fresh produce, and concern about the local economy, food safety, and use of techniques such as chemical production and genetic engineering. Following this, Low et al. (2015) indicated that producer participation in local food systems is growing due to rising consumer interests, and thus, consumers usually purchase such foods via direct-to-consumer markets or intermediated channels.

Locally or regionally produced products fall into two categories, crop and livestock products. As indicated earlier, the products have attributes, or perceived attributes that make them attractive to consumers. One set of livestock products that garner such interests are meat attributes. Consumer perceptions on meat attributes are important. The reason is that they give insights into the preferences of consumers. For instance, Cowee, Curtis, Harris, & Lewis (2008) mentioned that grass-fed meats and locally produced meats have gained popularity over recent years. They attributed two reasons for this phenomenon. First, they mentioned the separation between the producer and consumer; that is, the distance between producers and consumers. Second, they mentioned the increased willingness to support local producers. To Olynk (2012), consumers are becoming concerned, especially about livestock production practices and are incorporating this into their purchase decisions. The main concerns are livestock rearing practices, livestock housing, environmental impacts from livestock production (including manure, pesticides, herbicides, and fertilizer application), as well as implications of social impacts of production. The social impacts aspects cover issues such as whether the food or product was produced locally or not, and if workers were treated fairly. Olynk emphasized that consumers are interested in the production process attributes as well as product attributes. She referred to three food product attributes, search, experience, and credence, introduced by Caswell and Mojduszka in 1996 to buttress her point.

Caswell and Mojduszka (1996) referred to search attributes as those that consumers can simply examine, or by investigating about the product before purchasing it. Experience attributes are those that consumers can only ascertain the product's quality after they purchase it and "experience" it. With credence attributes, consumers cannot tell the quality of the product despite the fact that they have purchased and used it. Olynk (2012) indicated that the production process claims of products (e.g., locally produced or handling practices) cannot be verified by consumers, and therefore, these are credence attributes. She suggested the only way to allay these fears is to have the products verified using a logo (e.g., United States Department of Agriculture or some other third party). Olynk also argued that this notwithstanding (i.e., despite the fact that consumers may not be familiar with production processes or be able to verify product claims), that does not bar them from having preferences for products produced in a particular way.

That said, it is likely that socioeconomic factors could affect meat attributes of locally or regionally produced livestock. However, there are limited studies on the subject, especially in Alabama where locally or regionally produced livestock and meats are common, in particular, beef cattle and meat goats; a study on this could provide insights into consumer perceptions, and also socioeconomic factors that affect such products. The purpose of the study, therefore,

was to examine the impact of socioeconomic factors of consumers on the perceptions of meat attributes of locally or regionally produced livestock and products in Alabama. Specific objectives were to (1) identify and describe socioeconomic factors, (2) describe and assess attitudes and beliefs about attributes of beef or goat meat, (3) develop models for the perceptions on the attributes of beef or goat meat, and (4) estimate the extent to which socioeconomic factors influence the perceptions of the attributes on beef or goat meat. The rest of the paper is organized as follows: a literature review is presented; followed by the methodology, results and discussion, and conclusion.

LITERATURE REVIEW

Various researchers have studied locally or regionally produced products vis-à-vis a myriad of factors or consumer reactions. However, very few have researched the topic from the perspective of the effect of socioeconomic factors on locally or regionally produced livestock products; specifically, perceptions on meat attributes, beef, and goat meat. Some of these selected studies are described in the following literature review by regular ordered year of publication. For example, Grannis, Hooker, &Thilmany (2000) examined consumer preference for specific attributes in natural beef products, steak and ground beef. They collected data using a mail survey, and analyzed the data by descriptive statistics. They found that for both steak and ground beef the rankings (in terms of preferences) were identical in the following descending order: "no use of growth hormones", "no use of antibiotics", "grazing managed to protect streams" "grazing managed to protect endangered species", "no [use] of small or crowded pens", "beef grass-fed", "meat aged at least 14 days", and "animals raised within 250 miles or locally raised." Although the rankings for steak and ground beef were identical, the rating for steak was higher than for ground beef. As seen in this case, the locally produced attribute was ranked behind all the other attributes.

Also, Brown (2003) analyzed consumer' preferences for locally produced food in Southeast Missouri. The author obtained the data by a mail survey via random sampling techniques, and analyzed the data by descriptive statistics, percentages and chi-square tests. She found that the most important attribute to consumers when shopping for produce was freshness, followed by price. In fact, where the produce came from was the last important attribute. Also, she found that, although the term "locally produced" implied geography to respondents, the geography varied: these were part of a state and part of an adjoining state, 60%; county of residents and adjoining county (or counties), 28%; and statewide, 12%. The author also reported that respondents who had farming backgrounds were more likely to buy locally produced foods than otherwise. Respondents in rural households were more likely to

purchase locally produced foods. Those who have purchased locally produced meat from a local farmer before; those with a propensity toward quality and freshness, and those seeking foods with nutritional value had significant impacts on the propensity to seek locally produced foods. Surprisingly, socioeconomic factors, gender, age, education, and income did not have significant effects on the propensity to seek locally produced foods.

Additionally, Mennecke, Townsend, Haynes, & Lonergan (2007) assessed factors that influence consumer attitudes toward beef products. They acquired the data using a survey of national consumers and a set of college students, and analyzed their data using conjoint market analysis. They reported that, for the national consumers, the order of the rankings, were region of origin, growth promoters, cost of cut, guaranteed tender, traceability, organic certification, animal breed, steak cut, and animal feed. For the college student consumers, the order of the rankings, were region of origin, animal breed, traceability, animal feed, beef quality, cost of cut, farm ownership, growth promoters, and guaranteed tender. It appears the status of consumer, non-student or student tend to affect key factors. Overall, for both national and student consumers, the five most important factors were region of origin, animal breed, traceability, animal feed, and beef quality. On the flip side, the five least important factors were cost of cut, farm ownership, the use (nonuse) of growth hormones, and whether the product is guaranteed tender. For both the national and the college student consumers, the "ideal steak" was from a locally produced source.

