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A COMPARATIVE ANALYSIS OF SELECTED PRODUCER CHARACTERISTICS AND PRODUCTION PRACTICES OF SMALL LIVESTOCK PRODUCERS IN THREE SOUTHEASTERN STATES OF THE US

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Abstract

It is germane to know the characteristics and practices of small livestock producers in order to assist them; however, there are a paucity of investigations on the subject in the Southeastern US. Thus, this study assessed selected producer characteristics and production practices of small livestock producers in three Southeastern States. The data were collected from three samples of producers in several counties of Alabama, Georgia, and Florida, and were analyzed using descriptive statistics. The results showed that, a majority of producers practiced rotational grazing, had parasite problems, quarantined newly acquired animals, and used veterinary services. Additionally, a majority sold their animals live, and many kept records manually or on a computer. The findings indicate commonalities across the three states, in terms of rotational grazing, parasite problems, quarantine, how animals are sold, and record keeping. There is a need to assist small producers in certain aspects of production practices and in value-added processes.

Keywords: Comparative Analysis, Producer Characteristics, Production Practices, Small Livestock Producers, Southeastern States

Introduction

Small producers are important to Agriculture in the world in general, and in the US in particular. The question is, "who is a small producer?" The Office of the Chief Statistician, FAO (2018) proposed two criteria to define who a small producer is, as a guide in measuring the sustainable development goals. The first criteria was physical size, based on size of operated land and/or number of livestock heads. The second criteria was economic size, based on revenues. Both the physical size (amount of land; number of livestock) and economic size are defined as those "units" falling in the first two quintiles (bottom 40%) of the cumulative distribution in a country. According to Lowder et al. (2016), there are about 570 million small farms in the world, and a majority of them are small farms of less than 2 hectares (about 5 acres). They observed that, overall, the average farm size in most low- and lower-middle countries has decreased, and that, in selected upper-middle and almost all high-income countries the average size has increased. Relatedly, in the US, for example, USDA NASS (2019a) reported that although the number of small farms increased, overall, the size of farms increased, based on the 2017 Agricultural Census.

According to USDA NASS (2014), in 2012, there were 3.2 million farmers, who operated 2.1 million farms. Of these, 13.7% were female operators; 33% were 65 years or older, and 48% considered farming as their primary occupation. Yet, prior, USDA APHIS (2012a), based on the 2007 Agriculture Census, reported that 14% of operators of all US farms were females; whereas, 9% of operators of all small-scale livestock farms were females; and also, that 30% of operators of US farms were 65 years or more, and 37% of all small-scale livestock farms were 65 years or more. Furthermore, USDA NASS (2019a) reported that in 2017, there were 3.4 million producers, who operated 2 million farms. Of these, 64% were males, and 36% were females; those 65 years

or older represented 34% of the total number of producers; Whites comprised 95% of the total number of producers; Blacks comprised 1.3%. The average age of the producers was 57.5 years. Also, according to the USDA NASS (2019b), in 2017, farmland size of 1-9 acres constituted less than 1% of total farmland; farmland size of 10-49 acres constituted only 2% of total farmland; farmland size of 50-179 acres constituted only 6% of total farmland; however, those 2,000 acres or more constituted 58% of total farmland. This is an indication of a trend toward larger farms. Yet, the smaller farmland sizes, 49 acres or less constituted 42% of the total number of farms, and the larger farm sizes, 2,000 acres or more, constituted only 4% of the total number of farms. The preceding shows that small farms are higher in number than larger farms, and therefore, need attention, or at least, play an important role in the agricultural space.

Indeed, the Southeastern US has many small producers who are involved in livestock production, mainly raising beef cattle and meat goats, and they sell their livestock locally or regionally. However, it is not clear what the producer characteristics and production practices of these small livestock producers are on a comparative basis. As far as the authors know, there is no other study that compares specific characteristics and practices of small livestock producers in the Southeastern US, except a study conducted by Tackie et al. (2020) on farm, economic, and marketing characteristics and practices. Therefore, there is the need to ascertain additional characteristics and production practices for such producers. Thus, the purpose of this study was to conduct a comparative analysis of selected characteristics and production practices of small livestock producers in three Southeastern states of the U.S. Specific objectives were to (1) assess producer characteristics (or socioeconomic factors), and (2) assess production practices. The rest of the study is divided into four sections, dealing with the relevant literature, methodology, results and discussion, and conclusion.

