Agri-Industry Modeling & Analysis Group — *Industry Brief*

Jamey Menard, Kim Jensen, and Burton English
Department of Agricultural & Natural Resource Economics
University of Tennessee, Knoxville

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Tennessee Sheep & Lamb Industry Overview*

Tennessee's Sheep & Lamb Industry Highlights

- From 1980 to 2007, the number of farms with sheep in the state has increased 188.9 percent.
- For 2010, Tennessee's sheep and lamb production was ranked 30th in the U.S. and ranked second in the nation in percentage growth.
- Since 1984, Tennessee sheep prices (excludes lambs) have increased an average of 5.4 percent per year.
- For 2007, sheep and lamb numbers were estimated at 29,751 in Tennessee with Sullivan County having the largest number at 1,904 followed by Greene (1,523), Washington (1,431), Wilson (1,137), and Giles (983) Counties.
- The total pounds of wool produced in Tennessee for 2007 was 100,029 pounds. The largest wool producing counties were Sullivan at 10,454 pounds followed by Greene (7,194 pounds), Jefferson (4,604 pounds), Lincoln (3,951 pounds), and Wilson (3,734 pounds).
- According to the Tennessee Department of Agriculture's 2011 annual summary report, cash receipts for sheep and lamb production for 2010 totaled close to $2.5 million.

Background

The number of Tennessee farms with sheep is available between the years 1980 to 1997 and 2003 to 2007 (Figure 1). For the first time period, the number of sheep farms increased from a low of 430 in 1983 to a high of 800 in 1997, an annual average increase of 3.7 percent. For the second time period, the numbers of farms with sheep ranged from a low of 1,100 to a high of 1,300. When these two time periods are combined, from 1980 to 2007 the number of farms with sheep in the state has increased 188.9 percent. The largest increase, at 23.1 percent, occurred between the years 1992-93. For 2010, Tennessee's sheep and lamb production U.S. rank was 30th and was ranked second in the nation in percentage growth (TSPA, 2012; USDA/NASS, 2012a and 2012b).

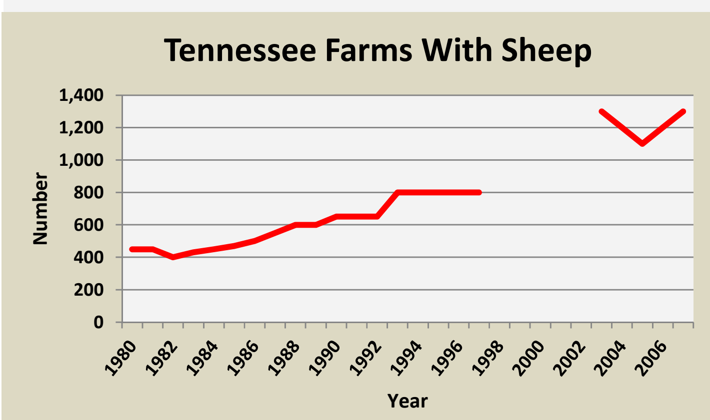

Figure 1. Tennessee Farms with Sheep, 1980-2007
Source: USDA/NASS, 2012a

Since 1984, Tennessee sheep prices (excludes lambs) have increased an average of 5.4 percent per year. Sheep prices have ranged from a low of $20.20 per hundredweight (cwt) in 1991 to a high of $50.00 per cwt in

2010 (Figure 2). The largest price increases occurred between the years 1986-87 when prices increased from $21.00 to $28.50 per cwt (35.7 percent increase), years 2009-10 when prices increased from $37.00 to $50.00 per cwt (35.1 percent increase), years 1991-92 when prices increased from $20.20 to $26.00 per cwt (28.7 percent increase), and years 1996-97 when prices increased from $30.00 to $38.00 per cwt (26.7 percent increase) (USDA/NASS, 2012a).

