

## Segmenting Niche Goat-meat Markets

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This research report provides an examination of the ratings of an important sensory attribute of chevon (goat meat) with that of beef and pork. Results from an analysis of variance of comparative ratings of the flavor of chevon and that of beef and pork suggest that selected demographic characteristics of U.S. consumers influenced the ratings of chevon's flavor with that of beef and pork. The findings indicate that Hispanics, blacks, and females should not be treated as homogenous niche markets. The results suggest that there are distinct subdivision preferences within and between these consumer partitions.

The number of farms in the South (TX, LA, OK, AK, MS, AL, FL, GA, TN, SC, NC) producing meat-type goats and the production of meat-type goats increased by 59 percent and 75 percent, respectively, between 1992 and 1997. This region accounted for 78 percent of all goat production and about 81 percent of meat-type goat production in 1997 (USDA-NASS 1997; Nelson et al. 2001). Net imports of goat meat also increased dramatically during this period (Gipson 1999). The implication of these statistics is increased goat-meat demand. The increase in meat-goat production and imports have been encouraged by a number of factors, including increases in niche-market populations with historic preferences for goat meat.

The literature on the marketing of goats and demand for goat meat is limited. What is available concentrates on addressing animal weights and carcass size desired by important niche markets (Spaugh 1997). This information void is influenced by the marketing channels used for goats and the purchase habits of consumers. However, the three most important niche markets with preferences for goat-meat products are broadly defined as Hispanics, Muslims, and those populations with African ancestry. Demand, however, for goat-meat products within and between these markets differs. Hispanics prefer kids and young goats of about 50 pounds live weight. Muslims prefer heavier goats—70 pounds live weight—and in many instances intact males. Haitians, Jamaicans, West Africans, others from the Caribbean, and African-Americans prefer mature goats (Gipson 2001; Pinkerton et al. 1994).

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While knowledge of carcass and live weights desired by niche markets is desirable, it does not provide explicit data regarding demand beyond the farm level. No studies were found which identified the importance of physical and sensory attributes of goat meat on demand. However, this type of information is available for other red meats. Hui, McLean-Meynsse, and Jones (1997) found that taste and tenderness were the first and fourth most important attributes, respectively, influencing meat-purchase decisions in Texas and Louisiana. Lusk et al. (2001) found that a majority of consumers were willing to pay an average of \$1.84/lb. more when they had completed a taste test and were also provided with information on beefsteak tenderness. Chen et al. (2002) found that Asian consumers in California ranked freshness, color, freedom from chemicals, and USDA labeling as some of the most important attributes influencing pork purchases.

Kohls and Uhl (1998) suggest that each society and subgroup within societies develop their own foodways. They further suggest that foodways govern how food is acquired, prepared, and eaten. Thus one influence of foodways is that they can result in somewhat similar and stable food preferences, eating habits, and transmission to succeeding generations. Therefore, interest in and knowledge of the importance of a product's attribute bundle is apparent. This knowledge has important implications for efficient marketing as well as its influence on demand.

It has been reported, however, that demographic characteristics influence goat-meat consumption. These reports suggest that older consumers, men, nonwhites, non-Catholics, and those with more education are more likely than others to consume goat meat (Hui and McLean-Meynsse 1996; Nelson, Abrams, Mobini, Thomas, and Oliver

1999; McLean-Meyinsse 2000; Murray, Turner, and Nelson 1999). However, there is evidence that general knowledge of goat-meat foodways is sparse. Degner and Locascio (1988) observed from primary survey data that knowledge of preparation methods of goat meat was limited in Florida. Davis and Willard (1999) also found that knowledge of goat-meat preparation methods in Texas was not widely dispersed and concluded that this lack of knowledge impacted demand. Zachery and Nelson (1992) also found that the barbecue was the predominant method of preparation used by Georgia consumers of goat meat and that knowledge of other preparation methods was limited.

