



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Price Variability and the Marketing of Goat Classifications

Authors

Mack C. Nelson
Agricultural Research Station
1005 State University Drive
Fort Valley State University
Telephone: (478) 825-6827/6320
E-mail: nelsonm@fvsu.edu

Xuanli Liu
Agricultural Research Station
1005 State University Drive
Fort Valley State University
Telephone: (478) 825-6831/6320
[E-mail:liux@fvsu.edu](mailto:liux@fvsu.edu)

Erika Styles
Agricultural Research Station
1005 State University Drive
Fort Valley State University
Telephone: (478) 827-3134/ 825-6320
[E-mail:stylese@fvsu.edu](mailto:stylese@fvsu.edu)

*Selected Paper prepared for presentation at the Southern Agricultural Economics Association
Annual Meeting, Atlanta, Georgia, January 31-February 3, 2009*

Copyright 2009 by Mack C. Nelson, Xuanli Liu, and Erika Styles. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

Price Variability and the Marketing of Goat Classifications

Introduction

Over the last decade or so, the U. S. meat goat sector has experienced substantial growth. Much of the growth, in terms of number of farms producing meat goats and/or the number of meat goats, has taken place in the “meat goat production region”(the meat goat production region is composed of eleven states: Texas, Louisiana, Florida, Georgia, South Carolina, North Carolina, Tennessee, Mississippi, Alabama, Arkansas and Oklahoma) (Nelson, et. al). Growth in the domestic production of goat meat has been in concert with annual growth in importation of goat meat (Gibson, Nelson, et. al). While most research studies have used different methods of analysis and geographic coverage, there is a consensus that the growth in the meat goat sector is the result of changing demographics and nutritional and health concerns in the U. S. Population (Sande and Houston; Nelson and Liu; Knight, House, Nelson and Degner; McLean-Meyinsse; Ibrahim, Liu and Nelson; Gibson; Pinkerson). There is also general agreement that this sector will continue to grow in the coming decades as tastes and preferences of niche market populations and health and nutritional concerns are assimilated into the broader population and met by the food marketing system.

There have been a limited number of studies that sought to delineate the attributes of goat meat desired by consumers. Liu, Nelson and Ibrahim results from a regional telephone survey show that USDA inspection, price, freshness and color to be four of the most important goat meat attributes desired. McLean-Meyinnee also found from a telephone survey that freshness, USDA inspection and low fat content were important. Liu, Nelson and Ibrahim found that the roast cut was one of the most desired value-added attributes of goat meat and Ibrahim, Liu and Nelson found that freshness and the halal method of processing were very important attributes

among Muslims in the Atlanta metropolitan area.

The carcass weight and/or live weight of meat goats desired by important niche market consumers has been identified (Gibson; Pinkerson; Ibrahim, Liu and Nelson). Hispanics, Muslims and Caribbean populations make up three of the most important niche markets for goat meat. However, preferences for type of product differ. Hispanics, the largest and fastest growing U.S. minority group, prefer young kids (cabrito) weighting 15 - 25 pounds live weight and/or young goats that yield a 25-pound carcass that is derived from animals approximately 50 pounds live weight. Muslims prefer carcasses in the 35-pound range or a live weight animal of approximately 70 pounds with lean carcasses. Immigrants from the Caribbean, especially those from Haiti and Jamaica, prefer carcasses from older and more mature animals when compared to those preferred by Hispanics and Muslims.

There is little or no published information available on whether producers are meeting the carcass or live weight demands of these important niche markets. The number of intermediaries between the producer and consumer are much less numerous for goat meat compared to those for other important meat products in the United States (beef, pork and poultry). Thus, it is important for the producer to place animals into the marketing channel close to what is demanded by the targeted market. If the producer does this, traditional economic theory suggests that the producer will be rewarded by the price received. However, no studies were found regarding the importance of and the variability measures associated with the various classification of meat goats marketed. Thus, the primary objectives of the study are to examine the predominant classification of goats marketed and measurement of total price variability for goats within selected Georgia markets.