Furthermore, Cowee et al. (2008) examined consumer preferences for meat attributes, using a mail survey in Nevada, and analyzed data by descriptive analysis. They reported that, overall, 55% of the respondents rated "natural production" as extremely or very important, and 36% rated "locally produced" as extremely or very important in determining their meat purchasing decisions. Also, the respondents were given the choice of four types of meat, namely, New York steak, ground beef, pork chops, and leg of lamb, and were asked their preferences depending on choices of how they were raised (i.e., locally produced, grass-fed [lean meat]), and both locally produced and grass-fed). Only New York steak results are reported here based on socioeconomic attributes. The authors found that younger males, who had full-time jobs (i.e., employment), and those who had children in household preferred locally produced New York steak. However, education, income, ethnicity, and location did not have effects on consumer preferences for locally produced New York steak. What is more, younger respondents (age), who had higher educational levels (education), who live in the Northern parts of the state (location), and who were minority (ethnicity) preferred grass-fed New York steak (lean meat). On the contrary, gender, income, children in household, and employment did not have effects on grass-fed New York steak.

Moreover, Pirog & McCann (2009) assessed if local food is more expensive than non-local food in Iowa. They collected data by in-person observations at farmers markets and supermarkets, and analyzed their data by descriptive analysis and paired t-tests. They found that generally, locally produced vegetables were sold at farmers markets and the non-locally produced vegetables were sold at the supermarkets. They also found that a market basket of locally produced vegetables was sold at $8.84 and a market basket of non-locally produced vegetables was sold at $10.45. This market basket consisted of 8 set of vegetables; specifically, zucchini, summer squash, cucumbers, string beans, sweet onions, tomatoes, and sweet corn. The mean price per pound for locally produced vegetables was $1.25 and that for the non-locally produced vegetables was $1.39. The researchers reported that there was not a statistically significant difference between the mean prices. Additionally, they found that locally produced meats were sold at butcher's shops and non-locally produced meats were sold at supermarkets. They reported that the price for a market basket of locally produced meats was $6.29, and the price for a market basket of non-locally produced meats was $6.79. The mean price per pound for locally produced meats was $3.09 and the mean price per pound for non-locally produced meats was $3.66. There was a statistically significant difference between the mean prices. In both cases, vegetables and meats locally produced were cheaper.

Further, Ridley, Shook, & Devados (2015) conducted evaluations of consumers' preference structure for locally produced beef. They acquired their data by survey techniques and analyzed them by conjoint analysis. They reported that, among three attributes, locality of production, production method, and price, the most important attribute was locality of production. Overall, the respondents viewed the attribute "locally produced", as beef produced within a mean distance of 85 miles from their location of residence. This attribute accounted for 60% of the importance of all attributes. A key finding was that as the distance of production (locality of production attribute) of beef increased, the utility (i.e., satisfaction from obtaining the meat) also decreased. The other two attributes, production method and price, accounted for 20% each of importance of attributes.

Relatedly, Xazela, Hugo, Marume, & Muchenje (2017) investigated perceptions of rural consumers on the aspects of meat quality and health implications associated with meat consumption in South Africa. They obtained data from a random sample of consumers, and analyzed the data by descriptive statistics and principal content analyses. They reported that most respondents purchased meat from the supermarket because they perceived meat there to be fresh and hygienic; most preferred to consume mutton; however, the commonly consumed meat was chicken because of its affordability. Also, there was a significant relationship between income and type of meat purchased; those with lower income tended toward cheaper meat. The

main intrinsic attribute critical to the respondents was color, because they associated color with freshness; bright reddish color for beef, pinkish color for chicken and pork, and brick red for lamb.

What is more, Brohimer (2018) analyzed consumer consideration of meat attributes in purchasing meats, using survey techniques, and analyzed the data by descriptive analysis. He reported that consumers consider or value five main attributes in purchasing meat. These were quality, type, price, flavor, as well as wellness and production practices. The latter attribute includes health, animal welfare, origin/locally produced, and organically produced. The author also reported on socioeconomic factors and know they influence meat attributes. In particular, he reported that age had mixed "preferences"; those 55 years or older were more likely to value quality, appearance, as the most important attribute; those 45 years or older were more likely to value type of meat, value/price per pound, and cut as important attributes. On the flip side, those younger, 34 years or below, were more likely to value wellness and production practices, such as health, all natural, quantity/serving per pound, and origin/locally produced as the most important attributes. Furthermore, considering gender, he reported that women were more likely than men to consider quality/appearance of meat, health, all natural, and animal welfare attribute than men. However, men were more likely to consider flavor/taste, total price per package, quantity/servings per package, intended use, and origin/locally produced. Finally, considering race, he reported that Hispanics/Latinos consider all natural and origin/locally produced as most important attributes. African Americans consider leanness/fat and organically raised as most important attributes.

Also, Felderhoff et al. (2020) evaluated factors driving consumer satisfaction related to beef quality preferences. They collected their data by survey techniques and used regression analysis, ordinary least squares and conditional logit analysis, to analyze the data. They examined attributes such as tenderness, juiciness, and flavor. They found that, overall, consumers were most satisfied with the flavor attribute, 59%. They also found that age, gender, and income affected satisfaction in various ways. Older respondents preferred (more responsive to) tenderness, and younger respondents preferred juiciness. Also, males had higher preferences to all meat attributes than females. Higher income respondents preferred tenderness; whereas, lower income respondents preferred juiciness.