Literature Review

Production, farm, farmer characteristics are important in Agriculture in order to understand the general dynamics of processes and methods, or nature of the sector. USDA APHIS (2012a) reported on the characteristics of small-scale US livestock operations. They examined farms that had sales $10,000 to $499,999 and livestock/animal species, including cattle, goats, and sheep, being raised for sale or home consumption. About 87% of the producers had beef cattle, and 47% had more than one livestock. The Southern region had 44% of operations with more than one livestock; the West had 67% of operations with more than one livestock; North Central had 45% with more than one livestock, and Northeast had 50% of its operations with more than one livestock. Approximately 45% of the farms were residential/lifestyle farms in which the producer's primary occupation was off-farm, 27% were retirement farms. When asked reasons for farming 64% indicated lifestyle, 61% indicated maintaining farm for next generation; another 61% indicated family tradition/heritage; 41% indicated source of income; 35% indicated producing products for personal use, and 33% indicated tax benefits.

A known practice among livestock producers is rotational grazing. Meierhenry (2005) observed that rotational grazing along with improved pasture enhances livestock/cattle production. The author reiterated that rotational grazing requires pasture management; that is, watching how the pasture is growing and intervening when it is not looking good. The author also argued that a good practice is to assess the soil by testing it, and taking action, if necessary, to improve the soil.

Further, Meierhenry explained that in a system developed, cattle were placed in paddocks when grass/forage was 10-12 inches in height, and animals were moved to another paddock when grass was down to 3-4 inches. An additional recommendation was to keep a calendar of rotation to let each paddock have a resting period of several weeks of re-growth before re-grazed. Ultimately, Meierhenry argued that the benefit of rotational grazing is an improvement in the health of animals, pasture, and soil and land.

Lozano (2006) conducted a split-season rotation grazing study. The idea was to divide a group of beef cattle into four groups. One group, the control group, was to be grazed for 180 days and sold, and the other three groups were to be kept on other rotational grazing plots for shorter periods of 60 days at a time to be sold at the end of each 60 day-period. They surmised that any increased labor costs will be offset by increased profits. However, the author reported that the impact of the study was small or "insignificant", because of the small numbers used in the study, as well as not fully completing the study (the implementation of the third 60-day group was aborted) due to market conditions (that is, drop in cattle prices). Lozano suggested that when the study was extrapolated to 100, 500, or even 1,000 head (and on a yearly or 10-year basis), results of the study would benefit indicated producers with larger herds would benefit more than those with smaller herds (less or equal to 100 heads).

AgricSite (n.d.) discussed rotational grazing cattle on small acreage. Rotational grazing resulted in higher production rates on small acreages. Rotational grazing also allows for better managed pasture with higher quality and high grass yields compared to non-rotational grazing. AgricSite argued that rotational grazing may be the answer to the plight of most small livestock/cattle producers; that is, providing adequate pasture. It was recommended that livestock/cattle be rotated based on four criteria, namely, time, variable recovery time, feed on offer, and animal intake. It concluded that rotational grazing of cattle on small acreage is a necessity as it helps producers to properly manage their grazing areas, leading to reduced costs.

Wang et al. (2020) examined challenges for rotational grazing practices among ranchers. They collected data by mail survey, and analyzed the data by descriptive and ordinal logistic regression analysis. Respondents were both adopters and non-adopters. The non-adopters, 40% of the total respondents, indicated that they do not practice rotational grazing because they perceive labor, water resources, and initial investment costs as three main challenges to adoption or usage. Also, non-adopters, on average, had been farming 38 years and their educational level was slightly above some college/technical education. Based on the regression analysis, the authors reported that producers with better soil quality, more grassland, and land in general, adopted rotational grazing, and thought that there were low barriers to adopting or using rotational grazing. The authors suggested education and technical support for non-adopters plus monetary support from government programs would encourage them to adopt the practice. Regarding adopters, they suggested effective outreach efforts and governmental support to encourage them to maintain rotational grazing practices.

