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## An Analysis of the Characteristics and Practices of Selected Alabama Small Livestock Producers: A Focus on Economics and Marketing

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# **AN ANALYSIS OF THE CHARACTERISTICS AND PRACTICES OF SELECTED ALABAMA SMALL LIVESTOCK PRODUCERS: A FOCUS ON ECONOMICS AND MARKETING**

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## **Abstract**

The study examined the characteristics and practices of small livestock producers, focusing on economics and marketing. Data were obtained from a convenience sample of 121 small producers from several South Central Alabama counties, and were analyzed using descriptive statistics, including chi-square tests. The socioeconomic characteristics reflected a higher proportion of part-time farmers; a higher proportion with at most a two-year/technical degree or some college education; and a higher proportion with \$40,000 or less annual household income. A majority had been farming more than thirty years, and most had small herds. Also, very few made profits; many sold animals live on-farm or at auction/stockyard, and kept records. The chi-square tests showed that farming status, gender, race/ethnicity, age, education, and household income had statistically significant relationships with selected farm, economic, and marketing characteristics. Educational programs should be implemented in the study area emphasizing economics and marketing, and taking into consideration socioeconomic factors.

**Keywords:** Livestock Producers, Small Producers, Characteristics and Practices, Economics and Marketing

## **Introduction**

According to Timmons et al. (2008), many areas in the U.S. have seen an increase in local food interest in recent years, as shown by the growth of farmers' markets, community-supported agriculture, and other food purchases directly from producers. Lerman et al. (2010) argued that while there is a desire to support local foods, local food purchasing occurs when there is an added benefit. Consequently, Bloom and Hinrichs (2010) stressed that local in itself is usually not a prime motivator to purchase an item; however, it enhances customer purchases.

Dahlberg (1994) viewed the local food system as one in which foods are produced, processed, and distributed locally at the household, neighborhood, municipal, or even regional level. Following that, Feenstra (2002) explained that the local food movement, is a collaborative effort to build locally based, self-reliant food economies; that is, one in which sustainable food production, processing, distribution, and consumption is integrated to enhance the economic, environmental, and social health of a particular geographical location. Furthermore, Martinez et al. (2010) stressed that local food is not solely a geographical concept, but also explained that it is related to the distance between food producers and consumers, defined in terms of social and supply chain characteristics.

Martinez et al. (2010) further pointed out that local food markets typically involve small farmers, heterogeneous products, and short supply chains in which farmers also perform marketing functions, including storage, packaging, transportation, distribution, and advertising. They also explained that there are barriers to local food-market entry and expansion, and these include, but are not limited to, capacity constraints for small farms and lack of distribution systems for moving local food into mainstream markets; limited research, education, and training for marketing local food; and uncertainties related to regulations that may affect local food production, such as food safety requirements. Despite this, Stofferahn and Goreham (2004) identified consumer trends that provide opportunities to develop and expand local food systems. These trends include increasing food safety concerns, changing perceptions about organic foods, changing buying behaviors, willingness to pay more for premium products, becoming more health conscious, gaining popularity of buying seasonal foods, increasing concern about the quality of life, and recognition of supporting the local economy.

The growing interest in locally and regionally grown or raised products creates an opportunity for small local and regional producers to pursue these markets to enhance their profitability. An industry where this opportunity can be pursued is the livestock industry, particularly the beef cattle and meat goat enterprises. According to Tubene and Hanson (2002), small producers should seek creative approaches to survive, such as pursuing more diversified enterprises, focusing on value-added activities and products, as well as emphasizing sound practices in order to maximize returns. This is especially of importance to small beef cattle and meat goat producers. Since most small beef cattle and meat goat producers, live and farm in rural areas, the viability of their enterprises is also tied to thriving rural economies. There has been limited research to assess the impact of small producers' role in the local and regional food supply chain in rural Alabama, emphasizing economics and marketing. Hence, there is the need to undertake such a study to determine the role or contribution of the small producer to the food supply chain.

The purpose of the study, therefore, was to analyze the characteristics and practices of selected Alabama small livestock producers, focusing on economics and marketing. The specific objectives were to (1) identify and describe socioeconomic characteristics, (2) describe and assess selected farm, economic and marketing characteristics and practices, and (3) examine the relationships between socioeconomic characteristics and the other characteristics or practices.

### **Literature Review**

The literature examined in this section focuses on farm characteristics, economic issues, and marketing issues. They are discussed in turn or sequentially. Only selected or key studies are discussed to highlight the importance of each aspect to livestock production.

#### **Farm Characteristics**

McLean-Meyinsse and Brown (1994) examined the survival strategies of successful Black farmers. They reported that factors contributing to success were good management practices, knowledge and early adoption of new technology, strong work ethic, love of farming, size of operation, participation in government programs, and strong family support. In addition, they reported important things that can be done to assist farmers, and these things were; improved

education, emphasis on high-return enterprises, restructuring of USDA programs, expansion of off-farm employment opportunities, and improved access to credit.

Perry and Johnson (1999) assessed conditions that made a small farmer successful. Results showed that top-performing farms used three management practices, namely, production strategies that controlled costs, actively marketed their products, and adopted sound financial strategies. The findings suggest that adopting such practices, on a wholesale level, may provide a conduit for success for small farm operations.

Duffy and Nanhon (2002) analyzed factors affecting the success of small farms and the relationship between financial success and perceived success. The successful farms had statistically significant higher sales and acreage. The successful farms averaged 704 acres while the unsuccessful ones averaged 416 acres. The successful farms averaged \$180,334 in sales compared to \$109,901 for the unsuccessful farms. The successful farmers were younger and better educated. This combination of age and education affected other attributes. For instance, successful farmers made more use of technology and had better managerial skills than their unsuccessful counterparts; implying that younger and better-educated farmers also used more technology.