Figure 2. Tennessee Sheep Prices, 1984-2010

Source: USDA/NASS, 2012a

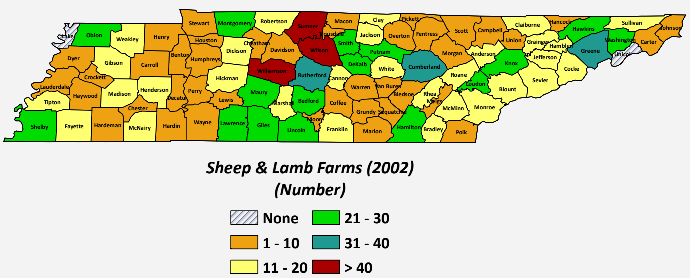

Figure 3. Sheep & Lamb Farms in Tennessee by County, 2002

Source: USDA/NASS, 2007

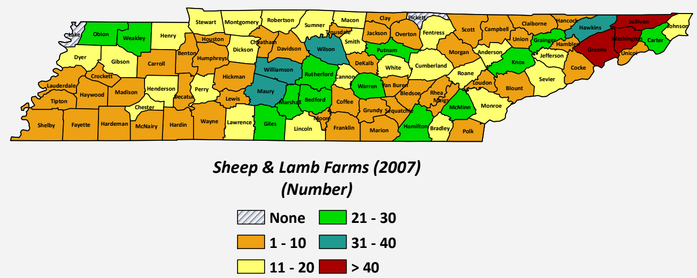

Figure 4. Sheep & Lamb Farms in Tennessee by County, 2007

Source: USDA/NASS, 2007

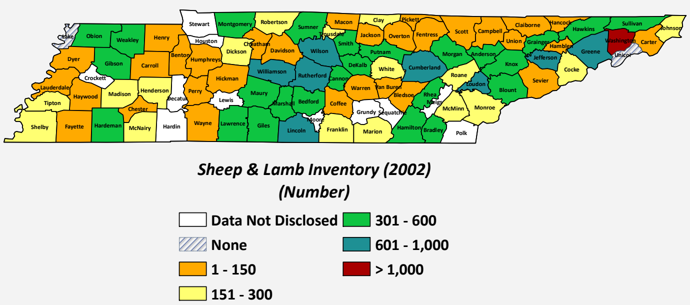

Figure 5. Number of Sheep & Lambs in Tennessee by County, 2002

Source: USDA/NASS, 2007

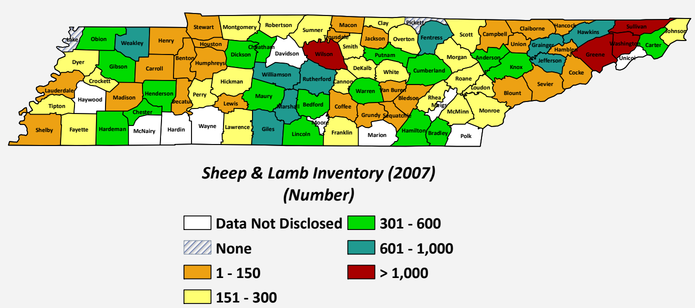

Figure 6. Number of Sheep & Lambs in Tennessee by County, 2007

Source: USDA/NASS, 2007

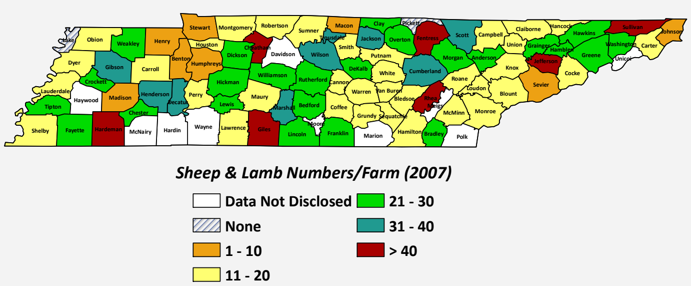

Figure 7. Number of Sheep & Lambs Per Farm in Tennessee by County, 2007

Source: USDA/NASS, 2007

Based on data from the most recent Census of Agriculture (2007), Figures 3 through 7 represent the numbers of sheep and lamb farms, sheep and lambs, and sheep and lambs per farm at the county level. For 2002, there were an estimated 1,273 sheep and lamb farms in Tennessee. The counties with the largest numbers of sheep and lamb farms were Williamson at 56 farms, followed by Sumner (42), Wilson (42), Cumberland (37), and Greene (35). Similarly, for 2007, there was an estimated 1,261 sheep and lamb farms in the state with Greene County having the largest numbers at 53, followed by Washington (49), Sullivan (42), Hawkins (36), and Wilson (36) Counties. For 2002, of the estimated 23,295 numbers of sheep and lambs in the state, the counties having the largest numbers were Washington at 1,174, followed by Williamson (969), Cumberland (911), Jefferson (799), and Wilson (762). Likewise, for 2007, sheep and lamb numbers