Soil testing is also a recommended or acceptable practice. Hergert (2009) examined soil testing as an enhancer of efficient fertilizer use. He recommended the need to obtain good soil samples and well-based soil sample information, and the need for soil test calibration relationships that reflect

both crop response and profit response. The author also stressed that soil tests can be used to determine where fertilizers should be applied, being mindful of the fact that over fertilization affects environmental quality. Hergert indicated that a soil test can be done by either of two methods: traditional, whole-field method and site-specific precision method. However, the latter approach is more expensive. In any case, applicable or appropriate soil testing, results in a decrease in production cost, and increase in income.

Testin et al. (2018) assessed farmer-focused tools to improve soil health monitoring on smallholder farms in the Morogoro Region of Tanzania. They used a participatory approach to enhance tomato farmers' understanding of and access to soil health monitoring. Using baseline soil characteristics, they ascertained local soil knowledge and developed a soil health card to assess soil health. Consequently, the farmers were trained on the use of soil test kit to quantitatively assess soil health. After the training, more farmers indicated increased awareness of soil testing services, agreed they had access to soil testing services, and agreed that soil management recommendations were easy to understand, based on a pre-test and post-test analysis. They concluded that improvement in soil health can have an impact on long-term soil and plant health; thus, influencing the viability of operations.

Another important practice is health and control of parasites. Rahmann and Seip (2007) analyzed alternative management strategies to prevent and control endo-parasite diseases in sheep and goat farming systems. They examined several strategies, including pasture management, biological control (earthworms, dung beetles, and nematophagous fungi), grazing system, stocking rate, monitoring and intervention, selective breeding, and nutrition. Of the strategies examined, the authors preferred effective pasture management most, because it can be easily transferred to most farming situations, followed by others practices, in particular, stocking rate reduction, and regular intensive monitoring and intervention. Also found very "credible" or effective to use or apply, were selective breeding and nutritional status/nutrition.

In a similar vein, Thamsborg et al. (2008) examined alternative approaches to control internal parasites in livestock. They argued that these parasites hurt the production of farmers, and they advocated usage of two sets of measures. The first set was primary measures, which included pasture management, bioactive crops and nutrition, and selective breeding for host resistance. The second set was secondary measures, which included biological controls, copper oxide needles, and vaccination.

Also, Coffey and Hale (2012) evaluated the tools for managing internal parasites in small ruminants. They argued that pasture management is the fundamental tool to internal parasite management. The reason is pasture management is a low-cost option in a range of options. Coffey and Hale listed nine strategies to reduce internal parasite exposure to animals (p. 7), particularly, "(1) provide plenty of available forages, (2) reduce stocking rate to appropriate levels, (3) rest contaminated areas, (4) give access to browse and bioactive forages, (5) use resistant animals and alternate grazers (cattle, horses), (6) provide clean pastures for young and other susceptible stock, (7) graze animals or regrowth from silage or hay crops, (8) use annual forage crops such as rye, turnips, or chicory (cool season) and sunn hemp, cowpeas, sorghum, or soybeans (warm season), and (9) rotate animals away from larvae before they are infective." They also provided eight

principles of pasture management for animal health as (p. 10); these were, "(1) maintain proper forage height, (2) maintain some "clean grazing" areas, (3) manage problem areas, (4) maintain proper stocking rate, (5) use multispecies grazing, (6) use leader-follow grazing (lead with susceptible classes, follow with less susceptible; for example, lead with lambs and follow with cattle or dry ewes), (7) offer diverse forages and browse, and (8) use rotational grazing with long rest periods. The authors suggested using a myriad of management techniques because of the non-efficacy of using just one technique or strategy.