Data and Procedures

Data for this study are taken from various releases from the USDA AMS - Georgia Department of Agriculture (GDA), Livestock Division Market News Branch, Thomasville, GA. These data are for four Georgia Goat Markets from 9 January 2006 through 3 September 2007. The four markets are located in Ambrose, Eastanollee, Metter, and Pearson and are located in three of Georgia's four agricultural production regions and market a significant number of goats (see figure 1 shaded counties). Metter and Pearson sales are held twice monthly and the Ambrose and Eastanollee markets generally hold one sale per month. Thus, 72 observations are possible per year across these markets. However, some markets did not maintain the sales schedule and/or data was not collected by the USDA - Georgia Department of Agriculture (GDA). Slaughter and replacement classes were the two general classifications of animals reported by USDA - GDA. The data for this report is taken from the slaughter classes, the predominate general classification. The slaughter classification components are Kids, Billies/Bucks, Nannies/Does, Yearlings and Wethers. Each slaughter classification is further subdivided by weight categories. Kids are reported as 20 - 40 lbs. and 40 - 60 lbs.; Billies/Bucks are reported as 75 - 100 lbs., 100 - 150 lbs., and 150 - 300 lbs.; Nannies/Does are reported as 60 - 80 lbs., 80 - 100 lbs. and 100 - 120 lbs.; Wethers are reported as 20 - 40 lbs., 40 - 60 lbs. and 60 - 80 lbs.; and Yearlings are reported as 20 - 40 lbs., 40 - 60 lbs., and 60 - 80 lbs. Reports of sales for Wethers and 20 - 40 pound Yearlings are infrequent and these classes are not used in all presentations/analysis. The price recorded for all classification of animals is reported as price per head.

Meat goats have traditionally been a minor farm enterprise with their statistics either not collected and/or reported and/or sporadically collected and reported. Long term statistics for

meat goats are not readily available and this is the reason for the length of the data series. The Metter and Pearson markets have been outlets for meat goats since the late ninety's but data reports have not been continuous. The Ambrose and Eastanollee markets do not have the long term history shared by the Metter and Pearson markets but the four markets are representative of three of Georgia's agricultural production regions and market a significant number of goats. Figure 1 shows that Eastanollee is located in the northern portion of the Northeast District in Stephens County. Metter is located in the Southeast district in Candler county which is in the eastern portion of the district. The Pearson and Ambrose markets are also located in the Southeast district in Coffee and Atkinson Counties, respectively. However, these two markets are in the southwest portion of the district and are bordered on the west by Southwest district counties. No markets are included in this study from the Northwest district.

A major problem in agriculture is the high degree of uncertainty in production and marketing decision making. This uncertainty results because of the inability to predict and/or control economic and non-economic forces, which includes weather, diseases, parasites and other such factors. Therefore, better production and marketing decisions can be made only if there is knowledge of the stability and level of income resulting from the possible production and marketing options. If this knowledge is available, a producer can make more informed decisions about the tradeoffs between incomes and variability in incomes associated with each production and/or marketing option. Grossman and Headley assert that variability that results from forces outside the economic system is generally more important in crops than in animal production. Thus, relatively this reduces the critical need of knowledge of these forces to make better decisions.

The data is presented using descriptive statistics and a total variability index for price is

estimated for the various classification of animals marketed (Lin and Walker). The total variability index was estimated using the following:

$$Index = \left[(y - \bar{y})^2 / (n - 1) \right]^{1/2} / \bar{y}$$

Figure 1. State of Georgia Map



Results and Discussion

The total number of animals sold and monthly averages as well as the number of sale dates observed are shown in table 1. A total of 24,471 animals were sold through the four markets during the observation period. Most animals were sold through these markets during the spring and summer months with relatively few animals sold during the winter months. Greater than 50-percent of the animals were sold during the March - June four month period and more than 77- percent of the animals were sold during the March - August six month period. The month of May accounted for about 20-percent of total animal sales and the average number of animals per sale during the month of May was about 442. The sales pattern observed maybe related to kidding schedules, the predominate type of animal sold, and/or demand for a particular classification of an animal.

Table 1. Total, and Mean, and Frequency of Animal Marketing by Mouth.

Month	Total	Mean	Number of Sales Events Recorded
January	1150	287.5	4
February	1931	241.4	8
March	2365	337.97	7
April	2635	439.2	6
May	4865	442.3	11
June	3539	353.9	10
July	2499	312.4	8
August	2839	315.4	9
September	1276	319	4
October	na	476	2
November	na	na	na
December	440	440	1
Total	24,475	na	70

na-No data available

Source: USDA Livestock Division, Marketing News Branch

The mean average prices received by month for the various classifications of animals are given in table 2. The importance of the months ranked in descending order is also reported in

table 2. The mean highest price for the kid category was generally received in the Spring and Summer months. Kids 20 - 40 lbs. received their highest price in April followed by March, February, May, June and July. Kids in the 40 - 60 lbs. category also received their highest price in April, followed by March, February, May, June and July. Table 2 shows the top five months in order of importance for all kids were April, March, February, May, and June. The February - July six month time period is generally the period where average price is the highest for all classification of animals. The smaller classification of nannies and yearlings more closely followed the price observations for kids.