Muhammad et al. (2004) also analyzed factors contributing to the success of small farm operations. They reported that 36% of African American farmers considered themselves less successful whereas about 8% considered themselves as very successful. On the contrary, 92% of White farmers considered themselves very successful. In fact, race was found to be a significant factor contributing to success in farming. Regarding other variables included in the study such as gender, age, education, annual gross sales, type of business, and off-farm employment, they were found to be statistically insignificant.

USDA, National Animal Health Monitoring System [NAHMS] (2012) evaluated the characteristics of small-scale U.S. livestock operations. It reported that, regarding operation characteristics, about 87% had beef cattle, and 47% had more than one type of livestock. In addition, it found 45% of the small-scale operations were residential/lifestyle farms in which the operator's primary occupation was off-farm. On producers' characteristics, it was reported that 9% of the small-scale livestock operations had a female primary operator compared with nearly 14% of all U.S. farm operations.

Leite-Browning et al. (2006) conducted a statewide survey of goat producers in Alabama. They found that 53% were located in north Alabama, while 24% were located in central Alabama, 4% were located in south Alabama, and 11% did not identify their geographic regions; 45% had completed high school, while 37% had college degrees; 28% were 56-65 years old; and 85% were part-time farmers. In addition, 28% raised goats for commercial slaughter; 25% raised goats as a hobby, and 24% raised goats for brush control. About 40% of operations had pasture size of 10 acres or less.

Tackie et al. (2012) assessed the characteristics and status of small and limited resource meat goat farmers in the Alabama Black Belt. They found that 55% of respondents were between 46-

65 years old; 80% were males; 70% were African Americans; another 70% had associate degrees or lower educational levels. They also reported that a little over 50% of respondents were part-time farmers; 73% had farm acreages of 50 acres or less, and the predominant breeds were Boer-Spanish crosses and Boers.

### **Economic Issues**

Gipson (2004) examined demand for goat meat and implications for the future of the industry. The author found the domestic production of goat meat was supplemented by imports of chilled and frozen meat from other countries, mainly Australia and New Zealand. Furthermore, the author found that imports of goat meat rose dramatically in 1989 when the U.S. was a net exporter of goat meat. Between 1990 and 1991, the U.S. changed from a net exporter to a net importer of the product. Relatedly, the author found in 2004, the net U.S. imports totaled just over 9,400 metric tons valued at over \$28 million. In addition, FAOSTAT (2014) reported that in 2011, U.S. imported 14,290 metric tons of goat meat valued at \$85.94 million. That is an over 52% increase in the quantity of goat meat imported, and a 207% increase in the value of goat meat imported into the U.S. from 2004 to 2011.

Percival (2002) investigated the economic characteristics of the meat goat industry in the southeastern U.S. According to the researcher, it costs \$35 or less for 45% of the producers surveyed to raise a goat to market-ready weight, and it costs over \$35 for only 8% of the producers surveyed to raise a goat to market-ready weight. In addition, 52% of the producers made \$1,000 or less in gross income per year, and 21% made over \$1,000 in gross income per year.

Leite-Browning et al. (2006) conducted a statewide survey of goat producers in Alabama. They reported that, 24% of respondents earned less than \$10,000 per year; 18% earned between \$30,000-49,000 per year; and 19% earned \$50,000-99,000 per year in total gross off-farm income. The percentage of total household income derived from goat farming was 0 to 10% for 93% of the producers.

Tackie et al. (2009) examined a meat goat enterprise budget based on an 85-doe herd. Expected returns were \$0.80/lb for light kids (40-60lbs); \$1.00/lb for heavy kids (61-80 lbs), and \$41.25/herd for culled does. The total returns from sale of kids and culled does were \$7,626.25; variable costs were \$2,221.35; returns above variable costs were \$5,404.90; fixed costs were \$5,320.00; total costs were \$7,541.35; and net returns were \$84.90. The break-even price was \$52.37.

Tackie et al. (2012) assessed the characteristics and status of small and limited resource meat goat farmers in the Alabama Black Belt region. They found that 78% of the producers had total cost of less than \$5,000, and 22% had total cost of over \$5,000 in the previous year. Also, 18% of the producers did not have gross receipts the previous year; 68% had gross receipts of \$1-5,000, and 13% had gross receipts of over \$5,000. Furthermore, 35% made losses; 30% broke-even; and 15% indicated that they made low profits (\$500 or less) in the previous year.

## **Marketing Issues**

USDA, APHIS (2012a) analyzed the characteristics of small-scale U.S. livestock operations. It found that an auction/sale barn was the most common channel used by small-scale operations to market animals or products (88% of operations). About 25% of the operators marketed animals or products directly to individuals or consumers. These sales included, but were not limited to, direct sales through farmer's markets, or community supported agriculture, the internet, and sales of live animals to other producers for breeding or other purposes.

Also, USDA, APHIS (2012b) conducted an in-depth study of small-scale U.S. livestock operations for 2011. It found that about 25% marketed or advertised their products as pasture-raised livestock; 14% marketed or advertised their products as naturally raised livestock; 6% marketed or advertised their products as eco-friendly livestock; and 1% marketed or advertised their products as USDA certified organic products. A higher percentage of operations in the West region (20%) marketed or advertised products as naturally raised livestock compared with operations in the North Central (14%) and South (12%) regions. Only about 8% of operations used the Internet to market any agricultural products.