The above literature could be grouped into two categories. First, preferences for attributes (Grannis et al., 2000; Brown, 2003; Cowee et al., 2008; Ridley et al., 2015; Xazela et al., 2017; Brohimer, 2018; Felderhoff et al., 2020). Second, relative importance of socioeconomic factors (Mennecke et al., 2007). Third, relative price of products (Pirog & McCann, 2009). It appears Brown (2003); Cowee et al., (2008); Xazela et al. (2017); and

Brohimer (2018) may have something to do with the current study because of the examination of socioeconomic factors in those studies also. However, Brown (2003) and Cowee et al., (2008), focus on broad attributes than specific attributes. Xazela et al. (2017) and Brohimer (2018), on the contrary, focus on specific attributes. Yet the current study's focus is on consumers mostly in rural settings in the South, in particular, Alabama, and there is a paucity of research on the subject matter in rural settings, especially in the South; thus, emphasizing the motivation of the study.

METHODOLOGY

Sampling and Data Collection

The study used a questionnaire, which comprised two sections, namely, attitudes and beliefs, and demographic information. Some of the questions on the questionnaire were adopted, with permission, from Govindasamy, Italia, & Rabin (1998). The questionnaire was revised several times. After the revisions, it was submitted to the Institutional Review Board, Human Subjects Committee, of the authors' Institution for approval. Following the approval of the questionnaire, it was administered to a convenience sample of consumers. This type of sampling was used because it was the most feasible under the circumstances, and also, because of the lack of a known sampling frame from which intended subjects could be drawn.

The data were collected using interviews and self-administered techniques in several program activity sites and the respondents were from South Central Alabama Counties, including Autauga, Barbour, Bullock, Dallas, Greene, Hale, Lowndes, Macon, Marengo, Montgomery, Perry, Sumter, and Wilcox counties. The questionnaire administration was carried out by Extension agents from various counties, specialists from the Federation of Southern Cooperatives/Land Assistance Fund, Epes, Sumter County, Alabama, as well as graduate students. The data were collected in the summer of 2013 through the spring of 2014. The initial sample size was 432, and this was considered adequate for analysis. Not all the data collected were used in the study because this study is part of a lager study and other data sets have been used in other studies.

Model Specification and Data Analysis

The analysis was conducted using descriptive statistics and ordinal logistic regression analysis. For the latter, a modified logistic regression model adapted from Banterle & Cavaliere (2009) is used, and it is stated below:

$$C_j(X_i) = \ln [P(Y>j|X_i)/P(Y\leq j|X_i)] = \beta_1 X_{i1} + \ldots + \beta_{ik} X_{ik} - \tau_j + 1 \qquad (1)$$

Where, $C_j(X_i)$ is the cumulative odds of being at or below category j of an ordinal variable with K categories, $1 \leq j \leq K-1$; i is the number of participants/consumers considered; j is the score for a category (of Y); k is the number of independent variables; Y is the dependent variable; X_{ij} represents the independent variables; β_i represents the coefficients, and т represents the cut points between categories of the dependent variable.

As stated before, the original sample size was 432; however, for the ordinal logistic regression analysis, the number of observations used was 376, due to the fact that some observations with "no responses" to some questions were dropped. This is acceptable insofar as the number of observations exceed the number of independent variables (Gujarati & Porter, 2009). Seven models were developed and used to assess the relationships. The estimation model for model 1 is:

ln (PSAF>j/PSAF≤j) = β_1HHS + β_2GEN + β_3RAE + β_4AGE + β_5EDU + β_6HHI − т + 1   (2)

Where, ln (PSAF>j/PSAF≤j) is cumulative odds of being at or below a category of the perception that locally or regionally produced beef or goat meat is generally safe to consume (safety); HHS is household size; GEN is gender; RAE is Race/ethnicity; AGE is Age; EDU is Education, and HHI is Household income.

Thus, estimation model 1 hypothesizes that the perception that locally or regionally produced beef or goat meat is generally safe to consume is impacted by household size, gender, race/ethnicity, age, education, and household income. The overall null hypothesis is that all of the regression coefficients are equal to zero or the independent variables together do not affect the perception that locally or regionally produced beef or goat meat is generally safe to consume (safety [SAF]).

Identical models, 2 to 7, were set up for statements regarding:

2. The perception that there is no difference between the safety of locally or regionally produced beef or goat meat and non-locally produced beef or goat meat (no difference [NOD])

3. The perception that a respondent would buy locally or regionally produced beef or goat meat if it were more readily available (availability [AVA])

4. The perception that a respondent would buy locally or regionally produced beef or goat meat if it were cheaper (affordability [AFF])

5. The perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal quality [taste and texture] as non-locally or regionally produced beef or goat meat (quality [QUA])

6. The perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal desirability [appearance and smell] as non-locally or regionally produced beef or goat meat (desirability [DES])

7. The perception that a respondent would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner (hygiene [HYG])

Specifically,

Model 2

$$\ln (P\text{NOD}{>}j/P\text{NOD}{\leq}j) = \beta_1\text{HHS} + \beta_2\text{GEN} + \beta_3\text{RAE} + \beta_4\text{AGE} + \beta_5\text{EDU} + \beta_6\text{HHI} - \tau + 1 \qquad (3)$$

Where: ln (PNOD>j/PNOD≤j) is cumulative odds of being at or below a category of the perception that there is no difference between the safety of locally or regionally produced beef or goat meat and non-locally or regionally produced beef or goat meat (no difference); HHS is household size; GEN is gender; RAE is Race/ethnicity; AGE is Age; EDU is Education, and HHI is Household income.