Table 2. Mean Price Rank by Month and Animal Classification

Class of Animal	Month											
	Jan	Feb	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
Kids												
20 - 40 lbs	-	3	2	1	4	5	7	6	-	-	-	-
40 - 60 lbs	-	3	2	1	4	5	6	7	-	-	-	-
Billies												
75 - 100 lbs	5	-	6	-	4	1	2	3	-	-	-	-
100 - 150 lbs	5	-	1	-	4	6	2	3	-	-	-	-
150 - 300 lbs		4	-	-	1	3	2	-	-	-	-	-
Nannies												
60 - 80 lbs	-	-	1	3	2	3	4	5	-	-	-	-
80 - 100 lbs	-	5	-	-	1	2	3	4	-	-	-	-
100 - 120 lbs	Insufficient Sales Frequency											
Yearlings												
20 - 40 lbs	-	-	-	-	-	-	-	-	-	-	-	-
40 - 60 lbs	-	3	4	1	4	5	2	-	-	-	-	-
60 - 80 lbs	-	5	6	2	4	1	3	-	-	-	-	-

Note: Only the top 7 months are ranked

Source: USDA Livestock Division, Marketing News Branch, Jan. 2006-Sept. 2007.

The data in tables 1 and 2 show that most goats are marketed through these facilities during the spring month, particularly during the March - June time period. These months are also generally the time that the highest average prices are received for kids, the classification of

animals that previous work suggested is most desired by two of the most important niche markets. In addition, the general classifications of kids were the most frequently marketed of all classification of animals. Various statistics for the classifications of goats are shown in table 3. Columns 2 and 3 of table 3 provide the mean price and the variability index for price for the classification of goats. The mean price ranged from a low of \$35.72 for 20 - 40 lbs. kids to a high of \$110.12 for 100 - 150 lbs. billies/bucks. The price variability index ranged from a low of 14 for 20 - 40 lbs. kids to a high of 37 for 100 - 150 lbs. billies/bucks. Kids 20 - 40 lbs. and 40 - 60 lbs. variability indexes were lower than any other category of goats and were the most frequently marketed classes of animals. Yearlings 40 - 60 lbs. and 60 - 80 lbs. price variability indexes were greater than 17 and 22, respectively. Yearlings in these weight classes had the second smallest overall price variability indexes but were marketed much less frequent than the two classifications of kids. Generally, nannies and billies/bucks are not normally marketed as slaughter classes of animals unless there are some extenuating circumstances that move these classes into the marketing system. Such circumstances may include less than desirable reproduction rates, less than desirable conformation, age/health problems and/or farm stress situations. If these circumstances exist, with the possible exception of farm stress, animals in these categories would produce less desirable meat product attributes. Thus, the price variability indexes for these classes of animals would be expected to be higher.

Table 3. Mean Price Rank by Month and Animal Classification

Class of Animals	Month											
	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
Kids												
20 - 40 lbs	-	3	2	1	4	5	7	6	-	-	-	-
40 - 60 lbs	-	3	2	1	4	5	6	7	-	-	-	-
Billies												
75 - 100 lbs	5	-	6	-	4	1	2	3	-	-	-	-
100-150 lbs	5	-	1	-	4	6	2	3	-	-	-	-
150-300 lbs	1	4	-	-	1	3	2	-	-	-	-	-
Nannies												
60 -80 lbs	-	-	1	3	2	3	4	5	-	-	-	-
80-100lbs	1	6	-	-	1	3	4	5	-	-	-	-
100-120 lbs	-	-	-	-	-	-	-	-	-	-	-	-

Note: Only the top 7 months are ranked

Source: USDA Livestock Division, Marketing News Branch, Jan. 2006-Sept. 2007.

In the cattle and hog industry the major share of male animals moving through the broader marketing system into the human meat consumption market as beef and pork is from castrated animals. Castrated cattle and hogs are the male animals that are generally most desirable and most often marketed for meat consumption. The castrated cattle or hog compared to the un-castrated animal is generally rewarded in terms of price received. The castrated goats or wethers are not useful for reproduction purposes and are marketed for meat consumption or as pets only. The marketing of wethers was very infrequent through these markets during the study period. The mean price of wethers, both 20 - 40 lbs. and 60 - 80 lbs. were not noticeable different from that received by kids. The price variability index for wethers was not calculated because of the limited number of observations. Personal communications with an animal scientists (Dr. Will Getz) indicate that wethers are not frequently marketed for two primary reasons. First, castration leads to significant reduction in rate of weight gain for a period of time. Second, most male goats are marketed before they exhibit the male characteristics that influence desirable meat attributes and largely do not impact price.