### Objective

The primary goals of this study were to assess the impacts of selected demographic factors on consumer perception of goat meat. The specific objective was to study the effects of gender, race, and age on the comparison of goat meat with beef and pork.

### Methods

The data used in this report were collected at the Sunbelt Agricultural Exposition (Ag Expo) held in Moultrie, Georgia. The Ag Expo is an annual show and demonstration that exhibits the latest technology and cultural, and management practices in agriculture. The Sunbelt Agricultural Exposition is supported by industry, government, and higher educational institutions with agricultural components from Georgia, Alabama, Florida, Tennessee, and South Carolina. Attendance at the Exposition was estimated to be in excess of 200,000 visitors, with representation from across the United States.

Selected cuts from mature goats were barbecued and chipped, and samples were offered to visitors to Fort Valley State University's tent. A small café was set up in the tent advertising the goat-meat samples and the survey. Visitors who accepted samples were asked to complete a survey questionnaire. The questionnaire sought information from respondents including but not limited to demographic characteristics, past and current consumption of goat products, willingness to purchase goat meat, selected sensory evaluations of the barbecue, and sensory comparisons of the barbecue to beef and to pork. There were 293 useable questionnaires collected

but a substantial number of visitors who accepted a sample did not complete a questionnaire. Samples were offered and questionnaires were collected from about 11:00 a.m. to about 2:30 p.m. on Tuesday and Wednesday of the four-day event.

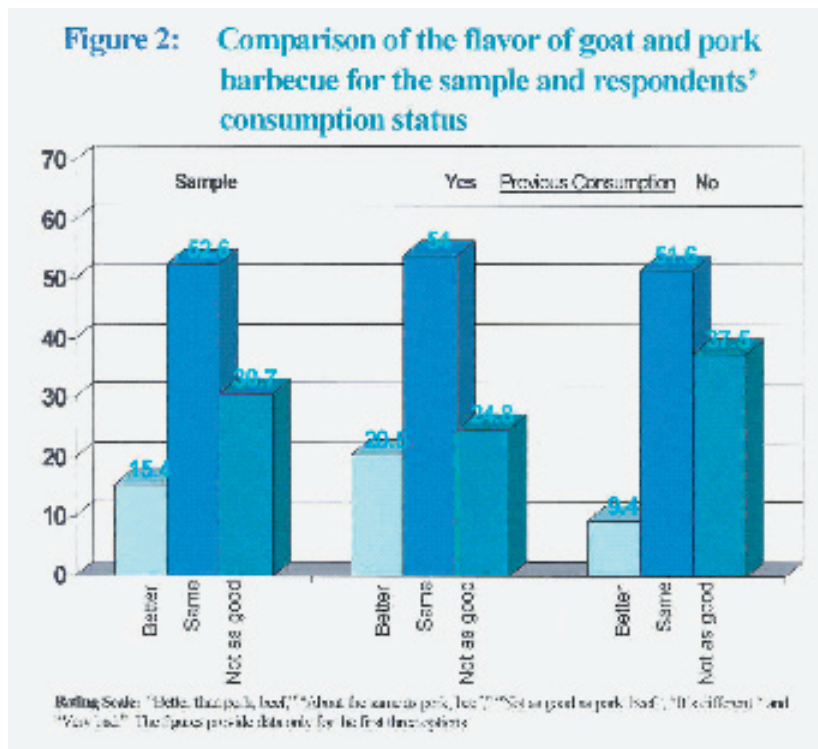
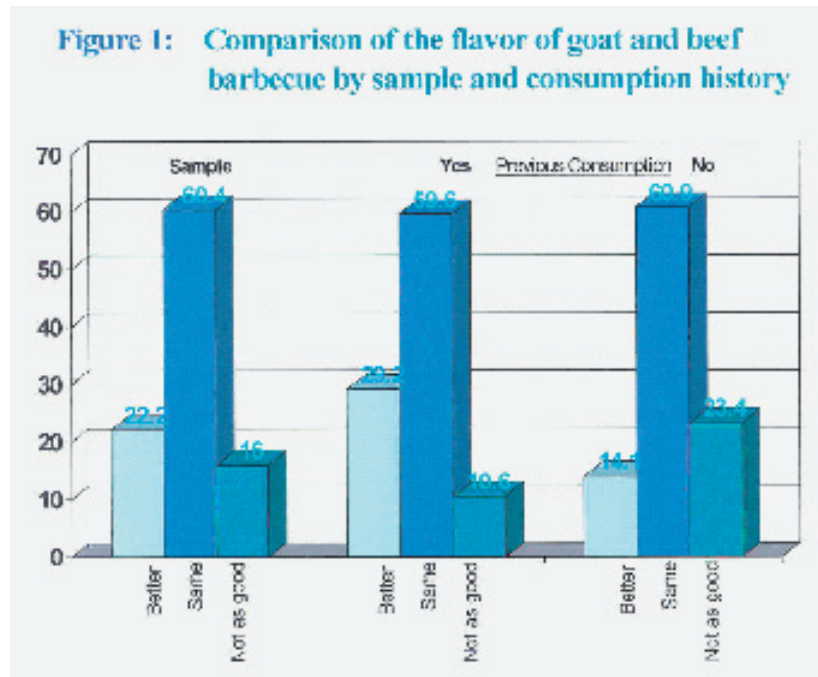
### Respondent Profiles