increased to 29,751 in Tennessee with Sullivan County having the largest number at 1,904, followed by Greene (1,523), Washington (1,431), Wilson (1,137), and Giles (983) Counties. In 2007, counties having the largest numbers of sheep and lambs per farm were Rhea (61), Hardeman (58), Jefferson (49), Cheatham (46), and Sullivan (45) (USDA/NASS, 2007).

Economics

In 2007, the number of sheep and lambs sold in Tennessee was 17,846 from 739 farms. In comparison, 2002 values were 13,468 sheep and lambs sold from 591 farms (Figures 8 and 9). The counties having the largest numbers of sales were Weakley at 1,055, followed by Wilson (886), Sullivan (781), Greene (576), and Washington (567). Counties having the largest number of farms with sheep and lamb sales were Sullivan at 28, followed by Hawkins (25), Williamson (24), Warren (24) and Wilson (22) (USDA/NASS, 2007). Available data for the number of sheep and lambs slaughtered by head and liveweight are for the years 1980 to 1992 and 1998 to 2011. For the earlier time period, the average number of sheep and head slaughtered increased 7.2 percent, whereas from the latter time period, the average number increased to 10.3 percent (Figure 10). Combining these two time periods, the average increase in sheep and lambs slaughtered based on the numbers of head was 8.8 percent. Similarly, the increase in liveweight slaughter

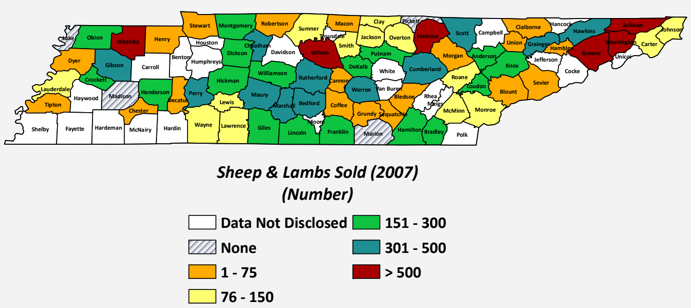

Figure 8. Number of Sheep & Lambs Sold in Tennessee by County, 2007

Source: USDA/NASS, 2007

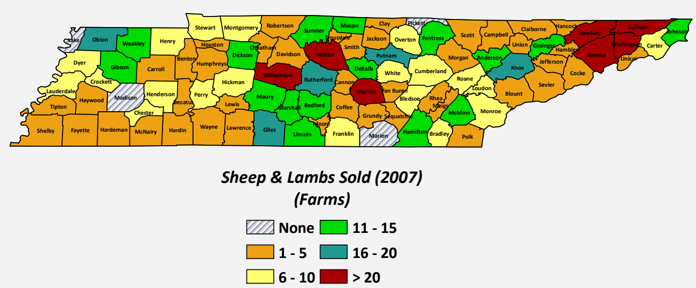

Figure 9. Farms with the Largest Number of Sheep & Lambs Sold in Tennessee by County, 2007

