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Assessing Georgia Consumer Attitudes and Beliefs about Locally or Regionally Produced Livestock and Products

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ASSESSING GEORGIA CONSUMER ATTITUDES AND BELIEFS ABOUT LOCALLY OR REGIONALLY PRODUCED LIVESTOCK AND PRODUCTS

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Abstract

Interest in local and regional food production has been growing in the last few years. The study, therefore, assessed consumer attitudes and beliefs regarding local or regional livestock products. Data were obtained from a convenience sample of 384 participants from several counties of Georgia, and were analyzed by descriptive statistics, including chi-square tests. A majority of respondents thought using chemicals and additives in locally or regionally produced beef or goat meat was a serious or somewhat serious hazard. Consequently, many were willing to pay more for meat certified as locally or regionally produced. Furthermore, a majority agreed or strongly agreed with statements on meat attributes, such as affordability and quality. Chi-square tests showed that race/ethnicity and education had significant relationships with willingness to pay more for meat certified as locally or regionally produced. Additionally, safety, availability, quality, desirability, and hygiene had significant relationships with willingness to pay more for meat certified as locally or regionally produced.

Keywords: Consumers, Attitudes and Beliefs, Local or Regional, Willingness to Pay, Livestock Products

Introduction

Consumers are demanding food products with attributes that match their tastes and preferences. As a result of this, producers are also adapting to meeting consumer demands (Mathews and Johnson, 2013). One area in which this is occurring is in local food systems. Martinez et al. (2010) described the local food system in terms of the geographic distance between production and consumption. In this system, farmers sell directly to consumers at farmers' markets, roadside, pick-your-own, community supported agriculture, or by other direct means. Martinez et al. also provided data showing that local food systems in the U.S. account for a small but growing share of agricultural production for smaller farms; for example, the number of farmers' markets grew by 92% (2,747 to 5,274) from 1998 to 2009.

According to (Olynk, 2012), there are several types of attributes linked to quality that consumers consider when assessing products for purchase. These attributes include search attributes, experience attributes, and credence attributes. Search attributes are those in which consumers are able to identify quality before purchase through research or inspection of the product. Experience attributes are those in which consumers are able to identify quality after the product is purchased and consumed, but not prior to purchase. Credence attributes are unique in that quality cannot be assessed even after the product is purchased and consumed. Also, Schnettler et al. (2008) mentioned that when making food purchasing decisions, consumers consider different cues prior

to purchase. These cues can be classified as intrinsic and extrinsic cues. The intrinsic cues include flavor, color, and smell; the extrinsic cues include country of origin, brand, and price of the product. They stressed that the most important attribute in choosing meat is the quality.

Olynk (2012) stressed that understanding consumer preferences in the market is very important as this will allow producers, processors, retailers, and all of those involved in the supply chain to make informed decisions to provide products to the marketplace that match consumer demand and preferences. Furthermore, Short-McKendree and Widmar (2013) emphasized that consumers these days are interested in food production practices, particularly those of livestock regarding animal treatment and welfare as well as production methods. Font-i-Furnols and Guerrero (2014) also argued that it is crucial to understand the factors affecting consumer behavior regarding consumption of beef and other meat products, because consumers are the end users in the supply chain and they expect to satisfy their utility from their shopping behavior.

Several studies have explored consumer preferences for locally produced food; for example, Martinez et al. (2010) explained that motives for buying local include perceived quality and freshness of local food, and support for the local economy. In addition, other authors have explained that consumers who are willing to pay higher prices for locally produced products or foods place importance on product quality (Brown, 2003; Carpio and Isengildina-Massa, 2009); nutrition (Loureiro and Hine, 2002); the environment (Brown, 2003), and helping farmers in their states (Carpio and Isengildina-Massa, 2009). Based on the above, it is important to ascertain the attitudes and beliefs about certain types of livestock products, especially in geographical areas such as the southeast U.S. where there is paucity of research on the issue. The purpose of this study, therefore, was to assess Georgia consumer attitudes and beliefs about locally or regionally produced livestock and products. The objectives were to (1) describe socioeconomic characteristics, (2) describe and assess attitudes and beliefs about chemicals in beef or goat meat, (3) describe and assess attitudes and beliefs about selected attributes of beef or goat meat, and (4) assess relationships between socioeconomic variables as well as meat attributes or variables and willingness to pay more for beef or goat meat certified as locally or regionally produced.