Further, McMillin and Brock (2005) evaluated production practices and value-added meat goat production. They found that value can be added at many points in the supply chain at production, distribution, processing, and sale of goat meat products. Most meat processing and preservation technologies can be used to produce goat meat products, with improved product consistency through uniform cutting and fabrication practices and sorting of raw materials. The authors concluded that more convenient product forms and the availability of goat meat would increase the value and penetration of goat meat in ethnic and nontraditional consumer markets.

Percival (2002) assessed economic characteristics of the meat goat industry in the southeastern U.S. He found that live goat was sold at \$60 per head or \$1 per pound live weight, and retail price for goat meat was a little less than \$2 per pound. He also reported that the irregularity in supply of goat meat contributed to the underdevelopment of the industry, and stressed that there was a need for product diversification to improve the product quality, otherwise the industry will continue to fetch relatively low prices.

Following this, Leite-Browning et al. (2006) conducted a statewide survey of goat producers in Alabama. They reported that, the majority of respondents sold directly off-farm, for example, roadside stands and farmers markets at 32%, and public livestock sales, for example, auctions and stockyard sales also at 32%.

Relatedly, Tackie et al. (2012) examined the characteristics and status of small and limited resource meat goat farmers in the Alabama Black Belt region. They reported that 75% of the producers sold 50 goats or less the previous year; 78% sold their goats on-farm, and 25% sold at auctions. In addition, 80% sold goats directly to individual consumers, while 60% sold to other goat farmers. They mostly sold their goats to the ethnic population, such as Hispanics (70%); Africans (45%); and Asians (40%). Regarding requests for goats, 83% indicated that they were asked for goats frequently or could not keep up with requests for goats. The type of technical assistance mostly sought was on health (75%); production (70%); and marketing (63%).

Barham and Troxel (2007) assessed factors affecting price of feeder cattle sold at livestock auctions. The authors found that selling prices for steers, bulls, and heifers were different from each other. Hereford and Charolais mix feeder calves sold for the highest price and Longhorns sold for the lowest price. Yellow feeder cattle received the highest selling price, and spotted or striped feeder cattle received the lowest price. They also found that the selling price of singles was lower than the price for calves sold in groups of 6 or more. For cattle classified as having muscle scores of 1, 2, 3, and 4, the lower the muscle score, the higher the price. Polled feeder cattle sold higher than horned feeder cattle. They concluded that a number of management and genetic factors affected the selling price of feeder cattle.

## **Methodology**

### **Data Collection**

A questionnaire was developed for the study, comprising farm, economics, marketing, and demographic information. It was submitted to the Institutional Review Board, Human Subjects Committee of the Institution, and approved before being administered. The questionnaire was administered to a convenience sample of livestock producers. Convenience sampling was used in this case, because of a lack of a known sampling frame from which subjects could be drawn.

The data were collected through interviews of small beef cattle and meat goat producers at several program sites in South Central Alabama, and the producers came mostly from 22 Alabama counties: Autauga, Barbour, Bullock, Butler, Chilton, Dallas, Greene, Hale, Henry, Lowndes, Macon, Montgomery, Marengo, Perry, Pickens, Russell, Sumter, and Wilcox (South Central Alabama counties), Dekalb, Randolph, Talladega, and Tuscaloosa (Non-South Central Alabama counties). The data were collected from summer of 2013 to spring of 2014. Extension agents and other personnel in the various counties, as well as graduate students assisted with the process. The total sample size was 121, and it was considered adequate for the study.

### **Data Analysis**

The data were analyzed by using descriptive statistics and chi-square tests. The chi-square test description is adapted from Tackie et al. (2015). The chi-square test allows a researcher to formulate a null hypothesis ( $H_0$ ), which states that two variables are independent of (or not related to) each other, and an alternative hypothesis ( $H_a$ ), which states that two variables are not independent of (or related to) each other. In this study, the null hypothesis and alternative hypothesis are stated generally as:

$H_0$ : A practice or characteristic is independent of (or not related to) selected socioeconomic variables.

$H_a$ : A practice or characteristic is not independent of (or related to) selected socioeconomic variables.

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

$$\chi^2 = \sum_{i=1}^r \sum_{j=1}^c \frac{(f_{o_{i,j}} - f_{e_{i,j}})^2}{f_{e_{i,j}}}$$



Where

$\chi^2$  = chi-square

fo = observed frequency

fe = expected frequency

i,j = values in the i<sup>th</sup> row and j<sup>th</sup> column, respectively

$\Sigma$  = summation

The observed frequency is the frequency obtained from the survey, and the expected frequency is calculated 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 acreage farmed, beef cattle herd size, meat goat herd size (farm characteristics), beef cattle profits, meat goat profits (economic characteristics), number of beef cattle sold, number of meat goats sold, and keeping records (marketing characteristics), on the one hand, and socioeconomic variables, on the other. In the case of profit, for instance, the hypotheses were stated as:

Ho: Profit is independent of (or not related to) farming status

Ha: Profit is not independent of (or related to) farming status

Similar hypotheses were stated for the other socioeconomic variables: gender, race/ethnicity, age, education, and annual household income. Correspondingly, identical hypotheses were stated for the other characteristics and the afore-mentioned socioeconomic variables. The data were input into SPSS 12.0<sup>®</sup> (MapInfo Corporation, Troy, NY), and frequencies and percentages were assessed. Chi-square tests were conducted to determine relationships between the sets of variables.