Model 3

$$\ln (P\text{AVA}{>}j/P\text{AVA}{\leq}j) = \beta_1\text{HHS} + \beta_2\text{GEN} + \beta_3\text{RAE} + \beta_4\text{AGE} + \beta_5\text{EDU} + \beta_6\text{HHI} - \tau + 1 \qquad (4)$$

Where: ln (PAVA>j/PAVA≤j) is cumulative odds of being at or below a category of the perception that a respondent would buy locally or regionally produced beef or goat meat if it were more readily available (availability); HHS is household size; GEN is gender; RAE is Race/ethnicity; AGE is Age; EDU is Education, and HHI is Household income.

Model 4

$$\ln (P\text{AFF}{>}j/P\text{AFF}{\leq}j) = \beta_1\text{HHS} + \beta_2\text{GEN} + \beta_3\text{RAE} + \beta_4\text{AGE} + \beta_5\text{EDU} + \beta_6\text{HHI} - \tau + 1 \qquad (5)$$

Where: ln (PAFF>j/PAFF≤j) is cumulative odds of being at or below a category of the perception that a respondent would buy locally or regionally produced beef or goat meat if it were cheaper (affordability); HHS is household size; GEN is gender; RAE is Race/ethnicity; AGE is Age; EDU is Education, and HHI is Household income.

Model 5

$$\ln (P\text{QUA}{>}j/P\text{QUA}{\leq}j) = \beta_1\text{HHS} + \beta_2\text{GEN} + \beta_3\text{RAE} + \beta_4\text{AGE} + \beta_5\text{EDU} + \beta_6\text{HHI} - \tau + 1 \qquad (6)$$

Where: ln (PQUA>j/PQUA≤j) is cumulative odds of being at or below a category of the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal quality [taste and texture] as non-locally or regionally produced beef or goat meat (quality); HHS is household size; GEN is gender; RAE is Race/ethnicity; AGE is Age; EDU is Education, and HHI is Household income.

Model 6

ln (PDES>j/PDES≤j) = β_1HHS + β_2GEN + β_3RAE + β_4AGE + β_5EDU + β_6HHI – т + 1   (7)

Where: ln (PDES>j/PDES≤j) is cumulative odds of being at or below a category of the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal desirability [appearance and smell] as non-locally or regionally produced beef or goat meat (desirability); HHS is household size; GEN is gender; RAE is Race/ethnicity; AGE is Age; EDU is Education, and HHI is Household income.

Model 7

ln (PHYG>j/PHYG≤j) = β_1HHS + β_2GEN + β_3RAE + β_4AGE + β_5EDU + β_6HHI – т + 1   (8)

Where: ln (PHYG>j/PHYG≤j) is cumulative odds of being at or below a category of the perception that a respondent would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner (hygiene); HHS is household size; GEN is gender; RAE is Race/ethnicity; AGE is Age; EDU is Education, and HHI is Household income.

It was assumed that the expected signs of the independent variables were not known *a priori*, since perceptions on the particular attributes being assessed vis-à-vis the independent variables were difficult to gauge because of almost non-existent work on them. The details of the independent variable names and descriptions used for the models are shown in Appendix Table 1. Similarly, the details of the dependent variable names and descriptions are shown in Appendix Table 2. The data were inputted using SPSS 26.0$^{©}$ (IBM, Armonk, NY), and the descriptive data analysis were conducted. Subsequent to that, the ordinal logistic regression analysis was run for the various models. The criteria used to assess the models were the model chi-squares, beta coefficients, and *p* values.

RESULTS AND DISCUSSION

Tables 1 and 2 present the descriptive results; however, Tables 3 through 9 show the regression results. Although the descriptive results are provided in other studies related to the broader study, they are shown here because they give a general context for this study. Table 1 depicts the socioeconomic factors of the respondents. About 63% of the respondents had a household size of 1-3 persons; 30% had a household size of 4-6 persons, and the rest had larger household sizes. The average household size was 6 (not shown in Table). Also, about 63% of the respondents were males and 37% were females. With regards to race, 88% were Blacks and 11% were Whites. Almost 51% were 44 years or less, and 48% were over 44 years of age. A closer look at the age spread shows it is about "evenly" spread (reflecting double digit

proportions), although the 20-24 years-old category was just over 10%. Furthermore, about a third (32%) had high school education equivalent or less; almost 36% had a two-year/technical degree or some college education, and a third (30%) had at least a four-year college degree. Once again, the spread of the respondents was quite uniform, except the high school or below category, which had the highest proportion of respondents (32%). Examining annual household income, 63% earned $30,000 or less, and 28% earned over $30,000. Comparing the educational level with the annual household income there appears to be a discrepancy; one would have expected the annual household incomes to be a bit higher than they are. It may be possible that the respondents are not disclosing their true income, or that South Central Alabama may not have the high paying jobs. Overall, there were more males than females, more Blacks than Whites, more middle-aged or younger persons (44 years or less) than older persons, with a fairly high educational level (nearly half with at least some college education), and with relatively low to moderate household incomes.