Literature Review

The literature review summarizes previous related research to the subject matter, sequentially. It comprises three sections, namely, perceptions about production methods, perceptions on product attributes, and willingness to pay more for specific meat products.

Perceptions about Production Methods

Nayga (1996) assessed sociodemographic influences on consumer concern for food safety. The author found that consumers were increasingly concerned about how their food was produced, where it was produced, who produced it, and when it was transported to the market. Specifically, they wanted to know about practices and processes including irradiation, use of antibiotics, use of hormones, and application of pesticides to various products consumed.

Miles et al. (2004) examined public worry about specific food safety issues. The results showed that among 18 most worrisome issues, the use of growth hormone in food production was of the foremost concern, followed by use of antibiotics, use of pesticides, and animal welfare. The least

worrisome issues were: knowing what to do when food scare arises; hygiene standards for foods, and storage of food in the home.

Tonsor et al. (2005) evaluated European preferences for beef steak attributes. They found that about one-fifth (21%) French; nearly half (47%) German, and two-fifths (41%) British participants preferred hormone-free and genetically modified-free American steak. In addition, 40% of the French; 17% of the German, and 13% of the British participants preferred domestic beef steak to other beef steaks.

Schnettler et al. (2008) analyzed consumer perception of animal welfare and livestock production in the Araucania Region, Chile. They reported that “good” treatment of animals at slaughter and livestock feeding by grazing (free-range) had the highest ratings (5.0 and 4.4, respectively, out of 5), followed by feeding based on concentrates and raising animals in confinement (3.6 and 3.0, respectively, out of 5), and the use of hormones and feeding broiler litter recorded the lowest rating (both less than 1.5 out of 5). Humane treatment of animals was, therefore, critical or important to the consumer.

Short-McKendree and Widmar (2013) also assessed consumer perceptions of livestock products and animal welfare. They found that almost four-fifths (76%) of participants agreed that lunchmeat processed from swine and turkey naturally raised was of high-quality. Also, more than 73% agreed that they preferred meat produced from animals raised on farms with animal welfare and handling standards in place, i.e., produced by farmers certified in animal welfare techniques, produced hormone-free, and produced antibiotic-free.

Brooks and Ellison (2014) analyzed which livestock production methods matter most to consumers. They author found that over 60% of respondents preferred livestock raised without hormones; genetically modified organisms; antibiotics, and humanely raised. Other production methods of importance included free-range, organic, and grass-fed techniques.

Tackie et al. (2015) assessed Alabama consumer attitudes and beliefs about locally or regionally produced livestock and products. They reported that, at least, 79% of respondents thought that the use of chemicals, such as pesticides, antibiotics, preservatives, and artificial coloring, in producing local or regional beef or goat meat was a serious or somewhat serious hazard.

Perceptions on Product Attributes

Loureiro and Umberger (2006) investigated consumer responses about relative preferences for food safety, country-of-origin labeling, and traceability. The results showed that of the three attributes, food safety certification was the most important for consumers.

Gwin and Hardesty (2008) assessed niche meat market demand. The results showed that respondents rated taste (4.9 out of 5) as the most essential attribute; followed by “no hormones/antibiotics” (4.0); “consistent cut size/shape” (4.0); “health benefits” (3.9), and “humanely raised” (3.7). The least ranked attributes were price (3.3), followed by grass-fed (2.7), and certified organic (2.6).

Cheburet (2010) evaluated marketing goat meat and consumer preferences. The author focused on major towns and found that consumers preferred meat that is tender, easy to chew with less fatty tissues; thus, tenderness is a very important factor related to meat quality. According to the authors, factors that influenced tenderness were the animal's age at slaughter and the amount of fat and connective tissue. They stressed that goat meat is tender when the animal is between 5-8 months old.