Table 4. Price and Total Variability Index/Head of Slaughter Goat Classes

Classification	Price Mean	Price Variability Index	% Price / lbs Exceed \$1.00 Small (Large)
Kids			
20-40 lbs	35.72	14	90 (49)
40-60 lbs	49.38	15	50 (32)
Nannies/Does			
60-80 lbs	55.73	23	6 (9)
80-100 lbs	75.2	27	6 (6)
100-120 lbs	103.68	<i>a</i>	<i>a</i> (63)
Billie/Bucks			
75-100 lbs	79.69	25	11 (6)
100-150 lbs	110.12	37	5 (5)
150-300 lbs	147.84	<i>a</i>	<i>a</i> (<i>a</i>)
Yearlings			
40-60 lbs	55	17.2	6 (9)
60-80 lbs	70.7	22.86	6 (6)
20-40 lbs	<i>a</i>	<i>a</i>	(<i>a</i>) 63
Weathers			
20-40 lbs	39.25	<i>b</i>	91(55)
60-80 lbs	59.44	<i>b</i>	64 (46)

(*a*)Insufficient sales (*b*)Mean prices are provided but only 11 in stores when sales are made

Source: USDA Livestock Division, Marketing News Branch

Concluding Remarks

Analysis of data used for this study of marketing of goats in Georgia provide additional information regarding the timing when goats are marketed as well as the types of animals that are most frequently marketed. These data, taken from markets that are representative of Georgia's geographical regions, suggest that marketing takes place primarily during the spring and early summer months. The animals that are most frequently marketed are those that are within the kid classification and the castrated goat or wether is not marketed through these facilities very

frequently. The variability of prices received for the kid classification was the lowest of all classifications, suggesting that less price risk is borne by producers relative to other classes of animals. However, the average price received for kids was less than those received by other classifications. The live weight classification and or carcass weight of kids are within the live weight and or carcass weight literature suggests is most desired by Hispanics and Muslims. Thus, producers appear to be reducing price variability by providing products to one of the fast growing niche markets that reportedly consume the product year round.

References

- Gipson, Terry A. 1999. Demand for Goat Meat: Implications for the Future of the Industry. In Demand for Goat Meat: Implications for the Future of the Industry, Langston University, E(Kika) de la Garza Institute for Goat Research.
- Erika Knight. *An Evaluation of Consumer Preferences Regarding Goat Meat in Florida*. Master's Thesis. University of Florida, Department of Food and Resources Economics. Spring 2005.
- Erika Knight, Lisa House, Mack C. Nelson and Robert Degner. "An Evaluation of Consumer Preference Regarding Goat Meat in the South." *Journal of Food Distribution Research* 37 (2006): 88-96.
- McLean-Meyinese, Patricia E. "Factors Influencing Consumption or Willingness to Consume a Variety of Goat Meat Products." *Journal of Food Distribution Research* 34 (2003): 72-79.
- Xuanli Liu, Mack C. Nelson and Mohammed Ibrahim. "Analyzing Consumer's Calculation Factors in the Purchase Decision of Goat Meat." *Journal of Food Distribution Research*, 38 (2007):196-202.
- Xuanli Liu and Mack C. Nelson. "Demand Potential for Goat Meat in Southern States: Empirical Evidence from a Multi-State Goat Meat Consumer Survey." Paper selected for presentation at the American Agricultural Economics Association annual Meeting, Providence, Rhode Island. 24-27 July 2005.
- Xuanli Liu, Mack C. Nelson and Mohammad Ibrahim. "Analyzing Consumer's Calculations Factors in the Purchase Decision of Goat Meat." Paper selected for presentation at the Food Distribution Research Association Annual Meeting, Quebec Canada. 14-18 October 2006.
- Mohammed Ibrahim, Xuanli Liu and Mack C. Nelson. "A Pilot Study of Halal Goat Meat Consumption in Atlanta." Paper selected for presentation at the Food Distribution Research Association Annual Meeting, New Orleans, Louisiana. October 2007.
- Xuanli Liu, Mack C. Nelson and Mohammed Ibrahim. "Analysis of Consumption Behavior of Hispanics and Its Impact on the Goat Meat Market." Paper selected for presentation at the Southern Agricultural Economics Association Annual Meeting, Dallas, Texas. February 2008.