

Tennessee Cattle Auction Market Trends

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Introduction

Since the late 1960s, there have been several reports about the state of the Tennessee livestock auction markets (Hicks and Badenhop, 1968; Spielman et al., 1983; McLemore et al., 1983; McClain and McLemore, 1987; Holland, 1991). However, there has not been an update on the number of licensed and active livestock auctions for cattle in Tennessee since Holland's (1991) report. Therefore, the purpose of this report is to provide an overview of the current livestock auction markets in Tennessee. There were three specific objectives:

- 1) Assess marketing opportunities and cattle supply by county;
- 2) Evaluate state and national market trends; and
- 3) Summarize research on marketing alternatives.

This document could be used for marketing education for producers, identifying future research needs on livestock auction markets, and to inform policy makers and regulators on the status of state licensed and active livestock auctions.

Assess Marketing Opportunities and Cattle Supply by County

Active Livestock Auctions

In 2017, the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) (2019) and industry specialists confirmed a total of 32 approved (licensed) and active cattle auction markets in Tennessee. The list of licensed and active cattle auction markets in Tennessee is shown in the appendix. Regions were divided following University of Tennessee (UT) Extension regional office lines ([Link](#)). There were nine cattle auction markets in East Tennessee, 12 in Middle Tennessee and 11 in West Tennessee.

Cattle Inventory and Sales

Data were collected on total head of cows, total head of cattle sold (including cows and calves), and total dollars in cattle sales (total receipts) from the 2017 USDA Census of Agriculture (2019). Table 1 summarizes these data by region. The total number of cows and cattle sold by head and dollars was found to be highest in Middle Tennessee, followed by East and West Tennessee. The total cattle receipts (in \$'s) can be divided by the total cattle sold (in head) to get an average value per head sold (Table 2). The highest average total value per head sold was in Middle Tennessee (\$783/head).

Table 1. Summary Statistics of Tennessee Cow Inventory and Cattle Sold by Region

Region	Cow Inventory (Head)	Total Cattle Sold (Head)	Total Cattle Receipts (\$)	Average Value Per Head Sold
East	339,470	337,079	\$250,574,000	\$743
Middle	411,795	417,856	\$327,102,000	\$783
West	195,466	176,395	\$123,863,000	\$702
Total	946,731	931,330	\$701,539,000	\$743

From these estimates, we can make some assumptions about the profitability of livestock auctions in Tennessee. Assuming a 2.5 percent sales commission, which could be low, auctions in East, Middle and West Tennessee would earn an average of \$18.59, \$19.57 and \$17.55 per head in sales commission, respectively. Estimating the cost of operating an auction market, however, is difficult. Two studies were conducted at UT in the 1980s that estimated the cost of operating a livestock auction market (Spielman et al., 1983; McLemore et al., 1983). These studies estimated the cost of operation to be between \$3.50 and \$5 per head in 1978 dollars, depending on the volume of cattle sold at an auction. Inflating this cost into 2017 dollars, the current cost of operating an auction was estimated to be between \$14 and \$20 per head, leaving tight margins for auctions to be profitable.

The two studies showed that the cost of operation decreased per animal unit as the volume of sales increased. These studies suggested that consolidating auction markets to lower their cost of operations would increase the profitability of auction markets and increase economic efficiency.

Evaluate State and National Market Trends

National Trends of Sales

At the national level, livestock sales data were collected for auction markets, direct sales and video/internet sales. We accessed these data through the Livestock Marketing Information Center and they are shown in Figure 1. In the early 2000s, the spread between the percentage of auction and video/internet sales was wider than what we see today. In 2016 and 2017, there were months when cattle direct sales represented a higher percentage of sales than auction sales. This suggests video/internet sales are becoming a larger percentage of total livestock sales. The percentage of direct sales, however, has remained fairly consistent over time.