Relatedly, Kumar et al. (2013) assessed internal parasite management in grazing livestock. They observed that internal parasites can reduce profitability in livestock operation. They also stated that proper management of these parasites is essential for an operation to be successful. They argued for both on-the-host and off-the-host measures to combat the problem. They recommended several management practices to deal with the issue, including housing management, nutritional management, pasture management, a look at/examination of genetics of animals, biological control/management, and anti-parasitic drug management strategies. A key strategy, they emphasized, was to use an integrated approach of adopting two or three of the measures to attain effective/sufficient control.

Another important practice is quarantining. USDA APHIS (2012b) examined biosecurity in small-scale US livestock operations. They defined biosecurity as a, "system of practices designed to reduce the risk of introducing disease to an operation to prevent spread among animals (p. 1)." It collected data by a survey, and analyzed the data by descriptive statistics. It mentioned that the addition of new animals to a farm or the return of existing animals to a farm is a potential source of disease transmission. Therefore, it stated that both new and returning animals should be quarantined as appropriate to minimize the potential for the spread of disease. About 40% of producers that had new or returning animals on their farms always quarantined animals, and 12% sometimes quarantined animals; however, 48% rarely or never quarantined animals. Additionally, a quarantine period of between 21-30 days is required for most livestock species (USDA 2012b). Producers that always quarantined animals, quarantined, on average, for 25 days; those who sometimes quarantined, quarantined, on average, for 17 days. For those who did not quarantine or rarely quarantined animals, the main reasons given were inadequate labor or time, trust in the source of the animal (new or returning), and do "not have a separate enclosure or equipment for separating animals."

Veterinary care is yet another important practice. The USDA (2012b) assessment found overall, 62% of small-scale livestock operations had used a veterinarian in the past 12 months and 38% had not used a veterinarian. When broken down into regions, about 73% in the North Central region had used a veterinarian in the past 12 months; 71% in the West region had used a veterinarian in the past 12 months; 59% in the Northeast region had used a veterinarian in the past 12 months, and 55% in the South region had used a veterinarian in the past 12 months. Those who had not used a veterinarian in the past 12 months, indicated "no disease or other need for veterinary care", "provided own animal healthcare", or "too expensive" as reasons for having not done so (pp. 3-4).

Pirez et al. (2019) analyzed small-scale and backyard livestock owners veterinary service and other management needs assessment. They collected data by a semi-structured questionnaire, and analyzed them by descriptive statistics. They found that 86% owned chickens (of the remaining 14%, 53% owned small ruminants and 31% owned cattle). A majority, 82% and 71%, respectively, got information about animal health and animal treatment procedures from the internet. Most of the respondents (66%) indicated their veterinarian type as both pet and food animal, or only food animal veterinarian; 82% were also satisfied with the level of veterinary care that they received. Owners' satisfaction with veterinary care were associated with their location (state), species owned, and urban or peri-urban setting. Also, the livestock species type (cattle, small ruminants, etc.) and use (home or commercial [outside home]) were associated with different biosecurity practices. The researchers concluded that veterinary care of animals owned by small-scale backyard livestock owners is important to the assurance of food safety of animal products.

How animals are sold is also an important practice. Regarding this, USDA APHIS (2012b) reported that 39% of producers transported animals to slaughter facilities to be slaughtered and processed; 6% used mobile slaughter services, and 55% did not use any slaughter service. On the basis of regions, 51% in the North Central region transported animals to slaughter facilities, and 6% used mobile slaughter services; 42% in the West region transported animals to slaughter facilities, and 27% used mobile slaughter services; 50% in the Northeast region transported animals to slaughter facilities, and 4% used mobile slaughter services; 31% in the South region transported animals to slaughter facilities, and 2% used mobile slaughter services.