Table 1. Responses Regarding Socioeconomic Factors (N = 432)

Variable	Frequency	Percent
Household Size		
1-3	270	62.5
4-6	131	30.3
7-9	18	4.1
10 or more	1	0.2
No Response	12	2.8
Gender		
Male	274	63.4
Female	158	36.6
Race/Ethnicity		
Black	379	87.7
White	47	10.9
Other	6	1.4
Age		
20-24 years	44	10.2
25-34 years	89	20.6
35-44 years	89	20.6
45-54 years	78	18.1
55-64 years	73	16.9
65 years or older	58	13.4
No Response	1	0.2
Educational Level		
High School Graduate or Below	140	32.4
Two-Year/Technical Degree	71	16.4
Some College	84	19.4
College Degree	67	15.5

Post-Graduate/Professional Degree	62	14.4	Table 1…
No Response	8	1.9	
Annual Household Income			
$10,000 or less	89	20.6	
$10,001-20,000	106	24.5	
$20,001-30,000	76	17.6	
$30,001-40,000	25	5.8	
$40,001-50,000	19	4.4	
$50,001-60,000	20	4.6	
$60,001-70,000	28	6.5	
Over $70,000	27	6.3	
No Response	42	9.7	

Table 2 reflects perceptions about selected attributes of locally or regionally produced beef or goat meat. Approximately 67% agreed or strongly agreed that locally or regionally produced beef or goat meat is generally safe to consume (safety), and 40% agreed or strongly agreed that there is no difference between the safety of locally or regionally produced beef or goat meat and non-locally or regionally produced beef or goat meat (no difference in safety). Nearly 73% agreed or strongly agreed that they would buy locally or regionally produced beef or goat meat if it were more readily available (availability); 67% agreed or strongly agreed that they would buy locally or regionally produced beef or goat meat if it were cheaper (affordability), and 68% agreed or strongly agreed that they would buy locally or regionally produced beef or goat meat if it were of equal quality [taste and appearance] as non-locally or regionally produced beef or goat meat (quality). Moreover, 69% agreed or strongly agreed that they would buy locally or regionally produced beef or goat meat if it were of equal desirability [appearance and smell] as non-locally or regionally produced beef or goat meat (desirability), and 47% agreed or strongly agreed that they would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it appeared hygienic and wholesome (hygiene). Two indicators, the "no difference" attribute and the "hygiene" attribute, showed less than 50% agreed or strongly agreed with the perception measurement. This suggests either a fairly strong bent toward the "neutral" option or a bent toward the "disagreed/strongly disagreed" option, indicating simply that either respondents were not sure or they simply disagreed with the statements. This may suggest respondents concern about safety and hygiene of meat products. However, the very high "agreement" with the statement with "availability", suggests a propensity toward locally or regionally produced meat products if respondents had the option to purchase them, all things equal.

Table 2. Attitudes and Beliefs about Selected Attributes of Locally or Regionally Produced Beef or Goat Meat and/or Meat Attributes (N = 432)

Variable	Frequency	Percent
Locally or Regionally Produced Beef or Goat Meat is Generally Safe to Consume		
Strongly Agree	58	13.4
Agree	230	53.2
Neutral	111	26.6
Disagree	20	4.6
Strongly Disagree	9	2.1
No Difference between Safety of Locally or Regionally Produced Beef or Goat Meat and Non-Locally or Regionally Produced Beef or Goat Meat		
Strongly Agree	24	5.6
Agree	149	34.5
Neutral	118	27.3
Disagree	99	22.9
Strongly Disagree	42	9.7
Would Buy Locally or Regionally Produced Beef or Goat Meat if More Readily Available		
Strongly Agree	63	14.6
Agree	251	58.1
Neutral	90	20.8
Disagree	18	4.2
Strongly Disagree	10	2.3
Would Buy Locally or Regionally Produced Beef or Goat Meat if Cheaper		
Strongly Agree	65	15.0
Agree	225	52.1
Neutral	100	23.1
Disagree	28	6.5
Strongly Disagree	14	3.5
Would Buy Locally or Regionally Produced Beef or Goat Meat if of Equal Quality as Non-Locally or Regionally Produced Beef or Goat Meat		
Strongly Agree	60	13.9
Agree	235	54.4
Neutral	103	23.8
Disagree	18	4.2
Strongly Disagree	16	3.7
Would Buy Locally or Regionally Produced Beef or Goat Meat if of Equal Desirability as Non-Locally or Regionally Produced Beef or Goat Meat		
Strongly Agree	52	12.0

Agree	247	57.2	Table 2…
Neutral	93	21.5	
Disagree	27	6.3	
Strongly Disagree	13	3.0	
Would Buy Locally or Regionally Produced Beef or Goat Meat not Worrying about how Raised if it Appeared Hygienic or Wholesome			
Strongly Agree	31	7.2	
Agree	172	39.8	
Neutral	96	22.2	
Disagree	87	20.1	
Strongly Disagree	46	10.6	

Table 3 shows estimates for model 1, socioeconomic factors and their effects on the perception that locally or regionally produced beef or goat meat is generally safe to consume (safety). It reflects the overall significance of the model ($p = 0.020$), i.e., all of the socioeconomic factors jointly explain the perception that locally or regionally produced beef or goat meat is generally safe to consume. The coefficient for race/ethnicity had a statistically significant and positive effect on the perception that locally or regionally produced beef or goat meat is generally safe to consume, $p = 0.003$. The coefficient for race/ethnicity means that if race/ethnicity of a respondent were to change from White to Black, the expected ordered log odds increases by 0.842 moving from one category to the next higher category of the perception that locally or regionally produced beef or goat meat is generally safe to consume, all things equal. Identical explanations apply to the other variables in model 1. In brief, race/ethnicity, contributes immensely to the perception that locally or regionally produced beef or goat meat is generally safe to consume. That is to say, if a respondent should change from White to Black, the higher the perception would be that locally or regionally produced beef or goat meat is generally safe to consume. It appears then that race/ethnicity is a factor in the safety perception.