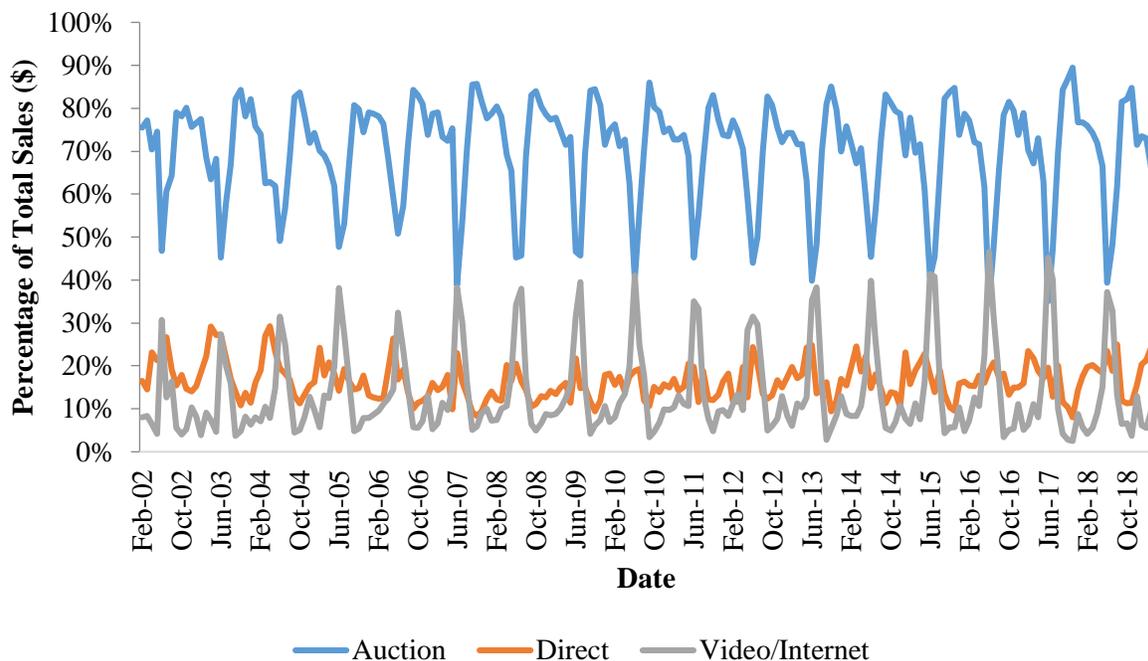


Figure 1. Percentage of U.S. Cattle Sales in Auctions, Direct Sales and Video/Internet Sale.

Change in Tennessee Auction Markets

We do not currently have data on the number of approved auctions over time, but we do have references from previous studies. A 1968 study of Tennessee livestock auction markets by Hicks and Badenhop (1968) concluded that Tennessee had too many livestock auction markets. They recommended the 74 auction markets in operation in 1968 be reduced to a maximum of 35 auction markets. They went on to say the most efficient number of auction markets would likely be around 18. Between 1968 and 1983, the total number of auction markets was reduced to 53 (McClain and McLemore, 1987). However, McClain and McLemore (1987) determined the optimal number of livestock auctions in Tennessee would be 19 auctions that would sell an annual volume of roughly 80,000 animals per auction. At the time of the study, there were 53 auction markets, with each auction selling

approximately 22,000 head per year. They went on to discuss how their proposed system would reduce the cost of operating a livestock auction market and suggested that the state should discourage new licensing of auction markets.

The next identified study is Holland (1991), which reported that the number of livestock auction markets in 1991 was 44 weekly auction markets, which is slightly higher than the 32 approved Tennessee auction markets in 2017.