Record keeping is another important practice. Devonish et al. (2002) assessed record keeping among small farmers in Barbados. They collected data through interviews from a random sample of farmers. They used descriptive statistics, percentages and chi-square tests, to analyze their data. They reported that 57% of farmers kept records, whereas 43% did not. Of course, those who did not keep records indicated time constraints as their main reason for not doing so. Though the majority of the respondents were in the 36-45 and 46-60 year age groups, there was no significant relationship between age and recordkeeping. For farmers' status, a majority of farmers were part-time farmers (68%) versus full-time farmers (32%). There was a significant relationship between farmers' status and recordkeeping. There was no significant relationship between recordkeeping and gender. The most common recordkeeping method was the manual method, by 81% of the respondents, and most farmers kept records on a weekly basis.

The literature discussed above, can be summarized as follows: rotational grazing (Meierhenry, 2005; Lozano, 2006; AgricSite, n.d.; Wang et al., 2020); soil testing (Hergert, 2009; Testin et al., 2018); parasite problems (Rahman and Seip, 2007; Thamsborg et al., 2008; Coffey and Hale, 2012; Kumar et al., 2013); quarantining (USDA APHIS, 2012b); veterinary care (USDA APHIS, 2012b; Pirez et al., 2019); how animals are sold (USDA APHIS, 2012b); and recordkeeping (Devonish et al., 2002).

Methodology

The authors developed a questionnaire comprising six parts: specifically, farm information, production, processing, economics, marketing, and demographic information. It was refined several times before being submitted to the Institutional Review Board for approval. After that, it was administered to a convenience sample of livestock producers in the three southeastern states,

Alabama, Georgia, and Florida, at different time periods. The authors used convenience sampling, because there was a lack of a known sampling frame for the targeted farmers.

The data used in the study were collected by several personnel (county Extension agents, technical specialists, as well as graduate students), in-person from small beef cattle and meat goat producers, either through direct interviews or self-administered in the presence of the administrator. In Alabama, the data were obtained from producers mainly in south central counties, and were collected from the summer of 2013 to the spring of 2014. The total sample was 121. In Georgia, the data were obtained from producers mainly in selected counties of the north, central, and southern parts of the state, and were collected from the summer of 2013 to the spring of 2016. The total sample was 40. In Florida, the data were obtained from producers mainly in selected counties in the north and central parts of the state, and were also collected from the summer of 2013 to the summer of 2016. The total sample was 70.

This particular study focused on data that comprised producer characteristics (or socioeconomic factors) and production practices. The socioeconomic factors included farming status, gender, race/ethnicity, age, education, and household income. The production practices included rotational grazing, soil testing, parasite problem, deworming, quarantining, veterinary services, how animals are sold, and record keeping. The data were input using SPSS 26.0© (IBM, Armonk, NY), and were analyzed by descriptive statistics, specifically, percentages. Using percentages is an acceptable way of normalizing all results. The researchers chose this methodology because the study's primary focus was to assess trends in the different factor or practice groupings in the different states. This study is also part of a larger study on small livestock producers and local and/or regional production, and parts; in particular, the socioeconomic factors are also reported elsewhere. They are reported here to give context to the study.

Results and Discussion

Table 1 presents the socioeconomic factors of the respondents. Alabama and Florida had more part-time producers, 69 and 60%, respectively, than full-time producers. The result for Georgia was contrary; it reflected slightly more full-time producers than part-time producers, 50 versus 48%. USDA APHIS (2012a) also confirmed more part-time small livestock producers than full-time producers. Alabama overwhelmingly had more male producers than female producers, 83 versus 14%. Georgia, however, had more female producers than male producers, 55 versus 43%. Florida reflected equal distributions of male and female producers, 50% each. Alabama showed more Black respondents than White respondents; reversely, Georgia and Florida had more White respondents than Black respondents. Georgia and Florida reflected the expected trend, that there are more White producers than Black producers in the nation in general [USDA NASS, 2019a]) than Alabama.