Selected demographic statistics of the sample are provided. The sample was composed of about 15 percent blacks, 79 percent whites, 4 percent Hispanics, and about 2 percent other respondents. The sample is approximately equal to U.S. racial percentages as reported in the 1990 census, except for Hispanics. There were four age categories: less than 20 years (9.2%), 20–30 years (11.6%), 31–40 years (19.1%), and 41 years and older (59.4%). One-third of the sample was female.

About 55 percent of the respondents had previously consumed a goat-meat product. Whites were the least likely to have eaten a goat-meat product but a majority (52.4) had previously tried goat meat. More than 83 percent of the Hispanics and 64 percent of blacks had previously consumed goat-meat products. These findings generally support previous work showing that niche markets offer the most important outlets for goat meat (Gipson 2001; Spaugh 1997; Degner and Locascio 1988; Nelson et al. 2001; Pinkerton et al. 1994). If these results are representative of conditions in the general population, they suggest a promising demand for goat meat, particularly when the increased number of Hispanics in the last census is considered (Guzman 2001). Goat-meat consumption history tended to increase with age, and males were more likely to have consumed the product. These results are consistent with those previously reported (Hui and McLean-Meyinsse 1996; Zachery and Nelson 1992; Nelson et al. 2001).

### Comparison of Goat Meat with Beef and Pork

Figure 1 provides a comparison of the respondents' ratings of the flavor of goat barbecue to that of beef. The rating options offered to respondents were "better than beef," "about the same as beef," and "not as good as beef." A very small percentage of respondents added to the available options the ratings, "its different," and "very bad." The "very bad" rating is interpretable but the "its different" rating is ambiguous. Thus data for these two options are



not provided in the figure and their combined total does not exceed 1 percent of the responses.

About 83 percent of the sample rated the flavor of the goat barbecue “better than” or “about the same as” that of beef. Respondents with a consumption history tended to rate the flavor higher than the sample and those with no consumption history.

Figure 2 provides the comparison of goat and pork barbecue. More than 68 percent of the sample rated the flavor of the goat barbecue “better than” or “about the same” as pork. About 75 percent of the respondents with a history of consuming goat meat gave the barbecue a favorable rating.