Table 3. Estimates for Socioeconomic Factors and their Effects on the Perception that locally or Regionally Produced Beef or Goat meat is Generally safe to Consume (Safety)

Variable	β	P
Household Size	0.045	0.478
Gender	0.209	0.339
Race/ethnicity	0.842***	0.003
Age	0.094	0.182
Education	-0.027	0.767
Household Income	0.070	0.221
Chi-square	14.997**	
	($P = 0.020$)	

***Significant at 1%; **Significant at 5%

Table 4 shows estimates for model 2, socioeconomic factors and their effects on the perception that there is no difference between the safety of locally or regionally produced beef or goat meat and non-locally or regionally produced beef or goat meat (no difference). It reflects overall non-significance of the model ($p = 0.396$), i.e., all of the socioeconomic factors jointly do not explain the perception that there is no difference between the safety of locally or regionally produced beef or goat meat and non-locally or regionally produced beef or goat meat. However, gender had a statistically significant and positive effect on the perception that there is no difference between the safety of locally or regionally produced beef or goat meat and non-locally or regionally produced beef or goat meat, $p = 0.051$. The coefficient for gender means that if the gender of a respondent were to change from female to male, the expected ordered log odds increases by 0.403 moving from one category to the next higher category of the perception that there is no difference between the safety of locally or regionally produced beef or goat meat and non-locally or regionally produced beef or goat meat, all things equal. Identical explanations apply to the other variables in model 2. In brief, gender, contributes immensely to the perception that there is no difference between the safety of locally or regionally produced beef or goat meat and non-locally or regionally produced beef or goat meat. This means that, if a respondent should change from a female to male, the more likely the individual will have the perception that there is no difference between the safety of locally or regionally produced beef or goat meat and non-locally or regionally produced beef or goat meat. In other words, females are more likely to indicate a difference between the two types of meat. This finding agrees with Brohimer (2018) where he found that females were more concerned about health attribute. Gender appears to be important regarding this attribute!

Table 4. Estimates for Socioeconomic Factors and their Effects on the Perception that there is no Difference between the Safety of Locally or Regionally Produced Beef or Goat Meat and Non-Locally Produced Beef or Goat Meat (No Difference)

Variable	β	P
Household Size	0.024	0.683
Gender	0.403**	0.051
Race/ethnicity	-0.198	0.449
Age	0.089	0.180
Education	0.076	0.368
Household Income	-0.020	0.712
Chi-square	6.251 ($P = 0.396$)	

**Significant at 5%

Table 5 presents estimates for model 3, socioeconomic factors and their effects on the perception that a respondent would buy locally or regionally produced beef or goat meat if it were more readily available (availability). It reflects overall significance of the model ($p = 0.004$), i.e., all of the socioeconomic factors jointly explain the perception that a respondent would buy locally or regionally produced beef or goat meat if it were more readily available. The coefficient for age had a statistically significant and positive effect on the perception that a respondent would buy locally or regionally produced beef or goat meat if it were more readily available, $p = 0.018$. The coefficient for age implies that if age of a respondent were to increase from one age to the next age, the expected ordered log odds increases by 0.171 moving from one category to the next higher category of the perception that a respondent would buy locally or regionally produced beef or goat meat if it were more readily available, all things equal. Identical explanations apply to the other variables in model 3. In summary, age contributes immensely to the perception that a respondent would buy locally or regionally produced beef or goat meat if it were more readily available. This finding implies that the higher the age of a respondent, the more likely the perception that he or she would buy locally or regionally produced beef or goat meat if it were more readily available. It may be that older persons have a propensity to support the local or regional economy more than younger respondents.

Table 5. Estimates for Socioeconomic Factors and their Effects on the Perception that a Respondent would Buy Locally or Regionally Produced Beef or Goat Meat
if it were More Readily Available (Availability)

Variable	β	P
Household Size	0.036	0.577
Gender	0.260	0.245
Race/ethnicity	0.017	0.952
Age	0.171**	0.018
Education	0.150	0.105
Household Income	0.073	0.217
Chi-square	18.940*** ($P = 0.004$)	

***Significant at 1%; **Significant at 5%

Table 6 presents estimates for model 4, socioeconomic factors and their effects on the perception that a respondent would buy locally or regionally produced beef or goat meat if it were cheaper (affordability). It reflects overall non-significance of the model ($p = 0.736$), i.e., all of the socioeconomic factors jointly do not explain the perception that a respondent would buy

locally or regionally produced beef or goat meat if it were cheaper. Additionally, none of the coefficients was statistically significant. However, household size and annual household income showed negative relationships to the perception. For the former, it shows that as household size increases, the perception decreases; it is plausible that as household size increases the respondent opts for non-locally or regionally produced beef or goat meat as a result of his or her tastes and preferences. For the latter, also, it means that as annual household income increases, the perception decreases; again, it is plausible that as annual household income increases, the respondent opts for non-locally or regionally produced beef or goat meat, possible because of tastes and preferences.

Table 6. Estimates for Socioeconomic Factors and their Effects on the Perception that a Respondent would Buy Locally or Regionally Produced Beef or Goat Meat if it were Cheaper (Affordability)

Variable	β	P
Household Size	-0.042	0.502
Gender	0.197	0.362
Race/ethnicity	0.098	0.723
Age	0.048	0.491
Education	0.064	0.475
Household Income	-0.026	0.641
Chi-square	3.563 ($P = 0.736$)	

Table 7 depicts estimates for model 5, socioeconomic factors and their effects on the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal quality [taste and texture] as non-locally or regionally produced beef or goat meat (quality). It reflects overall significance of the model ($p = 0.002$), i.e., all of the socioeconomic factors jointly explain the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal quality as non-locally or regionally produced beef or goat meat. The coefficient for age had a statistically significant and positive effect on the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal quality as non-locally or regionally produced beef or goat meat, $p = 0.018$. The coefficient for age means that if age of a respondent were to increase from one age to the next age, the expected ordered log odds increases by 0.170 moving from one category to the next higher category of the perception that a respondent would buy locally or regionally produced beef or

goat meat if it were of equal quality as non-locally or regionally produced beef or goat meat, all things equal. Identical explanations apply to the other variables in model 5. In summary, age contributes immensely to the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal quality as non-locally or regionally produced beef or goat meat. This implies that the higher the age of a respondent, the more likely the perception that he or she would buy locally or regionally produced beef or goat meat if it were of equal quality as non-locally or regionally produced beef or goat meat. The reason for this outcome may be that older respondents may want to try meat labeled as "locally or regionally produced" with apparently equal quality to non-locally or regionally produced counterparts. The findings are in agreement with Brohimer (2018) who found that one of the attributes of meat that older respondents preferred was quality.