As expected, there were also more middle-aged to older producers (that is, 45 years or older) in all three states than younger producers. Alabama had 81% of such producers; Georgia had 78%, and Florida had 90%. When 55 years or older producers were considered, Alabama had 60% of such producers; Georgia had 63%, and Florida had 72%. These results compare favorably with

Table 1. Socioeconomic Factors and Animal/Enterprise Type (N = 121, 40, and 70)

Variable	AL	GA	FL
Farming Status			
Full-time	29.8	50.0	34.3
Part-time	68.6	47.5	60.0
No Response	1.7	2.5	5.7
Gender			
Male	82.6	42.5	50.0
Female	14.0	55.0	50.0
No Response	3.3	2.5	0.0
Race/Ethnicity			
Black	81.0	35.0	41.4
White	15.7	57.5	47.1
Other	0.8	2.5	1.4
No Response	2.5	5.0	10.0
Age			
20-24 years	2.5	0.0	0.0
25-34 years	0.8	2.5	1.4
35-44 years	9.1	12.5	7.1
45-54 years	20.7	15.0	18.6
55-64 years	30.6	22.5	32.9
65 years or older	29.8	40.0	38.6
No Response	6.6	7.5	1.4
Educational Level			
High School Graduate or Below	33.9	22.5	32.9
Two-Year/Technical Degree	15.7	17.5	10.0
Some College	15.7	12.5	30.0
College Degree	15.7	17.5	22.9
Post-Graduate/Professional Degree	14.0	27.5	2.9
No Response	5.0	2.5	1.4
Annual Household Income			
$10,000 or less	0.8	0.0	7.1
$10,001-20,000	13.2	2.5	7.1
$20,001-30,000	18.2	5.0	25.7
$30,001-40,000	19.0	7.5	20.0
$40,001-50,000	11.6	15.0	2.9
$50,001-60,000	15.7	10.0	20.0
Over $60,000	11.6	37.5	12.9
No Response	9.9	22.5	4.3

Table 1. Continued

Variable	AL	GA	FL
Animal/Enterprise Type			
Beef Cattle	71.1	57.5	18.6
Meat Goats	21.5	27.5	81.4
Both	6.6	12.5	0.0
No Response	0.8	2.5	0.0

USDA NASS (2019a) where the average age of a producer in the US was 58 years, and farmers 65 years or older were one-third of the total farmer population. With regards to education, most of the respondents had a higher than high school education – 61% for Alabama; 75% for Georgia, and 66% for Florida. The proportions were far lower for college educated (four-year and above) respondents. They were 30% for Alabama; 45% for Georgia, and 26% for Florida. With regards to annual household income, almost one-third (32%) and two-fifths (40%), respectively, of producers in Alabama and Florida had an annual household income of below $30,000, compared to Georgia, 8%. About half (46%) and nearly two-fifths (43%), respectively, of producers in Alabama and Florida had an annual household income of more than $30,000 but less than $60,000, compared to 33% for Georgia. Examining an annual household income of over $60,000, the proportions changed; Georgia had 38% in comparison to Alabama and Florida with, respectively 12 and 13%. This was not surprising as many small farmers made less than $10,000 in sales (USDA NASS, 2019a). When these sales are considered as a proxy for household income, the annual household income obtained in the study is relatively low. Furthermore, for animal/enterprise type, respondents in Alabama and Georgia had many more beef cattle than meat goats; 71 and 58%, respectively, in comparison to Florida with 19%. Contrarily, respondents in Florida had many more meat goats than those in Alabama and Georgia; 81% versus 22 and 28%, respectively.

Table 2 shows selected production practices and characteristics. In all three states, more producers practiced rotational grazing than those who did not; respectively, 68, 78, and 63% for Alabama, Georgia, and Florida. This agrees with Wang et al. (2020) who also found more adopters of rotational grazing than non-adopters. The results for regular soil testing for pasture were, however, different for the different states. By far, Georgia had more producers conducting regular soil tests, 73%. In the other two states, producers that regularly conduct soil tests for their pastures were 50% for Alabama and 59% for Florida. In the case of Alabama, between regular testers and non-testers were 50 and 48%, respectively. Those who do not do soil tests regularly should be encouraged to do so.