## Results and Discussion

Table 1 shows the socioeconomic characteristics. Most of the respondents (69%) were part-time farmers; nearly 83% were males; 81% were Blacks. Regarding age and education, 51% were between 45-64 years; 30% were 65 years or older; also, 65% had at most a two-year/technical degree or some college education. About 51% had an annual household income of \$40,000 or less, and 39% had an annual household income of more than \$40,000. The results are consistent with Tackie et al. (2012) who also found more part-time farmers than full-time farmers, more males than females, more producers in the 45-64 year range than otherwise, and more producers with an associate's degree or lower than otherwise. The p[art-time result is also consistent with USDA NAHMS (2012) and Leite-Browning et al. (2006) who reported more part-time farmers than full-time farmers.

Table 2 reflects farm characteristics. Nearly 31% of respondents had paid-off their farms and owned farms outright; 22% purchased their farms with a mortgage and are still paying, and another 22% inherited their farms. About 24% had been in their farm ownership status 10 years or less; almost a third (27%) had been in their ownership status 11-20 years; a little over a third (33%) had been in their ownership status 21-30 years; and 15% had been in their ownership

Table 1. Socioeconomic Characteristics (N = 121)

Variable	Frequency	Percent
<b>Farming Status</b>		
Full-time	36	29.8
Part-time	83	68.6
No Response	2	1.7
<b>Gender</b>		
Male	100	82.6
Female	17	14.0
No Response	4	3.3
<b>Race/Ethnicity</b>		
Black	98	81.0
White	19	15.7
Other	1	0.8
No Response	3	2.5
<b>Age</b>		
20-24 years	3	2.5
25-34 years	1	0.8
35-44 years	1	9.1
45-54 years	25	20.7
55-64 years	37	30.6
65 years or older	36	29.8
No Response	8	6.6
<b>Educational Level</b>		
High School Graduate or Below	41	33.9
Two-Year/Technical Degree	19	15.7
Some College	19	15.7
College Degree	19	15.7
Post-Graduate/Professional Degree	17	14.0
No Response	6	5.0
<b>Annual Household Income</b>		
\$10,000 or less	1	0.8
\$10,001-20,000	16	13.2
\$20,001-30,000	22	18.2
\$30,001-40,000	23	19.0
\$40,001-50,000	14	11.6
\$50,001-60,000	19	15.7
Over \$60,000	14	11.6
No Response	12	9.9

status over 30 years. A majority (75%) had been in their ownership status over 10 years, indicating stability in ownership. Contrary to general belief, only a few leased land and/or had mortgages, respectively, 3% and 22%.

Table 2. Farm Characteristics (N = 121)

Variable	Frequency	Percent
<b>Ownership Status</b>		
Purchased (paid-off)	37	30.6
Purchasing with mortgage	27	22.3
Leased	4	3.3
Inherited	27	22.3
Multiple	26	21.5
<b>Years in Ownership Status</b>		
1-5 years	9	7.4
6-10 years	20	16.5
11-15 years	18	14.9
16-20 years	15	12.4
21-25 years	20	16.5
26-30 years	20	16.5
More than 30 years	18	14.9
No Response	1	0.8
<b>Enterprises</b>		
Row Crops	0	0.0
Livestock	68	56.2
Fruits and Vegetables	0	0.0
Multiple	53	43.8
Other	0	0.0
<b>Years in Farming</b>		
1-5 years	8	6.6
6-10 years	6	5.0
11-15 years	5	4.1
16-20 years	7	5.8
21-25 years	9	7.4
26-30 years	13	10.7
More than 30 years	70	57.9
No Response	3	2.5
<b>Total Acreage Owned</b>		
10 acres or less	12	29.9
11-20 acres	8	6.6
21-30 acres	7	5.8
31-40	9	7.4
41-50 acres	1	9.1
51-60 acres	13	10.7
More than 60 acres	61	50.4

Table 2. Continued

Variable	Frequency	Percent
<b>Total Acreage Farmed</b>		
10 acres or less	8	6.6
11-20 acres	6	5.0
21-30 acres	5	4.1
31-40	7	5.8
41-50 acres	9	7.4
51-60 acres	13	10.7
More than 60 acres	70	57.9
No Response	3	2.5
<b>Years Involved with Livestock</b>		
1-5 years	18	14.9
6-10 years	18	14.9
11-15 years	8	6.6
16-20 years	8	6.6
21-25 years	17	14.0
26-30 years	22	18.2
More than 30 years	29	24.0
No Response	1	0.8
<b>Animal Type</b>		
Beef Cattle	86	71.1
Meat Goats	26	21.5
Both	8	6.6
No Response	1	0.8
<b>Beef Cattle Herd Size</b>		
10 or less	20	16.5
11-20	21	17.4
21-30	11	9.1
31-40	14	11.6
41-50	5	4.1
51-60	6	5.0
61-70	9	7.4
More than 70	5	4.1
No Response	5	4.1
Not Applicable	25	20.7

Table 2. Continued

Variable	Frequency	Percent
<b>Meat Goat Herd Size</b>		
10 or less	7	5.8
11-15	2	1.7
15-20	7	5.8
21-25	3	2.5
26-30	2	1.7
31-35	1	0.8
36-40	2	1.7
More than 40	9	7.4
No Response	1	0.8
Not Applicable	87	71.9

Approximately 56% raised livestock, and 44% had a combination of livestock and crop enterprises; 12% had been farming 10 years or less; 10% had been farming 11-20 years; 18% had been farming 21-30 years; and 58% had been farming more than 30 years. Regarding total acreage owned and total acreage farmed, 37% owned 20 acres or less; 13% owned 21-40 acres; 20% owned 41-60 acres, and 50% owned over 60 acres of land. However, 12% farmed 20 acres or less; 10% farmed 21-40 acres; 18% farmed 41-60 acres, and 58% farmed more than 60 acres. Also, 30% of respondents had been involved with livestock farming 10 years or less; 13% indicated 11-20 years of livestock farming; 32% indicated 21-30 years of livestock farming; and 24% indicated more than 30 years of livestock farming.