Table 7. Estimates for Socioeconomic Factors and their Effects on the Perception that a Respondent would Buy Locally or Regionally Produced Beef or Goat Meat if it were of Equal Quality [taste and texture] as Non-Locally or Regionally Produced Beef or Goat meat (Quality)

Variable	β	P
Household Size	-0.028	0.660
Gender	-0.110	0.617
Race/ethnicity	-0.169	0.546
Age	0.170**	0.018
Education	0.141	0.123
Household Income	0.079	0.176
Chi-square	21.107***	
	($P = 0.002$)	

***Significant at 1%; **Significant at 5%

Table 8 depicts estimates for model 6, socioeconomic factors and their effects on the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal desirability [appearance and smell] as non-locally or regionally produced beef or goat meat (desirability). It reflects overall significance of the model ($p = 0.000$), i.e., all of the socioeconomic factors jointly explain the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal desirability as non-locally or regionally produced beef or goat meat. The coefficients for age and education had statistically significant and positive effects on the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal desirability as non-locally or regionally produced beef or goat meat, respectively, $p = 0.011$ and $p = 0.000$. The coefficient for age implies that if

age of a respondent were to increase from one age to the next age, the expected ordered log odds increases by 0.186 moving from one category to the next higher category on the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal desirability as non-locally or regionally produced beef or goat meat, all things equal. Similarly, the coefficient for education implies that if the educational level of a respondent were to increase from one level to the next, the expected ordered log odds increases by 0.331 moving from one category to the next higher category of the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal desirability as non-locally or regionally produced beef or goat meat, all things equal. Identical explanations apply to the other variables in model 6. In summary, age and education contribute immensely to the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal desirability as non-locally or regionally produced beef or goat meat. This means that the higher the age of a respondent, the more likely the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal desirability as non-locally or regionally produced beef or goat meat. Also, the more highly educated a respondent, the more likely the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal desirability as non-locally or regionally produced beef or goat meat. As in the case of quality, it may be that older respondents may want to try meat labeled as "locally or regionally produced" with seeming equal desirability as non-locally or regionally produced meats. Similarly, respondents with higher educational levels may want to try meat labeled as "locally or regionally produced" with seeming equal desirability as non-locally or regionally produced meats. Once again, the results also agree with Brohimer (2018) who found another attribute of meat that that older respondents preferred was appearance.

Table 8. Estimates for Socioeconomic Factors and their Effects on the Perception that a Respondent would Buy Locally or Regionally Produced Beef or Goat Meat if it were of Equal Desirability [appearance and smell] as Non-Locally or Regionally Produced Beef or Goat Meat (Desirability)

Variable	β	P
Household Size	-0.012	0.855
Gender	-0.194	0.387
Race/ethnicity	-0.028	0.921
Age	0.186***	0.011
Education	0.331***	0.000
Household Income	0.011	0.858
Chi-square	31.668***	
	($P = 0.000$)	

***Significant at 1%

Table 9 reflects estimates for model 7, socioeconomic factors and their effects on the perception that a respondent would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner (hygiene). It reflects overall significance of the model ($p = 0.015$), i.e., all of the socioeconomic factors jointly explain the perception that a respondent would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner. The coefficients for household size, age, and education had statistically significant and positive effects on the perception that a respondent would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner, respectively, $p = 0.002$, $p = 0.003$, and $p = 0.054$. Additionally, the coefficient for annual household income had a statistically significant and negative effect on the perception that a respondent would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner, $p = 0.057$. The coefficient for household size implies that if household size of a respondent were to increase from one size to the next, the expected ordered log odds increases by 0.186 moving from one category to the next higher category of the perception that a respondent would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner, all things equal. Similarly, the coefficient for age may mean that if age of a respondent were to increase from one age to the next, the expected ordered log odds increases by 0.198 moving from one category to the next higher category of the perception that a respondent would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner, all things equal.

Also, the coefficient for education may mean that if educational level of a respondent were to increase from one level to the next, the expected ordered log odds increases by 0.165 moving from one category to the next higher category of the perception that a respondent would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner, all things equal. Furthermore, the coefficient for annual household income may mean that if annual household income level of a respondent were to increase from one level to the next, the expected ordered log odds decreases by 0.103 moving from one category to the next higher category of the perception that a respondent would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner, all things equal. Identical explanations apply to the other variables in model 7.