### Comparison of Goat-Meat, Beef, and Pork Flavor

A number of studies have examined the influence of race, age, and gender on goat-meat consumption (Hui, McLean-Meynsse 1996; Murry, Turner, and Nelson 1999; Nelson, Mobini, Thomas, Whitehead, and Brown 2001). However, we were unable to identify studies that examined the effects of demographic influences within racial groups and gender on goat-meat consumption. An effective and efficient marketing campaign for goat meat would consider which segment of demographic groups to target for the largest response for a given marketing expenditure. For example, prior studies have reported that members of some minority groups are more likely to have consumed goat meat and to have a more positive preference for the product than are whites (McLean-Meynsse 2000; Nelson, Abrams, Mobini, Thomas, and Oliver 1999). However, these studies do not provide the additional information that would promote the development of a targeted promotional campaign within these groups. For example, a promotional campaign could be more targeted if it were known that females within the Hispanic community were more favorable toward goat meat than were males, or if it was known that Hispanic's within a certain age range perceived goat meat more positively than did other age categories.

The results in Table 1 have the potential to enhance the targeting of particular segments of niche markets with historic preferences for goat meat. The data are the results of the taste-test subjects' responses to the question, "How would you compare the flavor (the goat meat barbeque sample) to barbequed beef?"

The respondents' range of options were "better than beef," "about the same as beef," and "not as good as beef." The "better than beef" responses were assigned a score of 3, "about the same as beef" responses were assigned a score of 2, and "not as good as beef" responses were assigned a score of 1. The data on the race and gender of the respondents were combined and a new variable was created called race/gender. In addition, the race and age variables for the respondents were combined to create the variable race/age. These transformations resulted in six new race/gender variables and twelve new race/age variables. For example, the transformations permit the comparison of black females'

ratings of the flavor of goat meat with that given by all other race and gender combinations. The sample was not separated by consumption history because of sample-size limitations; this failure may influence the ratings. Thus the results may provide conservative estimates of the magnitude of the differences in ratings.

The respondents were provided the same range of options from which to select for pork as previously discussed for beef. The race/gender and race/age transformations were accomplished as previously described and the transformations resulted in six race/gender variables and twelve race/age variables. The transformations permit the comparison of, for example, black females' ratings of the flavor of goat meat with that of any race/gender and race/age combinations.

### Goat-meat and Beef Comparison

The top portion of Table 1 gives the ANOV results of the flavor ratings of goat meat and beef by race and gender. The model was significant at the .01 level; the LSD mean-separation procedure was used. Mean differences and standard errors are provided in columns 3 and 4 of Table 1. A negative sign preceding a mean difference indicates that the first race/gender variable mean is larger than the second. The mean rating of the goat-meat barbeque in comparison to beef given by black females (2.48) was higher than that given by black males, white females, white males, and Hispanic females. However, the mean rating of black females was only significantly higher than those of white females and white males at the 10-percent level. Black males' rating of the goat-meat-barbeque flavor was significantly higher than the rating by white females. Hispanic males rated the flavor of the goat-meat barbeque higher than did all other race/gender classifications and the rating was significantly higher than the mean ratings given by white males and white females. In descending order, Hispanic males, black females, and black males rated the flavor of goat meat higher than did the other race/gender classifications.

The lower panel of Table 1 provides the race/age flavor ratings of goat-meat and beef barbeque. The mean rating of the flavor of goat meat by blacks younger than 20 and blacks 20–30 years old was significantly higher than the ratings given by blacks 41 years and older, whites younger than 20, whites



41 years and older, and Hispanics 31–40 years old. The mean rating of the flavor of goat meat by Hispanics 41 years and older was significantly higher than those by blacks 41 years and older, all age

categories of whites, and Hispanics 31–40 years old. Thus Hispanics 41 years and older and the three youngest categories of blacks rated the flavor of goat meat higher than did other race/age groups.