Changes in Tennessee Cattle Herd

Figure 2 shows the total number of cattle and calves in Tennessee from 1970-2018. The total number of cattle and calves is calculated by summing together the number of cows and heifers that have calved (beef cows and milk cows), plus all heifers (replacement beef, replacement milk and other heifers), plus steers over 500 lbs, plus bulls over 500 lbs, plus calves under 500 lbs. From 2000 through 2014, the herd numbers were decreasing, with a small increase in 2015. Figure 3 shows the total number of cattle in Tennessee from the same time period by type. This follows a similar trend as Figure 2. As suggested by Spielman et al. (1983) and McLemore et al. (1983), the cost of operating an auction can vary based on the volume of head sold at the auction. Increasing the number sold will decrease the fixed costs across more animals and lower the cost of operating an auction per animal. The Hicks and Badenhop (1968) study stated that the 74 auction markets in Tennessee needed to be reduced to a maximum of 35 auction markets and 18 was most efficient. McClain and McLemore (1987) found similar results for the auction markets in 1983. Today, we have much fewer cattle in the state being sold than at the dates of these previous studies. Without any empirical analysis, it appears more auctions still exist in Tennessee than what would be optimal or most efficient.

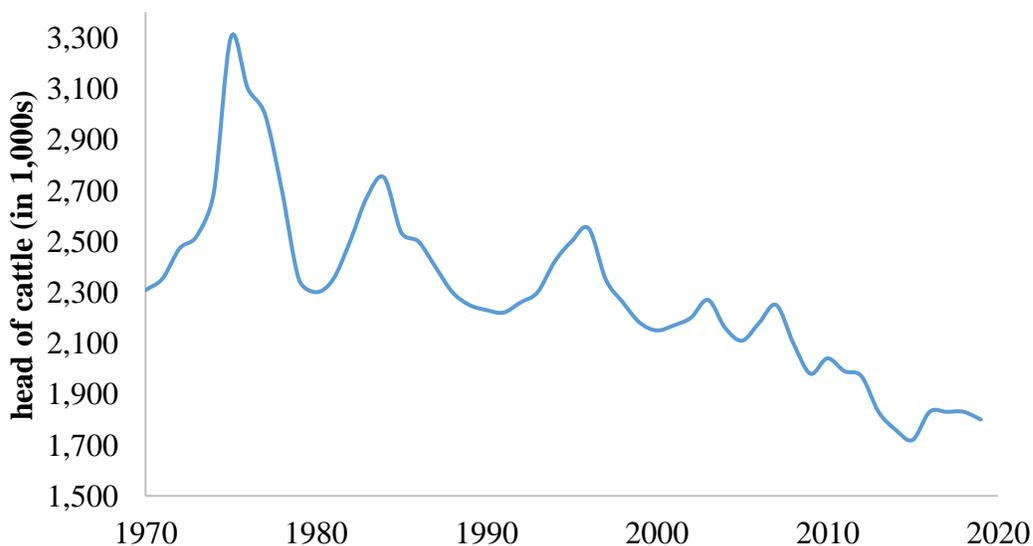


Figure 2. Number of Total Cattle and Calves in Tennessee.