Short-McKendree and Widmar (2013) assessed consumer perceptions of livestock products and animal welfare. They reported that participants were more concerned about food safety standards than animal welfare standards. Regarding food safety standards, they were most concerned about ground beef (69%), followed by eggs (64%), milk (63%), hot dogs (63%), and boneless chicken breast (63%). They were least concerned with Spam (48%). Regarding animal welfare standards, they were most concerned about ground beef (52%), followed by boneless chicken breast (50%), milk (49%), eggs (49%), and bacon (49%). They were least concerned with Spam (33%). In addition, the authors found that consumers had differing perceptions on food safety and animal welfare across products. For instance, taking into consideration animal welfare concerns for beef products, respondents were most concerned about ground beef (52%), beef steak (49%), and roast beef lunch meat (43%).

Hill (2013) examined consumers' preferences for goat meat. They found that consumers preferred domestic over imported goat meat. They also examined four attributes "cuts", "source", "price" and "color", and found that "cuts" and "sources of goat meat" had the most influence on consumer choice (15% each), closely followed by "price" (14%). The attribute "color" had very little importance in respondent choice with 3% relative importance.

Lister et al. (2014) investigated food values applied to livestock products. The results showed that safety and freshness of meat products ("steak beef" and "ground beef") were rated as most important by respondents, while environmental impact, animal welfare, origin, and convenience were rated as less important.

Tackie et al. (2015) analyzed Alabama consumer attitudes and beliefs about locally or regionally produced livestock and products. They found that, at least, 67% of respondents agreed or strongly agreed with statements on selected attributes on beef or goat meat, such as safety, availability, affordability, quality, and desirability.

Willingness to Pay More for Product Attributes

Tonsor et al. (2005) examined European preferences for beef steak attributes. Results showed that consumers from London, Frankfurt, and Paris were willing to pay premiums of \$7.13/lb, \$8.27/lb, and 1.01/lb, respectively, for "no hormone" steak. In addition, the consumers were willing to pay a premium of \$2.64/lb, 3.74/lb, and 5.96/lb, respectively, for steak labeled as domestic.

Loureiro and Umberger (2006) analyzed consumer responses about relative preferences for food safety, country-of-origin labeling, and traceability. They reported that consumers were willing to pay a premium of \$8.06/lb for steak for the food safety attribute; \$2.57/lb for steak for the

country-of-origin label attribute; \$1.90/lb for steak for the traceability attribute; and \$0.95/lb for steak for the tenderness attribute.

Ibrahim et al. (2008) conducted a pilot study of halal goat-meat consumption in Atlanta, Georgia. They found that most respondents were willing to pay a premium price for halal goat meat. More than 60% were willing to pay a premium above the regular price of goat meat, and over 38% were willing to pay one dollar per pound or more for halal goat meat.

Ibrahim (2008) examined consumer willingness to pay a premium for halal goat meat in Atlanta, Georgia. Consumers who earned less than \$50,000 were willing to pay a premium of 1.06 cents less than those who earned \$50,000 or higher. Also, those who consumed goat meat monthly were willing to pay a premium of 0.02 cents per pound for goat meat.

Schnettler et al. (2008) evaluated consumer perception of animal welfare and livestock production in the Araucania Region, Chile. They reported that consumers were willing to pay a higher price, 15.2%, over the normal price for meat produced using higher animal welfare standards.

Hill (2013) assessed the consumer preferences for goat meat. The author found consumers were willing to pay more for chops and cubes than other cuts. They were willing to pay \$7.52/lb for chops and \$ 6.41/lb for cubes. Also, consumers were willing to pay more for a goat that was less than one year old and on-farm slaughtered meat.

Tackie et al. (2015) investigated Alabama consumer attitudes and beliefs about locally or regionally produced livestock and products. The authors found that 75% of respondents were willing to pay more per pound for beef or goat meat. Of these, 58% were willing to pay 1-10 cents more per pound, whereas the rest (17%) were willing to pay above 10 cents more.