Source: USDA/NASS, 2007

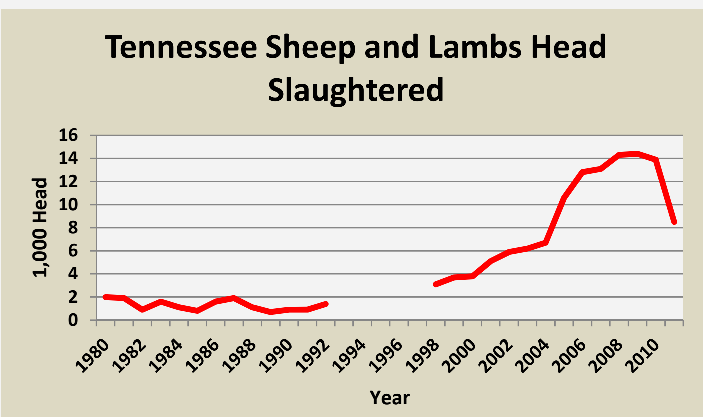

Figure 10. Tennessee Sheep and Lambs Head Slaughtered, 1980-2011

Source: USDA/NASS, 2012a

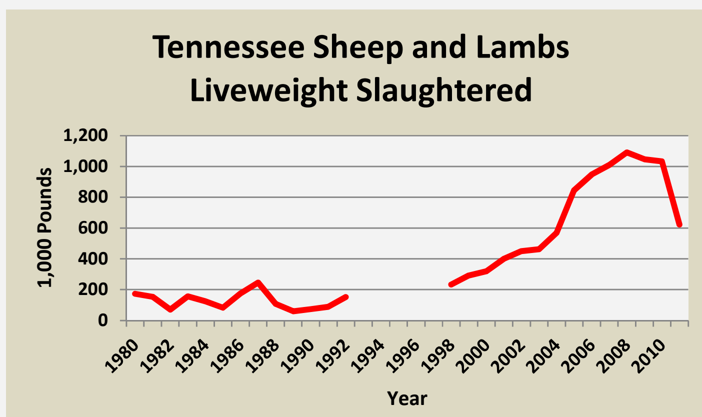

Figure 11. Tennessee Sheep and Lambs Liveweight Slaughtered, 1980-2011

Source: USDA/NASS, 2012a

was 14.0 percent for the 1980-92 period and 9.9 percent for the 1998-2011 period (Figure 11). With the two periods combined, the overall the average increase in sheep and labs slaughtered based on liveweight was 11.8 percent (USDA/NASS, 2012a).

For 2007, farms with wool production including quantities of wool produced in pounds by county are displayed in Figures 12 and 13. Of the 442 sheep and lamb farms in the state producing wool, the counties having the largest numbers of farms were Greene (23), Bedford (16), Putnam (16), Obion (15), and Lincoln (15). In comparison, farms with wool production for 2002 totaled 576 and the counties having the largest numbers of farms were Williamson (31), Rutherford (20), Wilson (18), Loudon (18), and Maury (17). The total pounds of wool produced in Tennessee for 2002 and 2007 were 111,516 and 100,029 pounds, respectively. In 2007, the largest wool producing counties were Sullivan at 10,454 pounds, followed by Green (7,194 pounds), Jefferson (4,604 pounds), Lincoln (3,951 pounds), and Wilson (3,734 pounds). Top wool producing counties for 2002 were Washington (5,937 pounds), Lincoln (4,614 pounds), Greene (4,509 pounds), Williamson (4,277 pounds), and Smith (3,920 pounds). U.S. annual weighted average wool prices (greasy basis) for the years 1978 through 2009 are displayed in Figure 14. Prices ranged from a low of $0.33 per pound in 2000 to a high of $1.38 per pound in 1988. The average wool price for the time period displayed is $0.75 per pound (USDA/ERS, 2010).

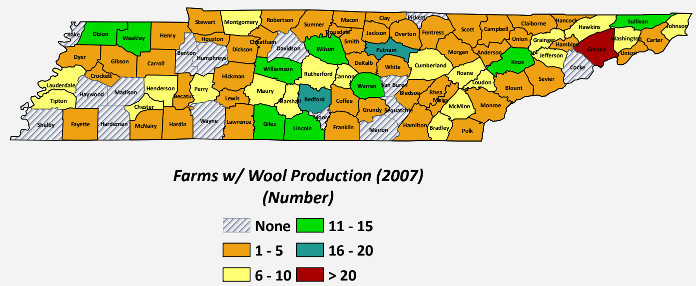

Figure 12. Sheep & Lamb Farms with Wool Production in Tennessee by County, 2007

Source: USDA/NASS, 2007

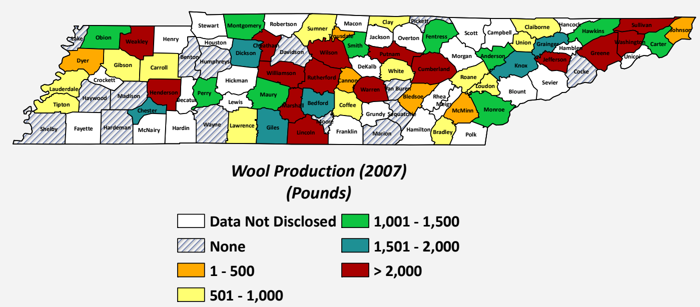

Figure 13. Pounds of Wool Produced on Sheep & Lamb Farms in Tennessee by County, 2007