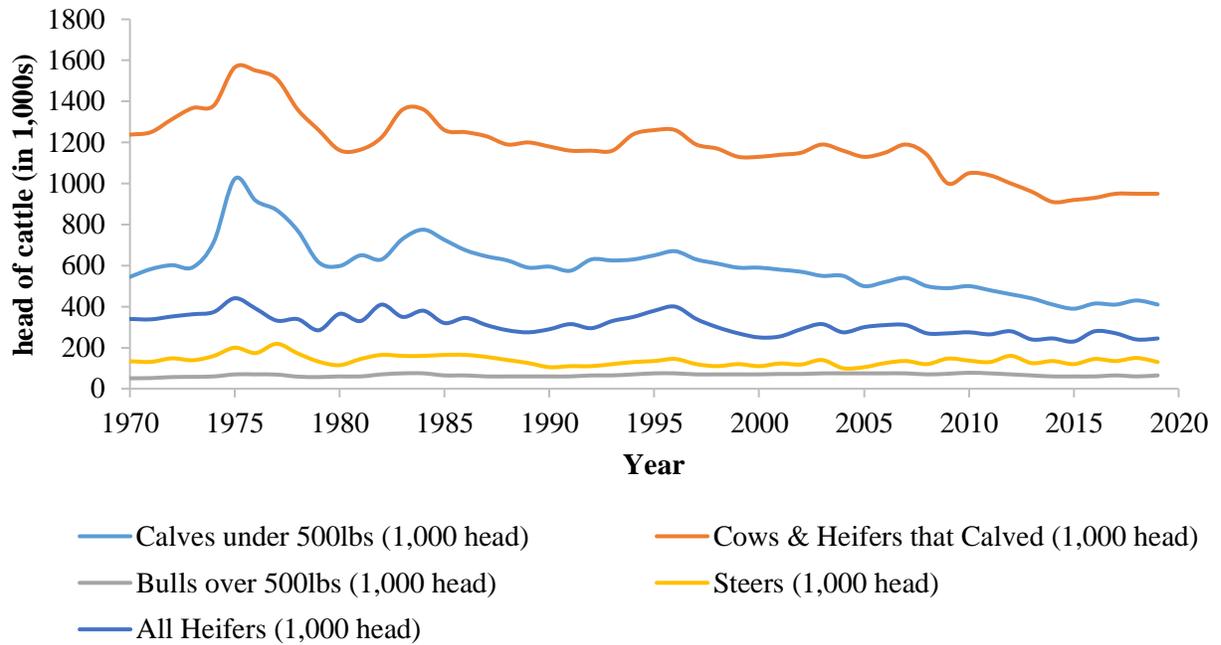


Figure 3. Tennessee Cattle by Type.

Summary of Research on Marketing Alternatives

National Assessment of Marketing Methods

Studies have noted the advantages of video sales as lower travel cost, increased access to bidders, reduced animal stress and health concerns from comingling, and decreased animal shrink (Bailey and Peterson, 1991; Gillespie et al., 2004). However, several studies have shown that local auction markets are the primary method to sell cattle (Schmitz et al., 2003; Martin et al., 2019). Schmitz et al. (2003) generally showed that local auction markets are preferred to video, internet and private sales in the top 15 stocker-producing states in the U.S. The only exception was Montana, which primarily marketed through private sales.

Gillespie et al. (2004) surveyed Louisiana producers in 2001. They reported that 91 percent of the producers responding to the survey used conventional auction markets to sell their cattle and 3 percent used video sales. Furthermore, a 2017 survey of 1,414 cow-calf producers in the U.S. revealed that 59 percent of all producers still prefer a local auction market, with direct marketing following with 36 percent of the respondents saying they preferred this marketing method (Martin et al., 2019). Video sales was only preferred by 8 percent of the respondents (Martin et al., 2019). Herd size was found to impact these preferred marketing avenues. Herds of 50 cows or less most commonly used conventional auction markets, while herds of 201 to 500 preferred special sales to auction markets. Respondents that had over 500 head of cattle preferred direct marketing and video sales (Martin et al., 2019).

These studies seem to fall in line with the data presented in this study. Most producers use auction markets to sell cattle compared to alternative marketing methods. However, the shrinking number of cattle in Tennessee may not be able to support the current number of auction markets.

Tennessee Survey Results Regarding Cattle Marketing Methods

Jensen et al. (2018) surveyed Tennessee cattle producers to determine their willingness to participate in a Tennessee branded beef program. In 2016, they distributed a survey to 5,500 cattle producers who had participated in the Tennessee Agricultural Enhancement Program. A total of 864 producers completed or partially completed the survey (16 percent response rate).

One of the questions on the survey was “How many calves in a year do you market through the following marketing channels?” Producers could select all options that applied to them, with the options being:

- (1) Auction Barn
- (2) Private Treaty Calf and Feeder Cattle Sales (Direct Sales)
- (3) Video Auction
- (4) Internet Auction
- (5) Marketing Alliance
- (6) Internet Listing Service
- (7) Sell to Packer
- (8) Graded Sales

- (9) Private Treaty Freezer Beef/Retail Cuts Sales
- (10) Other. Please Describe.