Methodology

Data Collection

A questionnaire was developed, including questions adopted, with permission, from Govindasamy et al. (1998), to collect the data for the study. It had two major parts: attitudes and beliefs, and demographic information. The questionnaire was submitted to the Institutional Review Board, Human Subjects Committee of the Institution for approval before being administered. The questionnaire was administered to residents using convenience sampling. Convenience sampling was used, because of a lack of a known sampling frame from which subjects could be drawn.

In the summer of 2013 through the spring of 2015, data were collected using self-administered techniques in several counties of Georgia and at the Georgia National Fair in Perry, Georgia. The respondents came from the following counties: Barrow, Bartow, Butts, Cherokee, Clarke, Clayton, Cobb, Coweta, Dekalb, Elbert, Fayette, Forsyth, Fulton, Gwinnett, Hall, Henry, Jackson, Lincoln, Morgan, Newton, Oconee, Oglethorpe, Pickens, Rockdale, Spalding, Walton (northern Georgia); Baldwin, Bibb, Bleckley, Bryan, Burke, Chattahoochee, Crawford, Dodge, Dooley, Effingham, Emanuel, Harris, Houston, Jefferson, Laurens, Macon, Marion, Monroe,

Muscogee, Peach, Pike, Screven, Sumter, Tattnall, Taylor, Troup, Upson, Wilcox (central Georgia); Appling, Brooks, Calhoun, Clay, Coffee, Colquitt, Dougherty, Glynn, Jeff Davis, Lanier, Lee, Lowndes, Mitchell, Pierce, Randolph, Terrell, Turner, Ware, and Worth (southern Georgia). Extension agents and other technical personnel in the various counties of Georgia, as well as graduate students and other technical personnel from Alabama helped with collecting the data, which came from a sample of 384 respondents. The sample of 384 respondents was considered adequate for analysis.

Data Analysis

The data were analyzed by using descriptive statistics, namely, frequencies, percentages, and chi square tests. The chi-square description is adapted from Tackie et al. (2015). The chi-square test allows the researcher to formulate a null hypothesis (Ho), which states that two variables are independent of (or not related to) each other, and an alternative hypothesis (Ha), which states that two variables not independent of (or related to) each other. In this study, the null hypothesis and alternative hypothesis are stated generally on the basis of the test of independence for two sets of variables, for example, as:

Ho: Willingness to pay more for beef or goat meat certified as locally or regionally produced is independent of (or not related to) selected socioeconomic variables.

Ha: Willingness to pay more for beef or goat meat certified as locally or regionally produced is not independent of (or is related to) selected socioeconomic variables.

To determine the chi-square, χ^2 , the formula below is used:

$$\chi^2 = \sum_{i=1}^r \sum_{j=1}^c \frac{(fo_{i,j} - fe_{i,j})^2}{fe_{i,j}}$$

Where

χ^2 = chi-square

fo = observed frequency

fe = expected frequency

i,j = values in the i^{th} row and j^{th} column, respectively

\sum = summation

The observed frequency is the frequency obtained from the survey, and the expected frequency is determined from each cell in a contingency table as row total times column total divided by the grand total. If the chi-square is significant, then the null hypothesis that the two variables are independent of each other is rejected; otherwise, it is not rejected. In the study, specifically, hypotheses were stated for willingness to pay more for beef or goat meat certified as locally or regionally produced and socioeconomic variables. In the case of household size, for example, the hypotheses were stated as:

Ho: Willingness to pay more for beef or goat meat certified as locally or regionally produced is independent of (or not related to) household size.

Ha: Willingness to pay more for beef or goat meat certified as locally or regionally produced is not independent of (or related to) household size.

Similar hypotheses were stated for the other socioeconomic variables: gender, race/ethnicity, age, educational level, annual household income, and marital status. Identical hypotheses were stated for willingness to pay more for beef or goat meat certified as locally or regionally produced and meat attributes or variables. The data were input into SPSS 12.0[®] (MapInfo Corporation, Troy, NY), and frequencies and percentages were assessed. Chi-square tests were conducted to determine relationships.