Again, there appears to be stability in farming as 58% of the producers had been in farming more than 30 years, and 42% had been in livestock farming for over 25 years. Acreage owned and acreage farmed reflects identical trends, and higher majorities or proportions owned or farmed more than 60 acres. In general, the more the acreage owned, the more the acreage farmed. Years involved with livestock reflect a different trend; about equal proportions (30% versus 32%), respectively, were at the lower and higher ends (10 years or less versus 21-30 years); but less (24%) at the very high end (greater than 30 years). This indicates that some relatively new livestock producers have entered the industry; yet, there are some seasoned ones too in the industry.

About 71% raised beef cattle (mostly Angus and mixed breeds, not shown in table), and 22% raised meat goats (mostly Boer and Kiko mixed breeds, not shown in table). The dominant type of goat breeds found is in agreement with Tackie et al. (2012). Exactly 43% had beef cattle herd size of 30 heads or less; 21% had beef cattle herd size of 31-60 heads; 12% had beef cattle herd size of 61 heads or more. For meat goats, 13% had herd size of 20 heads or less; 7% had herd size of 21-40 heads; another 7% had herd size of more than 40 heads. Overall, most producers had small herds, both for beef cattle and meat goats.

Table 3 focuses on economic characteristics. Nearly 39% of the producers had total costs of \$5,000 or less for beef cattle in the previous year, and 17% had total costs of \$5,001-9,000 for beef cattle in the previous year; 35% had gross receipts of \$5,000 or less for beef cattle in the previous year, and 8% had gross receipts of \$5,001-6,500 for beef cattle in the previous year. Not surprisingly, 22% made losses; 12% broke-even; and 20% made profits of \$1,500-3,000. Overall, 34% made profits. Correspondingly, 22% of the producers had total costs of \$3,000 or less for meat goats in the previous year, and 18% had gross receipts of \$3,000 or less for meat goats in the previous year. About 7% made losses; 4% broke-even; and 9% made profits of \$1-2,000 for meat goats in the previous year. Profits made by the producers were not high, and this may be due to their part-time status. Livelihood cannot be sustained on such profits or income. The results are also consistent with Tackie et al. (2012) who found that more producers made losses or broke-even than made profits.

Table 3. Economic Characteristics (N = 121)

Variable	Frequency	Percent
<b>Beef Cattle Total Costs in Previous Year</b>		
\$3,000 or less	28	23.1
\$3,001-5,000	19	15.7
\$5,001-7,000	8	6.6
\$7,001-9,000	12	9.9
\$9,001-11,100	2	1.7
\$11,101-11,300	2	1.7
More than \$11,300	5	4.1
Don't Know	11	9.1
No Response	8	6.6
No Applicable	26	21.5
<b>Beef Cattle Gross Receipts in Previous Year</b>		
\$5,000 or less	42	34.7
\$5,001-5,500	3	2.5
\$5,501-6,000	6	5.0
\$6,001-6,500	1	0.8
\$6,501-7,000	2	1.7
\$7,001-7,500	4	3.3
More than \$7,500	13	10.7
Don't Know	14	11.6
No Response	11	9.1
No Applicable	25	20.7

Table 3. Continued

Variable	Frequency	Percent
<b>Beef Cattle Profits in Previous Year</b>		
Less than Zero (Loss)	26	21.5
Zero (Break-even)	14	11.6
\$1,500 or less	6	5.0
\$1,501-2,000	7	5.8
\$2,001-2,500	4	3.3
\$2,501-3,000	7	5.8
\$3,001-3,500	5	4.1
\$3,501-4,000	5	4.1
\$4,001-4,500	0	0.0
\$4,501-5,000	4	3.3
More than \$5,000	3	2.5
No Response	15	12.4
No Applicable	25	20.7
<b>Meat Goat Total Costs in Previous Year</b>		
\$1,000 or less	12	9.9
\$1,001-1,500	4	3.3
\$1,501-2,000	4	3.3
\$2,001-2,500	3	2.5
\$2,501-3,000	3	2.5
More than \$3,000	0	0.0
Don't Know	7	5.8
No Response	1	0.8
No Applicable	87	71.9
<b>Meat Goat Gross Receipts in Previous Year</b>		
\$1,000 or less	10	8.3
\$1,001-1,500	7	5.8
\$1,501-2,000	3	2.5
\$2,001-2,500	0	0.0
\$2,501-3,000	2	1.7
More than \$3,000	4	3.3
Don't Know	7	5.8
No Response	1	0.8
No Applicable	87	71.9

Table 3. Continued

Variable	Frequency	Percent
<b>Meat Goat Profits in Previous Year</b>		
Less than Zero (Loss)	8	6.6
Zero (Break-even)	5	4.1
\$500 or less	2	1.7
\$501-1,000	2	1.7
\$1,001-1,500	4	3.3
\$1,501-2,000	3	2.5
\$2,001-2,500	0	0.0
More than \$5,000	0	0.0
Don't Know	9	7.4
No Response	1	0.8
No Applicable	87	71.9

Table 4 shows marketing characteristics. Almost 69% of the producers sold 30 or fewer beef cattle in the previous year; 51% sold on-farm or at auctions/stockyards; 9% sold directly to consumers and 45% sold to special buyers or wholesalers. About 23% sold 30 or fewer meat goats in the previous year; 17% sold on-farm or at auctions/stockyards; 10% sold directly to consumers and 11% sold to other goat producers or wholesalers. The number of animals sold reflects the small-scale nature of respondents' enterprises. About 15% indicated they knew the price per live animal for their beef cattle; 48% indicated they knew the price per pound of live animal for their beef cattle; only 2% indicated they knew the price per pound of their beef. This latter response reflects the fact that a majority of the producers hardly slaughtered their animals nor processed them. Similarly, 12% indicated they knew the price per live animal for their meat goats; 8% indicated they knew the price per pound of live animal for their meat goats; less than 1% indicated they knew the price per pound of their goat meat, again reflecting the fact that a majority of the producers do not slaughter or process their animals. Despite the responses given regarding the prices, when asked to provide the various prices, most of them did not or could not do so.