Table 2. Production Practices and Characteristics (N = 121, 40, and 70)

Variable	AL	GA	FL
Rotational Grazing			
Yes	67.8	77.5	62.9
No	31.4	20.0	37.1
No Response	0.8	2.5	0.0
Soil Tests for Pasture Regularly			
Yes	47.9	72.5	40.0
No	50.4	27.5	58.6
No Response	1.7	0.0	1.4
Parasite Problem			
Yes	58.7	65.0	54.3
No	40.5	35.0	45.7
No Response	0.8	0.0	0.0
Deworming			
Monthly	7.4	10.0	34.3
Quarterly	32.2	35.0	25.7
Yearly	33.9	32.5	18.6
Other	24.0	20.0	10.0
No Response	2.5	2.5	1.4
Quarantine			
Yes	78.5	80.0	82.9
No	15.7	15.0	17.1
No Response	5.8	5.0	0.0
Length of Quarantine Period			
14 days	19.8	22.5	22.9
21 days	29.8	40.0	10.0
28 days	16.5	17.5	18.6
Other	12.4	2.5	30.0
No Response	15.7	2.5	1.4
Not Applicable	5.8	15.0	17.1
Veterinary Services			
Yes	76.9	72.5	47.1
No	21.5	25.0	50.0
No Response	1.7	2.5	2.9
How Animals are Sold			
Live	86.8	77.5	98.6
Slaughtered	1.7	0.0	0.0
Both	7.4	20.0	1.4
Other	0.0	0.0	0.0
No Response	4.1	2.5	0.0

Table 2. Continued

Variable	AL	GA	FL
Record Keeping			
Yes	62.0	75.0	81.4
No	31.4	15.0	18.6
No Response	6.6	10.0	0.0
How Records Are Kept			
Box	5.8	0.0	0.0
Folders/Papers	8.3	12.5	11.4
Book/Farm Record Book	19.8	12.5	17.1
Computer	21.5	20.0	27.1
No Response	13.2	40.0	25.7
Not Applicable	31.4	15.0	18.6

On the issue of whether they had parasite problems or not, more producers in all three states indicated that they had parasite problems. Respectively, it was 59, 65, and 54% for Alabama, Georgia, and Florida. Relatedly, then, producers were asked how often they dewormed their animals. In both Alabama and Georgia, over 65% indicated they dewormed quarterly or yearly compared to 44% for Florida. However, a sizeable proportion of the Florida producers, 60%, indicated that they dewormed monthly or quarterly. This may be due to many more producers owning goats in Florida. Additionally, 24% and 20% dewormed at other intervals, respectively, for Alabama and Georgia. There is also a possibility that producers may be using other methods, such as pasture management, nutrition management, or biological management suggested by Rahmann and Seip (2007), Thamsborg et al. (2008), Coffey and Hale, and Kumar et al. (2013).

In all three states, more producers than not indicated that they quarantined newly purchased or acquired animals before introducing them into their herds. Quarantine percentages were 79% for Alabama; 80% for Georgia, and 83% for Florida. These rates are higher than the 40% always quarantine reported by USDA APHIS (2012b) for small-scale livestock operators. When respondents were asked the length of the quarantine period, 66% of the producers in Alabama indicated 28 days or less; 80% of the producers in Georgia indicated 28 days or less, and 52% of the producers in Florida indicated 28 days or less. When narrowed to 21 days or less, 50% of the producers in Alabama indicated 21 days or less; 63% of the producers in Georgia indicated 21 days or less, and 33% of the producers in Florida indicated 21 days or less. Generally, these periods fall within the 21-30 days recommended by USDA APHIS (2012b). Another practice examined was use of veterinary services. Many more producers in Alabama and Georgia use veterinary services than not; 77 and 73%, respectively. In Florida, the situation was different; slightly more producers do not use veterinary services than do (50 versus 47%). The veterinary services usage in Alabama and Georgia is higher than the 62% usage reported by USDA APHIS (2012b) for small-scale livestock farmers in the US.