Results and Discussion

Table 1 presents the socioeconomic characteristics of the respondents. Nearly 58% had 1-3 persons in their households, and 28% had 4-6 persons in their households. The mean number of persons in the household was three (not shown in Table). About 72% of respondents were the primary shoppers of food in their households; approximately 63% were females. Considering race/ethnicity and age, 46% were Blacks and 48% were Whites; also, 50% were 44 years or less and 50% were more than 44 years of age. Furthermore, looking at education and annual household income, 18% had high school education or lower; about 43% had a two-year/technical degree or some college education; 39% had at least a 4-year college degree; 29% earned \$30,000 or less annual household income and 71% earned over \$30,000 as annual household income (including 43% who earned \$30,000-\$60,000). About 41% were singles, and 57% were married. The respondents comprised more females than males, slightly more Whites than Blacks, equal proportions of middle-aged or younger persons and older persons, with moderate to high educational levels, with moderate to fairly high household incomes, and more married than single persons.

Table 1. Socioeconomic Characteristics (N = 384)

Variable	Frequency	Percent
Number of Persons in Household		
1-3	224	58.3
4-6	109	28.4
7-9	4	1.0
10 or more	3	0.8
No Response	44	11.5
Primary Shopper of Food		
Yes	278	72.4
No	99	25.8
No Response	7	1.8
Gender		
Male	141	36.7
Female	241	62.8
No Response	2	0.5

Table 1. Continued

Variable	Frequency	Percent
Race/Ethnicity		
Black	175	45.6
White	186	48.4
Other	19	4.9
No response	4	1.0
Age		
20-24 years	69	18.0
25-34 years	54	14.1
35-44 years	68	17.7
45-54 years	79	20.6
55-64 years	84	21.9
65 years or older	27	7.0
No Response	3	0.8
Educational Level		
High School Graduate or Below	68	17.7
Two-Year/Technical Degree	56	14.6
Some College	107	27.9
College Degree	87	22.7
Post-Graduate/Professional Degree	63	16.4
No Response	3	0.8
Annual Household Income		
\$10,000 or less	40	10.4
\$10,001-20,000	30	7.8
\$20,001-30,000	43	11.2
\$30,001-40,000	31	8.1
\$40,001-50,000	45	11.7
\$50,001-60,000	38	9.9
\$60,001-70,000	49	12.8
Over \$70,000	69	18.0
No Response	39	10.2
Marital Status		
Single, never married	102	26.6
Married	220	57.3
Separated	3	0.8
Divorced	33	8.6
Widowed	18	4.7
No Response	8	2.1

Table 2 shows attitudes and beliefs about using chemicals and additives, and willingness to pay for beef or goat meat certified as locally or regionally produced. About 70% of respondents agreed or strongly agreed that purchasing locally or regionally produced beef or goat meat is safer than purchasing similar products produced non-locally or regionally. Approximately 84% indicated that residues from pesticides in beef or goat meat produced and sold locally or regionally is a serious or somewhat serious hazard. Nearly 81% of respondents indicated that residues from antibiotics in beef or goat meat produced and sold locally or regionally is a serious or somewhat serious hazard. About 89% stated that growth stimulants or hormones in beef or goat meat produced and sold locally or regionally is a serious or somewhat serious hazard. About 81% stated that artificial fertilizers in pastures used to raise beef cattle or meat goats produced and sold locally or regionally is a serious or somewhat serious hazard. Almost 83% indicated that using additives and preservatives in beef or goat meat produced and sold locally or regionally is a serious or somewhat serious hazard. Exactly 75% indicated that using artificial coloring in beef or goat meat produced and sold locally or regionally is a serious or somewhat serious hazard.