When producers were asked how frequently people asked them to buy goats or goat meat, 17% said frequently or cannot keep up with requests. In addition, when asked where they get educational and technical assistance from, 25% indicated university/research institution, and 47% indicated multiple or a combination of sources. About 64% of the producers indicated they get a combination of information and assistance, namely on production, marketing, and health. Exactly 62% of respondents affirmed that they kept records. This is encouraging as record-keeping is one of the keys to a successful farm operation. In fact, 20% indicated they kept records using a farm record book or regular book, and 22% indicated they are using a computer; less than 10% each used papers/folders, or boxes.



Table 4. Marketing Characteristics (N = 121)

Variable	Frequency	Percent
<b>Beef Cattle Sold in Previous Year</b>		
5 or less	36	29.8
6-10	15	12.4
11-15	11	9.1
16-20	10	8.3
21-25	5	4.1
26-30	6	5.0
More than 30	4	3.3
No Response	9	7.4
Not Applicable	25	20.7
<b>Where Beef Cattle is Normally Sold</b>		
On-farm	9	7.4
Auction	53	43.8
Wholesale	13	10.7
Multiple	7	5.8
Other	9	7.4
No Response	5	4.1
Not Applicable	25	20.7
<b>Who Usually Buys Beef Cattle or Products</b>		
Direct Consumers	11	9.1
Special Buyers	17	14.0
Wholesalers	38	31.4
Processors	4	3.3
Multiple	10	8.3
Other	9	7.4
No Response	17	5.8
Not Applicable	25	20.7
<b>Meat Goats Sold in Previous Year</b>		
10 or less	18	14.9
11-15	2	1.7
16-20	5	4.1
21-25	0	0.0
26-30	3	2.5
More than 30	6	5.0
Not Applicable	87	71.9

Table 4. Continued

Variable	Frequency	Percent
<b>Where Meat Goat is Normally Sold</b>		
On-farm	14	11.6
Auction	7	5.8
Wholesale	5	4.1
Multiple	5	4.1
Other	0	0.0
No Response	3	2.5
Not Applicable	87	71.9
<b>Who Usually Buys Meat Goats or Products</b>		
Direct Consumers	12	9.9
Other Goat Farmers	9	7.4
Wholesalers	4	3.3
Processors	0	0.0
Multiple	3	2.5
Other	2	1.7
No Response	4	3.3
Not Applicable	87	71.9
<b>Beef Cattle Sold</b>		
Price per Live Animal	18	14.9
Price per Pound of Live Animal	58	47.9
Price per Pound of Beef	2	1.7
Multiple	2	1.7
No Response	16	13.2
Not Applicable	25	20.7
<b>Meat Goat Sold</b>		
Price per Live Animal	14	11.6
Price per Pound of Live Animal	10	8.3
Price per Pound of Goat Meat	1	0.8
Multiple	1	0.8
No Response	8	6.6
Not Applicable	87	71.9
<b>Frequency of Inquiry for Meat Goat or Goat Meat</b>		
Rarely	8	6.6
Frequently	14	11.6
Cannot keep up with Requests	6	5.0
Don't know/Not Sure	3	2.5
No Response	3	2.5
Not Applicable	87	71.9

Table 4. Continued

Variable	Frequency	Percent
<b>Education and Technical Assistance</b>		
University/Research Institution	30	24.8
Government Agency	10	8.3
Community-Based Organization	4	3.3
Multiple	57	47.1
Other	6	5.0
No Response	14	11.6
<b>Type of Information and Assistance</b>		
Production	9	7.4
Marketing	2	1.7
Health	5	4.1
Grant/Loan assistance	6	5.0
Multiple	77	63.6
Other	2	1.7
No Response	20	16.5
<b>Record-Keeping</b>		
Yes	75	62.0
No	38	31.4
No Response	8	6.6
<b>How Records are Kept</b>		
Book/Farm Record Book	24	19.8
Computer	26	21.5
Folders/Papers	10	8.3
Box	7	5.8
No Response	16	13.2
Not Applicable	38	31.4

Table 5 reflects the chi-square test results between selected farm characteristics (acreage farmed, beef cattle herd size, and meat goat herd size) and socioeconomic variables. Acreage farmed was significantly affected by age and education, respectively,  $p = 0.046$  and  $p = 0.053$ . This means that age and education are not independent of acreage farmed; the null hypotheses that age and education are independent of acreage farmed are rejected. For age, it probably implies that older farmers will have larger farm acreages than younger farmers, because older farmers are generally more seasoned than younger farmers, and therefore, could handle more challenges than younger farmers. Similarly, for education, producers with relatively higher education would have larger farm acreages, because they would have or tend to pursue more information and assistance to cause them to succeed compared to those with relatively lower educational levels. Farming status, gender, race/ethnicity, and annual household income were not significant. The null hypotheses that these variables are independent of acreage farmed are not rejected.