**Table 1. Test of Race/Gender and Race/Age Comparison Ratings of the Flavors of Goat Meat and Beef**

Classification		Statistics	
Race/Gender	Race/Gender	Standard Error	Mean Difference
<b>Black Female</b>	Black Male	0.22	(-0.21)
	White Female	0.20	(-0.54*)
	Hispanic Female	0.42	(-0.38)
	White Male	0.19	(-0.33*)
<b>Black Male</b>	White Female	0.15	(-0.33*)
<b>White Male</b>	White Female	9.47E-02	(-0.21*)
<b>Hispanic Male</b>	White Male	0.24	(-0.45*)
	Black Female	0.29	(-0.12)
	Black Male	0.26	(-0.33)
	White Female	0.25	(-0.66*)
	Hispanic Female	0.44	(-0.50)
N=279			
Race/Age	Race/Age	Standard Error	Mean Difference
<b>Blacks &lt;20 years</b>	Blacks 41 years & older	0.40	(-0.67*)
	Whites <20 years old	0.40	(-0.71*)
	Whites 41 years & older	0.38	(-0.73*)
	Hispanics 31-40 years old	0.59	(-1.17*)
<b>Blacks 20-30 years</b>	Blacks 41 years & older	0.40	(-0.67*)
	Whites <20 years old	0.40	(-0.71*)
	Whites 41 years & older	0.38	(-0.73*)
	Hispanics 31-40 years	0.59	(-1.17*)
<b>Blacks 31-40 years</b>	Blacks 41 years & older	0.21	(-0.35*)
	Whites <20 years old	0.21	(-0.40*)
	Whites 41 years & older	0.17	(-0.42*)
	Hispanics 31-40 years old	0.49	(-0.85*)
<b>Hispanics 41 years &amp; older</b>	Black 41 years & older	0.2838	(-0.57*)
	Whites <20 years old	0.2793	(-0.61*)
	Whites 20-30 years old	0.2768	(-0.53*)
	Whites 31-40 years old	0.1213	(-0.23*)
	Whites 41 years & older	0.2517	(-0.64*)
	Hispanics 31-40 years old	0.52	(-1.07*)
N=292; *=Significant difference			

**Goat-meat and Pork Comparison**

Table 2 provides the results of the race/gender and race/age flavor-comparison ratings of goat and pork. The ANOV F value (3.378) was significant at the .006 level. Black females' mean rating of

the flavor was significantly higher than those of white females and Hispanic females. Black males' mean ratings were also significantly higher than those of white and Hispanic females. White males' mean rating was significantly higher than that of Hispanic females. The Hispanic males' mean rating

<b>Table 2. Test of Race/Gender and Race/Age Comparison Ratings of the Flavors of Goat Meat and Pork</b>				
<b>Classification</b>		<b>Statistics</b>		
<b>Race/Gender</b>	<b>Race/Gender</b>	<b>Standard Error</b>	<b>Mean Difference</b>	
<b>Black Female</b>	Whites Female	0.21	(-.45*)	
	Hispanic Female	0.44	(-.74*)	
	White Male	0.20	(-.26)	
	Black Male	0.23	4.24E-02	
<b>Black Male</b>	White Female	0.15	(-.41*)	
	White Male	0.14	(-.22)	
	Hispanic Female	0.42	(-.70*)	
<b>White Female</b>	Hispanic Female	0.41	(-.29)	
<b>White Male</b>	White Female	9.95E-02	(.19*)	
<b>Hispanic Male</b>	Black Female	0.31	(-.30)	
	Black Male	0.28	(-.34)	
	White Female	0.26	(-.75*)	
	White Male	0.25	(-.56*)	
	Hispanic Female	0.47	(-1.04*)	
N=279				
<b>Race/Age</b>	<b>Race/Age</b>	<b>Standard Error</b>	<b>Mean Difference</b>	
<b>Blacks &lt;20 years old</b>	Blacks 41 years & older	0.423	(-.95*)	
	Whites <20 years old	0.419	(-1.00*)	
	Whites 20-30 years old	0.417	(-1.102*)	
	White 31-40 years old	0.411	(-.833*)	
	Whites 41 years & older	0.399	(.899*)	
<b>Blacks 31-40 years old</b>	Blacks 41 years & older	0.223	(-.580*)	
	Whites <20 years old	0.217	(-.628*)	
	Whites 20-30 years old	0.213	(-.640*)	
	Whites 31-40 years old	0.201	(-.461*)	
	Whites 41 years & older	0.176	(.527*)	
<b>Hispanics 41 years &amp; older</b>	White 20-30 years old	0.291	(-.489*)	
	Whites <20 years old	0.472	(-.524*)	
	Blacks 20-30 years old	0.472	(-.191)	
	Blacks 31-40 years old	0.307	(-.151)	
N=292; *=Significant difference				