Table 2. Attitudes and Beliefs about Using Chemicals, Additives, and Willingness to Pay for Locally or Regionally Produced Beef or Goat Meat (N = 384)

Variable	Frequency	Percent
Purchasing Locally or Regionally Produced Beef Cattle, Meat Goat, and Product is Safer		
Strongly Agree	96	25.0
Agree	174	45.3
Neutral	88	22.9
Disagree	8	2.1
Strongly Disagree	10	2.6
Residues from Pesticides		
Serious Hazard	146	38.0
Somewhat of a Serious Hazard	177	46.1
Not at all a Hazard	58	15.1
No Response	3	0.8
Antibiotics		
Serious Hazard	104	27.1
Somewhat of a Serious Hazard	205	53.4
Not at all a Hazard	67	17.4
No Response	8	2.1

Table 2. Continued

Variable	Frequency	Percent
Growth Stimulants or Hormones		
Serious Hazard	174	45.3
Somewhat of a Serious Hazard	167	43.5
Not at all a Hazard	41	10.7
Artificial Fertilizers in Pastures		
Serious Hazard	125	32.6
Somewhat of a Serious Hazard	184	47.9
Not at all a Hazard	72	18.8
No Response	8	0.8
Additives and Preservatives		
Serious Hazard	117	30.5
Somewhat of a Serious Hazard	203	52.9
Not at all a Hazard	63	16.4
Artificial Coloring		
Serious Hazard	99	25.8
Somewhat of a Serious Hazard	189	49.2
Not at all a Hazard	93	24.2
No Response	3	0.8
Willingness to Pay More		
No	78	20.3
Yes, between 1 and 5 cents more	104	27.1
Yes, between 6 and 10 cents more	65	16.9
Yes, between 11 and 15 cents more	46	12.0
Yes, between 16 and 20 cents more	21	5.5
Yes, over 20 cents more	47	2.2
No Response	23	6.0
Frequency of Purchasing Locally or Regionally Produced Beef or Goat Meat		
Always	28	7.3
Very Often	52	13.5
Often	133	34.6
Quite Often	62	16.1
Not At All	91	23.7
No Response	18	4.7

Overall, at least, 75% thought adding chemicals or additives to locally or regionally produced and sold beef or goat meat is a serious or somewhat serious hazard. The results are similar to those obtained by Miles et al. (2004); Short-McKendree and Widmar (2013), Brooks and Ellison (2014), and Tackie et al. (2015) who found that consumers were concerned about chemicals in

food or meat products, particularly hormones, antibiotics, pesticides, additives and preservatives, and artificial coloring.

Approximately 20% indicated they would not pay more per pound for their favorite beef, goat meat, or related product if it were certified as locally or regionally produced. However, nearly 74% indicated they were willing to pay more for their favorite beef, goat meat, or related product if it were certified as locally or regionally produced. The spread went mostly to the first two groupings; 27% indicated they would pay between 1-5 cents more; and nearly 17% indicated they would pay between 6-10 cents more. In effect, 44% were willing to pay between 1-10 cents more; but, as the increases in price go beyond 10 cents, the percentages generally dropped (Table 2). This distribution gives an indication of the premium placed on the product. The findings are similar to those of Tonsor et al. (2005), Loureiro and Umberger (2006), Ibrahim et al. (2008), Schnettler et al. (2008), Hill (2013), and Tackie et al. (2015) who all reported that consumers were willing to pay more for preferred meat attributes. Furthermore, nearly 72% indicated that they purchased locally or regionally produced beef or goat meat, at least, quite often, including 21% stating very often and always (Table 2). There appears to be some loyalty to purchasing locally or regionally produced beef or goat meat; a good sign for the local or regional economy.

Table 3 reflects attitudes and beliefs about selected attributes of locally or regionally produced beef or goat meat. Nearly 66% agreed or strongly agreed that locally or regionally produced beef or goat meat is generally safe to consume (safety); 26% 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); 77% agreed or strongly agreed that they would buy locally or regionally produced beef or goat meat if it were more readily available (availability); 69% agreed or strongly agreed that they would buy locally or regionally produced beef or goat meat if it were cheaper (affordability). Moreover, about 72% 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); 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); 38% 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).