Table 9. Estimates for Socioeconomic Factors and their Effects on the Perception that a Respondent would Buy Locally or Regionally Produced Beef or Goat Meat not Worrying about how it was Raised if it were Prepared in a Hygienic and Wholesome Manner (Hygiene)

Variable	β	P
Household Size	0.186***	0.002
Gender	0.047	0.822
Race/ethnicity	-0.055	0.835
Age	0.198**	*0.003
Education	0.165**	0.054
Household Income	-0.103*	0.057
Chi-square	15.799***	
	($P = 0.015$)	

***Significant at 1%; **Significant at 5%; *Significant at 10%

In sum, household size, age, education, and annual household income contribute immensely to the perception that a respondent would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner. For household size, the larger the household size of a respondent, the more likely the perception that he or she would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner. For age, the higher the age of respondent, the more likely the perception that he or she would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner. Also, for education, the higher the educational level of a respondent, the more likely the perception that he or she would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner. Finally, for annual household income, the higher the annual household income level of a respondent, the less likely the perception that he or she would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner. It appears respondents with larger household sizes, older, and with higher levels of education have a propensity to have the perception to be willing to buy locally or regionally produced beef or goat meat that is hygienically prepared. However, respondents with higher annual household incomes appear to be apprehensive about the aforementioned meat types, even if they are hygienically prepared. It is plausible that respondents with higher household incomes have more choices than worry about how hygienic locally or regionally produced beef or goat meat is.

CONCLUSION

The study examined the impact of socioeconomic factors of consumers on the perceptions of meat attributes of locally or regionally produced livestock and products in Alabama. In particular, it identified and described socioeconomic factors; discussed and assessed attitudes and beliefs about attributes of beef or goat meat; developed models for the perceptions of the attributes on beef or goat meat; and estimated the extent to which socioeconomic factors influenced the perceptions on the attributes of beef or goat meat. Overall, the socioeconomic factors depict more males than females, more Blacks than Whites, more middle-aged or younger persons (44 years or less) than older persons, with a fairly high educational level (nearly half with at least some college education), and with relatively low to moderate household incomes. Furthermore, most (at least 67%), agreed or strongly agreed with the perceptions or statements on selected meat attributes. The exceptions were in the cases of the "no difference in safety" and "hygiene" attributes, which reflected most respondents (at least 53%) disagreed or strongly disagreed with the statements. This may suggest concern with safety.

The ordinal logistic regression results showed that race/ethnicity had a statistically significant effect on the perception that locally or regionally produced beef or goat meat is generally safe to consume (safety); gender had a statistically significant effect on the perception that there is no difference between the safety of locally or regionally produced beef or goat meat and non-locally produced beef or goat meat (no difference in safety); age had a statistically significant effect on the perception that a respondent would buy locally or regionally produced beef or goat meat if it were more readily available (availability); age had a statistically significant effect on the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal quality [taste and texture] as non-locally or regionally produced beef or goat meat (quality); age and education had statistically significant effects on the perception that a respondent would buy locally or regionally produced beef or goat meat if it were of equal desirability [appearance and smell] as non-locally or regionally produced beef or goat meat (desirability); and household size, age, education, and annual household income had statistically significant effects on the perception that a respondent would buy locally or regionally produced beef or goat meat not worrying about how it was raised if it were prepared in a hygienic and wholesome manner (hygiene). None of the socioeconomic factors had a statistically significant effect on the perception that a respondent would buy locally or regionally produced beef or goat meat if it were cheaper.

Based on the preceding, all the socioeconomic factors had significant effects on the meat attributes, depending on the particular model. However, the hygiene model appears to be

the most "effective." It showed four of the six socioeconomic factors significant; followed by the desirability model, which had two of the socioeconomic factors significant. Overall, age appears to feature prominently in all the perceptions on meat attributes. Even in the case of affordability where there was no significance, it had a positive relationship. The study has contributed an insight into how socioeconomic factors affect perceptions on meat attributes of locally or regionally produced beef or goat meat. It confirms that socioeconomic factors affect consumers' perceptions in varied ways. In particular, age may play a prominent role in the influences. A major limitation of study is that the use of convenience sampling, could bias the results as it may not be representative of the entire population. Yet, it is used in research due to its ability to yield useful information that would not be otherwise possible. Future studies may be needed to confirm the results of the study.

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APPENDICES

Table 1. Variable Definitions and Description of Data for Socioeconomic Factors

Variable	Description	Mean	Standard Dev.
Household Size	1 = 1-3 2 = 4-6 3 = 7-10	3.23	1.77
Gender	1 = male 0 = female	0.34	0.47
Race/ethnicity	1 = Black 2 = White 3 = other	1.11	0.36
Age	1 = 20-24 2 = 25-34 3 = 35-44 4 = 45-54 5 = 55-64 6 = 65 or above	3.52	1.53
Education	1 = high school or less 2 = two-year/technical 3 = some college	2.60	1.45

	4 = college degree		
	5 = post-graduate/professional		
Household income	1 = $10,000 or less	3.26	2.21
	2 = $10,001-20,000		
	3 = $20,001-30,000		
	4 = $30,001-40,000		
	5 = $40,001-50,000		
	6 = $50,001-60,000		
	7 = $60,001-70,000		
	8 = more than $70,000		

Table 2. Variable Definitions and Description of Data for Meat Attributes (N = 376)

Variable	Description	Mean	Standard Dev.
Safety	0 = strongly disagree 1 = disagree 2 = neutral 3 = agree 4 = strongly agree	2.72	0.83
Difference	0 = strongly disagree 1 = disagree 2 = neutral 3 = agree 4 = strongly agree	2.01	1.11
Availability	0 = strongly disagree 1 = disagree 2 = neutral 3 = agree 4 = strongly agree	2.79	0.83
Affordability	0 = strongly disagree 1 = disagree 2 = neutral 3 = agree 4 = strongly agree	2.70	0.92
Quality	0 = strongly disagree 1 = disagree 2 = neutral 3 = agree 4 = strongly agree	2.73	0.85
Desirability	0 = strongly disagree 1 = disagree 2 = neutral 3 = agree 4 = strongly agree	2.73	0.84
Hygiene	0 = strongly disagree 1 = disagree 2 = neutral 3 = agree 4 = strongly agree	2.17	1.14