Again, in all three states, more producers (an overwhelming majority) sold their animals live than slaughtered, or processed. The proportions were 87% for Alabama; 78% for Georgia, and 99% for Florida. These proportions are starkly different from the 45% by USDA APHIS (2012b). This is not surprising as small producers prefer to sell live or at the auction. The propensity to sell animals live may be due to the sizes of their enterprises or the relatively sizeable proportion of part-time producers among respondents. In the latter case, producers may be facing time constraints. Alternatively, it may be customer preference for purchasing live animals or the customer type. In all three states, a majority of producers sold their animals on-farm, at the auction, or used a combination of the two methods (not shown in Table).

Similarly, regarding record keeping, in all three states, more producers indicated that they kept records than not. These were, respectively, 62, 75, and 81% for Alabama, Georgia, and Florida. These rates are higher than the 57% reported by Devonish et al. (2002). When they were subsequently asked, how records were kept, at least one-third indicated book/farm record book or computer. Again, these rates are lower than the 81% manual form of recordkeeping reported by Devonish et al. (2002). The proportions were 41% for Alabama; 33% for Georgia, and 44% for Florida. When the preferences were narrowed to paper-relatedness, or manual (that is, excluding computer), the proportions were 34% for Alabama, 25% for Georgia, and 29% for Florida. The proportions for computer only were 22% for Alabama, 20% for Georgia, and 27% for Florida. The shortfalls between the proportion that keep records and the method by which records are kept is accounted for by the relatively high numbers of no responses in the "how records are kept" category.

Conclusion

This study compared selected producer characteristics and production practices of small livestock producers in three Southeastern states of the US, Alabama, Georgia, and Florida. Specifically, it assessed socioeconomic factors and production practices. Data were obtained from three samples of producers in several counties of Alabama, Georgia, and Florida, and were analyzed using descriptive statistics to determine patterns or trends among the various states. The results revealed, generally, more part-time producers, older producers, more producers with a high school or higher education but less than a four-year college degree, more producers with income between $30,000 to $60,000. Additionally, there were relatively more black producer respondents in Alabama than Florida or Georgia. The results also showed that rotational grazing was commonly practiced in all three states, 68% for Alabama; 78% for Georgia, and 63% for Florida. Regular soil testing for pasture was much more common for Florida (with 73%) than for Alabama and Georgia. For all three states, producers had a parasite problem, with 59, 65, and 54%, respectively, in Alabama, Georgia and Florida. As a result, many of the producers dewormed either quarterly or yearly for Alabama and Georgia, or monthly or quarterly for Florida. A great majority in all three states quarantined animals before introducing them into their herds; 78% for Alabama, 80% for Georgia, and 83% for Florida. Length of quarantine period varied but most were in the 28 days or less category. For use of veterinary services, Alabama producers dominated with 77%; followed by Georgia, 73%, and Florida, 47%. For the various states most of the producers, 78% or more, sold their animals live. Additionally, a great majority of the producers (62% in Alabama; 75% in Georgia, and 81% in Florida) kept records. However, a sizeable proportion did not indicate how they kept records. Yet, 34, 25, and 29%, respectively, kept records manually for Alabama, Georgia,

and Florida, and 22, 20, and 27%, respectively, kept records by computer for Alabama, Georgia, and Florida.

Based on the results, rotational grazing should be encouraged and maintained or increased as producers are doing well with this practice. Producers should realize that soil testing is good for a thriving pasture; hence the need to soil test more. Also, the producers should be educated on not deworming alone to control parasites. As mentioned by several researchers a confluence of approaches is better than one. Since there is a high propensity to quarantine by the producers, strengthening of the quarantine regime is needed since the producers are already amenable to that. Furthermore, the producers should be encouraged to use slaughter services as slaughtered animals result in a higher profit than selling live. Finally, recordkeeping is the cornerstone of assessment of progress of a farming business, and all producers should be encouraged to keep good records, manually or electronically. Research and Extension educators have a role to play in strengthening the operations of small livestock producers. Future studies are suggested to validate the results of the study. One limitation about the study is that the samples used were convenient samples, which may bias the results. Yet, convenient samples provide insights into the nature of relationships among subjects being studied.

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