Generally, at least, 69% agreed or strongly agreed with statements on the selected attributes, except in the cases of no difference in safety and hygiene attributes where only 26% and 38%, respectively, agreed or strongly agreed. This means that respondents do see differences in terms of safety between locally or regionally produced beef or goat meat and non-locally or regionally produced beef or goat meat. In other words, if they had the choice they may gravitate toward purchasing locally or regionally produced beef or goat meat rather than non-locally or regionally produced beef or goat meat. Also, the response to the hygiene statement appears to support the responses on attitudes and beliefs about chemicals and additives, where a majority, at least 75%, agreed or strongly agreed with statements. These findings are in agreement with Tackie et al. (2015) who found similar trends.

Table 3. Attitudes and Beliefs about Selected Attributes of Locally or Regionally Produced Beef or Goat Meat (N = 384)

Variable	Frequency	Percent
Locally or Regionally Produced Beef or Goat Meat is Generally Safe to Consume		
Strongly Agree	67	17.4
Agree	186	48.4
Neutral	109	28.4
Disagree	14	3.6
Strongly Disagree	4	1.0
No Response	4	1.0
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	26	6.8
Agree	74	19.3
Neutral	123	32.0
Disagree	130	33.9
Strongly Disagree	27	7.0
No Response	4	1.0
Would Buy Locally or Regionally Produced Beef or Goat Meat if More Readily Available		
Strongly Agree	92	24.0
Agree	205	53.4
Neutral	64	16.7
Disagree	12	3.1
Strongly Disagree	8	2.1
No Response	3	0.8
Would Buy Locally or Regionally Produced Beef or Goat Meat if Cheaper		
Strongly Agree	97	25.3
Agree	168	43.8
Neutral	95	24.7
Disagree	17	4.4
Strongly Disagree	4	1.0
No Response	3	0.8

Table 3. Continued

Variable	Frequency	Percent
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	91	23.7
Agree	184	47.9
Neutral	81	21.1
Disagree	18	3.9
Strongly Disagree	15	1.8
No Response	6	1.6
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	84	21.9
Agree	179	46.6
Neutral	93	24.2
Disagree	14	3.6
Strongly Disagree	10	2.6
No Response	4	1.0
Would Buy Locally or Regionally Produced Beef or Goat Meat not Worrying about how Raised if it Appeared Hygienic or Wholesome		
Strongly Agree	39	10.2
Agree	105	27.3
Neutral	91	23.7
Disagree	105	27.3
Strongly Disagree	41	10.7
No Response	3	0.8

Table 4 depicts the chi-square test results between willingness to pay more for beef or goat meat certified as locally or regionally produced and socioeconomic variables. Race/ethnicity and education were significant, respectively, $p = 0.000$ and $p = 0.073$. This means that race/ethnicity and education are not independent of willingness to pay more for beef or goat meat certified as locally or regionally produced; the null hypotheses are rejected. For race/ethnicity, it probably implies that Whites more than Blacks were willing to pay more for beef or goat meat certified as locally or regionally produced. For education, it could mean the higher education one gets the more willing one is to pay more for beef or goat meat certified as locally or regionally produced. Household size, gender, age, household income, and marital status were not significant. The null

hypotheses that these variables are independent of willingness to pay more for beef or goat meat certified as locally or regionally produced are not rejected. The results partially agree with Tackie et al. (2015), in terms of education. They found gender, education, and household income significant.

Table 4. Chi-Square Tests between Socioeconomic Variables and Willingness to Pay More for Beef or Goat Meat Certified as Locally or Regionally Produced

Variable	df	χ^2	<i>p</i> value
Household size	20	18.802	0.543
Gender	5	2.171	0.825
Race/Ethnicity	10	32.514***	0.000
Age	25	23.610	0.542
Education	20	29.796*	0.073
Household Income	35	42.548	0.178
Marital Status	20	15.663	0.737

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

Table 5 shows the chi-square test results between willingness to pay more for beef or goat meat certified as locally or regionally produced and meat attributes or variables. Safety, availability, quality, desirability, and hygiene were significant, respectively, $p = 0.095$; $p = 0.016$; $p = 0.042$; $p = 0.001$; and $p = 0.006$. This implies that safety, availability, quality, desirability, and hygiene are not independent of willingness to pay more for beef or goat meat certified as locally or regionally produced; the null hypotheses are rejected. Considering safety, it probably means that respondents perceive beef or goat meat certified as locally or regionally produced generally safe to consume; therefore, they are willing to pay more for such meat. Similarly, for availability, it may mean that respondents perceive the availability of beef or goat meat certified as locally or regionally produced as a strong incentive to purchase such meat, probably in order to support the local economy.