Source: USDA/NASS, 2007

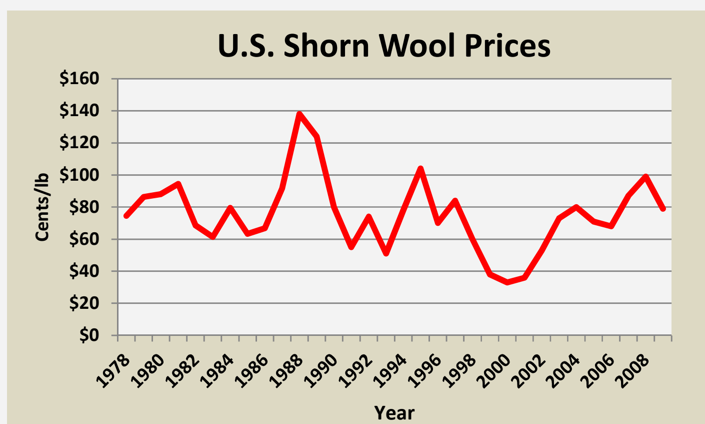

Figure 14. U.S. Shorn Wool Prices, 1978-2009

Source: USDA/ERS, 2010

Niche Marketing of Sheep in Tennessee

Some livestock producers are adopting alternative marketing strategies that would retain the retail dollar for sheep products on the farm. These alternative marketing strategies are aimed at identifying consumers' preferences, special needs, or wants for differentiated or "niche" marketed sheep/lamb products (organic, pasture-raised, antibiotic-free, etc.). If a Tennessee sheep producer chooses to market these types of sheep products (whole carcasses, chops, burgers, and/or wool, for example), a targeted consumer needs to be identified along with corresponding specific marketing tactics. It is essential that sheep producers identify the risks associated with this type of production practice and plan accordingly (Conatser and Holland, 2004). Should Tennessee sheep producers desire to increase direct and local sales of sheep products, the locations of sheep slaughtering/processing facilities contacted via a telephone survey in May of 2012 in the state are revealed in Figure 15 and listed in Table 1. In addition to slaughtering sheep products for resale, some of the facilities shown on the map

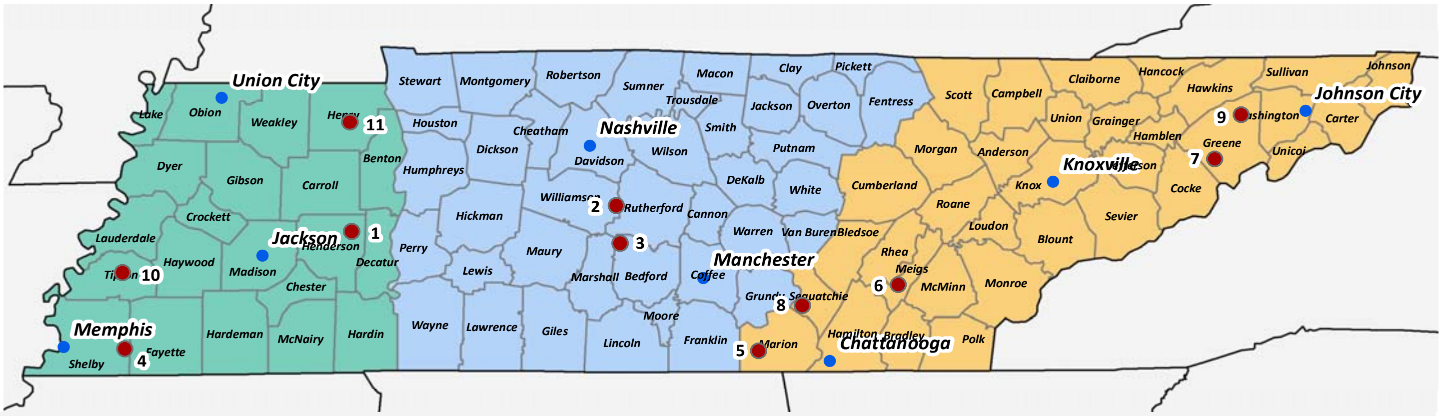

Figure 15. Location of USDA Inspected Sheep Slaughtering Facilities in Tennessee, 2012