Table 5. Chi-Square Tests between Farm Characteristics and Socioeconomic Variables

Variable	df	$\chi^2$	<i>p</i> value
<b>Acreage Farmed</b>			
Farming Status	21	23.275	0.329
Gender	14	15.995	0.314
Race/Ethnicity	21	19.761	0.538
Age	49	66.833**	0.046
Education	35	49.472**	0.053
Household Income	49	36.394	0.909
<b>Beef Cattle Herd Size</b>			
Farming Status	27	22.206	0.727
Gender	18	24.820	0.130
Race/Ethnicity	27	27.267	0.449
Age	63	76.853	0.113
Education	45	48.637	0.329
Household Income	63	43.845***	0.000
<b>Meat Goat Herd Size</b>			
Farming Status	27	34.989	0.139
Gender	18	31.716**	0.024
Race/Ethnicity	27	85.473***	0.000
Age	63	104.441***	0.001
Education	45	87.002***	0.000
Household Income	63	58.536	0.636

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

Beef cattle herd size was significantly affected by annual household income,  $p = 0.000$ . This implies that annual household income is not independent of beef cattle herd size; the null hypothesis that these variables are independent of each other is rejected. A possible interpretation is that producers with higher household incomes are able to afford larger herds, because of more money at their disposal than those with lower household incomes. Farming status, gender, race/ethnicity, age, and education were not significant. The null hypotheses that these variables are independent of beef cattle herd size are not rejected.

Meat goat herd size was significantly affected by gender, race/ethnicity, age, and education, respectively,  $p = 0.024$ ;  $p = 0.000$ ;  $p = 0.001$ ; and  $p = 0.000$ . This implies that gender, race/ethnicity, age, and education are not independent of meat goat herd size; the null hypotheses that these variables are independent of each other are rejected. For gender, it may mean that males have larger meat goat herd sizes than females because males generally have longer tenure in meat goat production and are able to handle larger herds. For race/ethnicity, there is the possibility that Black producers would have smaller herds than White producers because

generally White producers have more resources than Black producers and are able to acquire larger herds. For age, there is a possibility that older producers will have larger herd sizes, because of experience in life and also have more resources. Moreover, those with higher levels of education will have larger herds because of their ability to seek and have the requisite knowledge to manage larger herds. Farming status and annual household income were not significant. The null hypotheses that these variables are independent of meat goat herd size are not rejected.

Table 6 shows the chi-square test results between selected economic characteristics (beef cattle profits and meat goat profits) and socioeconomic variables. Beef cattle profits was significantly affected by gender, race/ethnicity, and age, respectively,  $p = 0.021$ ,  $p = 0.003$ , and  $p = 0.001$ . This means that gender, race/ethnicity, and age are not independent of beef cattle profits; the null hypotheses that these variables are independent of beef cattle profits are rejected. Regarding gender, it may imply that more male producers than female producers make profits from beef cattle production. For race/ethnicity, it could mean that more White producers than Black producers make profits from beef cattle production. Similarly, for age, older producers may make more profits from beef cattle production, because of their experience in life compared to younger producers. Farming status, education, and annual household income were not significant. The null hypotheses that these variables are independent of each other are not rejected.

Table 6. Chi-Square Tests between Economic Characteristics and Socioeconomic Variables

Variable	df	$\chi^2$	$p$ value
<b>Beef Cattle Profits</b>			
Farming Status	33	36.414	0.313
Gender	22	37.519**	0.021
Race/Ethnicity	33	59.842***	0.003
Age	77	122.337***	0.001
Education	55	48.599	0.716
Household Income	77	82.354	0.317
<b>Meat Goat Profits</b>			
Farming Status	24	71.149***	0.000
Gender	16	25.059*	0.069
Race/Ethnicity	24	63.935***	0.000
Age	56	85.010***	0.007
Education	40	41.958	0.386
Household Income	56	56.865	0.443

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

Meat goat profits was significantly affected by farming status, gender, race/ethnicity, and age, respectively,  $p = 0.000$ ,  $p = 0.069$ ,  $p = 0.000$ , and  $p = 0.007$ . This implies that farming status,

gender, race/ethnicity, and age are not independent of meat goat profits; the null hypothesis that these variables are independent of meat goat profits are rejected. Regarding farming status, it may mean that more full-time farmers than part-time farmers make profits from meat goat production because full-time farmers have more time and other resources devoted to production. For gender, it may also mean that more male producers than female producers make profits from meat goat production. Also, for race/ethnicity, it could mean that more White producers than Black producers make profits from meat goat production. Similarly, for age, older producers may make more profits from meat goat production, because of their experience in life compared to younger producers. Education and annual household income were not significant. The null hypotheses that these variables are independent of each other are not rejected.

Table 7 presents the chi-square test results between selected marketing characteristics (the number of beef cattle sold, the number of meat goats sold and keeping records) and socioeconomic variables. Number of beef cattle sold was significantly affected by farming status, gender, race/ethnicity, age, and education, respectively,  $p = 0.018$ ,  $p = 0.000$ ,  $p = 0.006$ ,  $p = 0.014$ , and  $p = 0.016$ . This means that farming status, gender, race/ethnicity, age, and education are not independent of the number of beef cattle sold; the null hypotheses that these variables are independent of number of beef cattle sold are rejected. Regarding farming status, it is more likely than not that full-time producers sold more beef cattle than part-time producers, because of the former's tendency to devote more time and resources to their enterprises. For gender, it may imply that more male producers than female producers sold more beef cattle. For race/ethnicity, it could mean that more White producers than Black producers sold more beef cattle. Similarly, for age, older producers may have sold more beef cattle, because of their experience compared to younger producers. For education, it is plausible that producers with higher educational levels sold more beef cattle than those with lower levels of education, because of the former's inclination to seek more marketing information. Annual household income was not significant. The null hypothesis that these variables are independent of each other is not rejected.