Considering quality, it probably implies that respondents would be willing to pay more for beef or goat meat certified as locally or regionally produced if they perceive it to be of better quality than non-locally or regionally produced beef or goat meat. Moreover, for desirability, it may mean that respondents would be willing to pay more for beef or goat meat certified as locally or regionally produced if they perceive it to be of better desirability as non-locally or regionally produced beef or goat meat. For hygiene, it could mean that respondents would be willing to pay more for beef or goat meat certified as locally or regionally produced not worrying about how the animal was raised if they perceive the meat to be hygienic and wholesome. The attributes, no difference and affordability, were not significant. The null hypotheses that these variables are independent of willingness to pay more for beef or goat meat certified as locally or regionally produced are not rejected. Again, these findings are partially similar to Tackie et al. (2015), in terms of safety, desirability, and hygiene. They found safety, no difference, affordability, desirability, and hygiene to be significant.

Table 5. Chi-Square Tests between Meat Attributes or Variables and Willingness to Pay More for Beef or Goat Meat Certified as Locally or Regionally Produced

Variable	df	χ^2	<i>p</i> value
Safety	20	28.652*	0.095
No Difference	20	28.281	0.128
Availability	20	35.962**	0.016
Affordability	20	14.132	0.824
Quality	20	32.091**	0.042
Desirability	20	45.443***	0.001
Hygiene	20	39.371***	0.006

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

Conclusion

The study assessed Georgia consumer attitudes and beliefs about locally or regionally produced livestock and products. Specifically, it identified and described socioeconomic characteristics; described and assessed attitudes and beliefs about chemicals in beef or goat meat; described and assessed attitudes and beliefs about selected attributes of beef or goat meat; and assessed relationships between socioeconomic variables as well as meat attributes or variables and willingness to pay more for beef or goat meat certified as locally or regionally produced. The socioeconomic characteristics reflected more females than males, slightly more Whites than Blacks, equal proportions of middle-aged or younger persons and older persons, with moderate to high educational levels, with moderate to fairly high household incomes, and more married than single persons. A majority (at least 75%) believed that adding chemicals to locally or regionally produced and sold beef or goat meat was a serious or somewhat serious hazard.

Not surprisingly, 44% were willing to pay 1-10 cents per pound more for their favorite beef, goat meat or related product if it were certified as locally or regionally produced. Also, most (at least 69%), agreed or strongly agreed with the perceptions on selected meat attributes, except in the cases of the safety and hygiene attributes. The chi-square tests showed that race/ethnicity and education had statistically significant relationships with willingness to pay more for beef or goat meat certified as locally or regionally produced. Furthermore, safety, availability, quality, desirability, and hygiene had statistically significant relationships with willingness to pay more for beef or goat meat certified as locally or regionally produced.

On the basis of the findings, most of it concurs with those of Tackie et al. (2015), and therefore, most of this conclusion is adopted from that study. Taking into consideration the concern for chemicals in beef or goat meat, there is a need to emphasize minimum use of chemicals in locally or regionally produced livestock or products. In this regard, topics such as sustainable beef cattle and goat management could be incorporated into, or made a key part local livestock program. Moreover, since the selected meat attributes were highly rated (agree or strongly agree), these attributes should matter in local or regional livestock programs in the study area. In fact, research and Extension can help articulate these attributes.

In addition, since race/ethnicity and education tend to be important in willingness to pay more for beef or goat meat certified as locally or regionally produced; and safety, availability, quality, desirability, and hygiene tend to be important in willingness to pay more for beef or goat meat certified as locally or regionally produced, these factors should be considered in the production and sale of local or regional beef cattle or meat goat, and/or products in the study area. It is suggested that future studies involving in-depth statistical analysis be conducted.

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