Table 2 shows the results of 724 producers who answered this question. The most common marketing method was through an auction barn (75 percent), followed by direct sales (29 percent), graded sales (17 percent), and private treaty/freezer beef/retail cuts (17 percent). Note that none of these categories were mutually exclusive and producers could select all the methods they use to market cattle. The answers for those who also answered “other” include, but are not limited to, the following: purebred auction, bulls sold as breeders, sale catalog, word of mouth, UT test station.

Table 2. Tennessee Cattle Producer Self-Reported Marketing Methods

Marketing Method	Total Using Method	Percentage Using This Method
Auction Barn	546	75.41%
Private Treaty Calf and Feeder Cattle Sales (Direct Sales)	209	28.89%
Graded Sales	122	16.86%
Private Treaty Freezer Beef/Retail Cuts Sales	104	14.36%
Video Auction	47	6.49%
Marketing Alliance	40	5.52%
Internet Listing Service	33	4.56%
Internet Auction	31	4.28%
Sell to Packer	7	0.97%
Other	73	10.08%
Notes: n=724; survey respondents were able to select more than one marketing method.		

Summary

Key observations from this assessment included:

- In 2017, there were 32 approved and active auction markets in Tennessee that sold cattle.
- Auction markets are fairly evenly distributed throughout the Tennessee region.
- Estimated profit margins for auctions appear to be small.
- The number of approved and active auction markets in Tennessee has continued to decrease since the 1970s.
- The total number of cattle and calves are decreasing in Tennessee.

Previous studies have shown that the cost of auction market operations decreased per animal unit as the quantity of animals sold increased. Therefore, consolidating Tennessee auction markets could result in auction markets having decreased costs per animal, if the auction markets were able to increase the number of cattle sold at their auctions. However, consolidating auction markets could increase the transportation costs for some producers, if an auction nearby to them ceases operations. These concerns could be evaluated in surveys to producers about perceptions towards marketing methods, willingness to transport cattle, and what characteristics they value in an auction market.

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Appendix

2017 Active Tennessee Cattle Auction Markets (n=32)

Name	County	Year Licensed
Mid-South Livestock Center, LLC	Bedford	2010
Morris Bros. Stockyard	Bledsoe	2010
Southwestern Sales Company	Carroll	2010
Hodge Livestock Network	Cocke	2011
Coffee County Livestock Market, L.P.	Coffee	2011
Maury City Sale Barn Inc.	Crockett	2011
Ridgely Auction Livestock Sales	Crockett	2010
Crossville Stockyard, LLC	Cumberland	2008
DeKalb County Livestock Market	DeKalb	2010
Dickson Livestock Center, Inc.	Dickson	2010
Somerville Livestock Sales	Fayette	2010
Ridgely Auction Livestock Sales	Gibson	2014
Pulaski Stockyard, Inc.	Giles	2010
Farmers Livestock Market	Greene	2010
Hardin County Stockyards	Hardin	2010
Scotts Hill Stockyard	Henderson	2010
Cox Cattle Co.	Henry	2012
Knoxville Livestock Auction Center	Knox	2010
Farmers Auction Co.	Lincoln	2010
Tennessee Livestock Producers	Lincoln	2010
Browning's Livestock Market	Macon	2010
Lewisburg Livestock, Inc.	Marshall	2005
Tennessee Livestock Producers - Columbia	Maury	2010
Athens Stockyard, LLC	McMinn	2010
East TN Livestock Center	Monroe	1980
Lloyd Nash Livestock	Putnam	2012
Smith County Commission Co., Inc.	Smith	2010
Cumberland City Stockyards	Stewart	2015
Kingsport Livestock Auction, Inc.	Sullivan	2010
Warren County Livestock Co., Inc.	Warren	2010
State Line Livestock Auction Barn	Weakley	2016
West Tennessee Livestock Auction Barn	Weakley	2010

Note: These auctions may not be active in 2018 but were reported as active licensees in 2017.



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