Source: USDA/FSIS, 2012

Table 1. Tennessee's USDA Inspected Sheep Slaughtering Facilities Contacted, 2012

Facility ID	Company/Address	County	USDA Inspected	Custom
1	412 Meat Processing Inc. 19690 Highway 412 E. Lexington, TN 38351 (West)	Henderson	Yes	Yes
2	C & F Meats 5247 Murfreesboro Road College Grove, TN 37046 (Middle)	Williamson	Yes	Yes
3	Cattleman's Custom Processing 2830 Ezell Road Chapel Hill, TN 37034 (Middle)	Marshall	Yes	Yes
4	Fayette Packing Co., Inc. 16620 Highway 196 Eads, TN 38028 (West)	Fayette	Yes	Yes
5	H & P Meats 2421 Highway 156 South Pittsburgh, TN 37380 (East)	Marion	Yes	No
6	Hampton Meat Processing 216 Breeden Drive Decatur, TN 37322 (East)	Meigs	Yes	Yes
7	Harris Country Meats 480 Twin Barnes Road Greenville, TN 37743 (East)	Greene	Yes	Yes
8	R & D Custom Slaughtering 27015 US 127 Dunlap, TN 37327 (East)	Sequatchie	Yes	Yes
9	Snapps Ferry Packing Co. 5900 East Andrew Johnson Hwy. Afton, TN 37616 (East)	Greene	Yes	Yes
10	Wells Processing Plant 711 East Woodlawn Ave. Brighton, TN 38011 (West)	Tipton	Yes	No
11	Yoder Brothers Meat Processing 1650 Briarpatch Rd. Paris, TN 38242 (West)	Henry	Yes	Yes

Source: USDA/FSIS, 2012

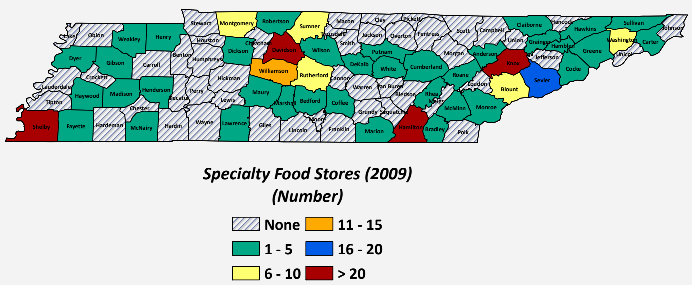

Figure 15. Location of Specialized Food Stores in Tennessee by County, 2012

Source: USDA/ERS, 2012

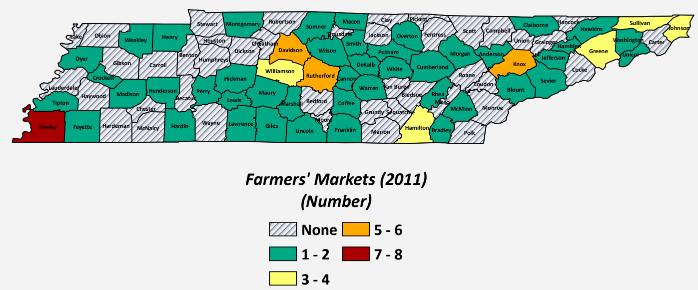

Figure 16. Location of Farmers' Markets in Tennessee by County, 2012

Source: USDA/ERS, 2012

may also slaughter for personal use (custom). Of the original 31 facilities that offer USDA slaughter/processing services (all meat types), 19 responded to the telephone survey (5 no longer slaughtered any animals; 7 could not be contacted). Of the 19 responding, 11 of the facilities slaughtered sheep. Comparing Figures 6 and 15, it appears that USDA sheep slaughtering/processing facilities in the state are strategically located in or near counties that have the greatest numbers of sheep. Potential market outlets for sheep products sold include specialty food stores and farmers' markets. In 2009, there were approximately 258 specialized food stores in the state (Figure 16), a decline of 13.4 percent from 2007 numbers. In 2011, there were approximately 89 farmers' markets in the state (Figure 17), an increase of 37.0 percent from 2009 levels. Comparing Figure 6 with Figures 15 and 16, it appears that Davidson, Rutherford, and Williamson Counties in middle Tennessee and Greene, Washington, and Sullivan Counties in upper east Tennessee have a greater number of both specialty stores and farmers' market near counting having large sheep and lamb numbers.