was higher than all other race/gender classifications and significantly higher than those given by white and Hispanic females and white males. In summary, the Hispanic males, black females, and black males rated the flavor of goat meat higher than did other race/gender classifications; Hispanic and white females tended to rate the flavor the lowest.

The bottom portion of Table 2 provides the ANOV of the race/age classifications; the model was significant at the 0.037 level. Ratings by blacks younger than 20 and blacks 20–30 years old were significantly higher than those given by all age categories of whites and by blacks 41 years and older. Ratings by Hispanics 41 years and older were significantly higher than the ratings by whites less than 20 and those 20–30 years old. In general, Hispanics' mean ratings tended to increase with age.

### Summary and Implications

A consumer survey and goat-meat taste test with respondents' demographics similar to those of the 1990 census of U.S. population revealed that more than 54 percent of the sample had consumed goat meat previously. Hispanics and blacks were more likely than were other groups to have consumed goat meat. Whites had the lowest percentage of respondents (52%) with a goat-meat consumption history. Females were less likely than males to have tried goat meat. Goat-meat consumption history generally increased with age.

Comparisons of goats' flavor with that of beef and pork were made. Approximately 83 percent of the sample rated the flavor of goat meat "about the same" or "better than" the flavor of beef; ratings by those respondents with a goat-meat consumption history were higher than those for the sample. About 15 percent of the sample rated the flavor of goat meat "better than" the flavor of pork and slightly more than 50 percent rated the flavor "about the same" as that of pork.

The findings refine the segmentation of the market for goat-meat products and provide sensory comparisons with beef and pork, goat meat's two chief competitors. Black females rated the flavor of goat meat in comparison with beef's significantly higher than did white males and females. Hispanic males' ratings were significantly higher than those of white males and females. Furthermore, blacks younger than 20, 20–30 years old, and blacks 31–40 years old rated the flavor of goat meat significantly

higher than did blacks 41 years and older and Hispanics 31–40 years old. Hispanics 41 years and older rated goat-meat flavor significantly higher than did blacks 41 years and older, Hispanics 31–40 years old, and all age classifications of whites.

The Hispanic males' mean rating of goat-meat flavor against that of pork was significantly higher than those of white males, Hispanic females and white females. Blacks younger than 20 and blacks 20–30 years old had mean ratings significantly higher than those of all age categories of whites and blacks 41 years and older.

The study provides additional information needed in a targeted goat-meat marketing campaign for important niche markets and the general population. The literature has consistently suggested that females' perception of goat meat was less favorable than was that of males, but the results of this study show that black females may be an exception to previous findings. In addition, the results confirm that members of selected minority groups have more favorable perceptions of goat meat. When segmented by age, the study finds that these groups' perceptions of goat meat are not uniform within these niche markets. However, the limitations of the study, imposed chiefly by the sample size, may dictate that the major benefits of the findings are considered as directional rather than as absolute differences in preferences. These findings are important supplements to what is currently known in this evolving market. Having established that perceptions of goat meat vary by demographic characteristics within both niche and the general markets, future research is needed to explicitly compare these new findings with those from a larger random sample.

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