Number of meat goat sold was significantly affected by farming status, race/ethnicity, age, and education, respectively,  $p = 0.023$ ,  $p = 0.000$ ,  $p = 0.068$ , and  $p = 0.051$ . This means that farming status, race/ethnicity, age, and education are not independent of the number of meat goat sold; the null hypotheses that these variables are independent of number of meat goats sold are rejected. Considering farming status, it may mean that more full-time farmers than part-time farmers sold more meat goats, again because of the former's tendency to devote more time and resources to their enterprises. For race/ethnicity, it could mean that more White producers than Black producers sold more meat goats. Similarly, for age, older producers may have sold more meat goats than younger producers, because of their experience compared to younger producers. Also, for education, it is plausible that producers with higher educational levels sold more meat goats than those with lower levels of education, because of the former's inclination to seek more marketing information. Gender and annual household income were not significant. The null hypotheses that these variables are independent of each other are not rejected.

Table 7. Chi-Square Tests between Marketing Characteristics and Socioeconomic Variables

Variable	df	$\chi^2$	<i>p</i> value
<b>Number of Beef Cattle Sold</b>			
Farming Status	24	40.788**	0.018
Gender	16	48.023***	0.000
Race/Ethnicity	24	44.751***	0.006
Age	56	81.632***	0.014
Education	40	61.404**	0.016
Household Income	56	69.145	0.112
<b>Number of Meat Goats Sold</b>			
Farming Status	15	27.735**	0.023
Gender	10	11.065	0.352
Race/Ethnicity	15	49.983***	0.000
Age	35	48.168*	0.068
Education	25	37.571**	0.051
Household Income	35	24.927	0.897
<b>Keeping Records</b>			
Farming Status	6	33.198***	0.000
Gender	4	36.746***	0.000
Race/Ethnicity	6	26.788***	0.000
Age	14	43.065***	0.000
Education	10	38.407***	0.000
Household Income	14	44.756***	0.000

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

Keeping records was significantly affected by farming status, gender, race/ethnicity, age, education, and annual household income (i.e., by all the socioeconomic variables), respectively,  $p = 0.000$ ,  $p = 0.000$ ,  $p = 0.000$ ,  $p = 0.000$ ,  $p = 0.000$ , and  $p = 0.000$ . This implies that farming status, gender, race/ethnicity, age, education, and annual household income are not independent of keeping records; the null hypotheses that these variables are independent of keeping records are rejected. This may mean that, more full-time farmers than part-time farmers; more males than females; more White producers than Black producers; more older producers than younger producers; more educated producers than less educated producers; and producers with higher annual household incomes than those with lower annual household incomes are likely to keep records.

### Conclusion

The study analyzed the characteristics and practices of selected Alabama small livestock producers, focusing on economics and marketing. Particularly, it identified and described socioeconomic characteristics; described and assessed selected farm, economic and marketing

characteristics and practices; and examined relationships between socioeconomic characteristics and the other characteristics or practices. Data were obtained using convenience sampling and analyzed by descriptive statistics and chi-square tests. The results revealed that the socioeconomic characteristics reflected a higher proportion (69%) of part-time farmers; higher proportion (83%) of males; higher proportion (81%) of Blacks; higher proportion (51%) of middle-aged producers; higher proportion (65%) with at most a two-year/technical education or degree; and higher proportion (51%) with \$40,000 or less annual household income. A majority (53%) either purchased farms outright or paid with a mortgage; only 22% inherited farms. Also, a majority (58%) had been farming more than 30 years, and an identical proportion (58%) farmed over 60 acres. Most producers had small herds (40 or less for beef cattle and 30 or less for meat goats).

Also, a relatively low proportion (34% for beef cattle and 9% for meat goats) made profits, mainly below \$5,000 for beef cattle and \$2,500 for meat goats, the previous year. A majority (87%) also sold animals live on-farm or at auction/stockyard. Although several of the producers indicated they knew the prices per live animal or per pound of live animal, when asked to provide the various prices, most of them did not or could not do so. University/research institution was the main source of educational and technical assistance, and most of the producers (62%) kept records. The chi-square tests showed that farming status, gender, race/ethnicity, age, education, and annual household income had statistically significant relationships with selected farm, economics, and marketing characteristics.

Based on the above, of very small herds, there is a need to embark on education and training programs to increase herd sizes. Larger herd sizes than those currently appertaining may bring higher incomes. Moreover, there is a need to assist producers to develop or investigate alternative mechanisms of increasing incomes and/or profits. One way may be cost-saving strategies such as not feeding animals beyond a required age or weight, and selling them. Another way may be selling through other means or developing niche markets. Since most producers indicated they obtained education and technical assistance from university/research institution, research and Extension have critical roles to play in assisting producers to realize their full potential.

One thing is obvious; most of the producers do not process or do value-added activities. They appear to be price-takers generally speaking. Also, since they are sole proprietors, they have to perform all marketing activities from production until they dispose of the animals, sometimes through the auction/stockyard or to the final consumer. Thus, they have to be meticulous about keeping records; as meticulous record keeping will quickly expose weaknesses in their enterprises. In addition, since farming status, gender, race/ethnicity, age, education, and annual household income appear to be important vis-à-vis the selected farm, economics, and marketing characteristics, these factors should be considered in developing economic and marketing training programs to assist producers in the study area. It is suggested that future studies involving in-depth statistical analysis be conducted.



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