Economic Impacts

According to the Tennessee Department of agriculture's 2011 annual summary report, cash receipts for sheep and lamb production for 2010 total close to $2.5 million (USDA/NASS, 2012b). The estimated direct and total economic impacts for sheep and lamb cash receipts are presented in Table 2. From the level of direct expenditures of $2.5 million, an estimated 163 jobs were financed. Total value add-

Table 2. Estimated Economic Impacts from Sheep and Lambs Cash Receipts in Tennessee, 2010

Economic Indicators	Direct[a]	Indirect[a]	Induced[a]	Total[a]
Total Industrial Output[b]	$2,480,000	$765,099	$519,302	$3,764,400
Total Value Added[c]	$1,210,700	$386,096	$318,071	$1,914,866
Indirect Business Taxes[d]	$67,018	$27,626	$28,903	$123,547
Employment[e]	163.2	9.4	4.4	177.0

[a]See "Expenditure effects on Economy" section for further information

[b]Total Industrial Output — annual dollar value of goods and services that an industry produces

[c]Total value Added — estimated employee compensation, proprietary income, other income, and indirect business taxes

[d]Indirect Business Taxes — consists of excise taxes, property taxes, fees, licenses, and sales taxes paid by businesses

[e]Employment — estimated number of total wage and salary employees (both full– and part-time), as well as self-employed

Expenditure Effects on the Economy

Expenditures by Tennessee sheep and lamb producers for goods and services, land, labor, capital equipment, and other materials enhance the local economy and local tax base. Economic benefits generated in a region from these activities can be measured in terms of number of jobs created and the amount of personal income accruing to residents. These impact measures can be further broken down in *direct*, *indirect*, and *induced* (or *ripple*) effects.

Total economic impacts attributable to increased business activity are computed as the sum of the direct, indirect, and induced effects. *Direct* effects are those attributable specifically to the new expenditures in a region (sheep and lamb producers). *Indirect* effects arise from businesses' expenditures on raw materials, supplies, and other operating expenses, which help to support jobs in other local businesses. *Induced*, or ripple effects, are created as the new income generated by the direct and indirect effects is spent and re-spent within the local economy. These impacts are measured for total industry output, employment, total value added, and indirect business taxes.

ed and indirect business taxes direct expenditures were estimated at $1.2 million and $0.3 million, respectively. Total impacts were estimated at close to $3.8 million in total industry output from sheep and lamb cash receipts. Estimated total number of jobs was 177 with total value added estimated at $1.9 million. Indirect business taxes from sheep and lamb cash related expenditures were estimated at $0.7 million.

For the economic indicator total industry output the estimated multiplier is 1.52. In other words, for every dollar from sheep and lamb related expenditures, an additional $0.52 in economic activity is generated throughout the state's economy. The employment multiplier is 1.08. Thus, for every job created based on sheep and lamb related expenditures, an additional 0.08 jobs are created in other industries throughout the state. The top five industries impacted for total industry output were real estate establishments, banking, wholesale trade businesses, imputed rental activity for owner-occupied dwellings, and other animal food manufacturing. Likewise, the top five industries impacted for employment were support activities for agricultural and forestry, real estate establishments, food services and drinking places, cattle ranching and farming, and all other crop farming.

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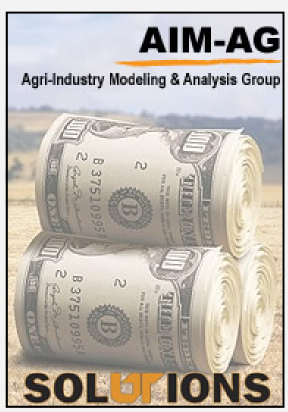

The purpose of the sheep/lambs industry brief for Tennessee is to provide a broad summary from available data so interested stakeholders may gain a better understanding of the magnitude and changes in the sheep/lamb industry over time, along with providing educational materials and information that may assist in identifying additional marketing research needs.