



The University of Georgia

Center for Agribusiness and Economic Development
College of Agricultural and Environmental Sciences

The Local Food Impact: What if Georgians Ate Georgia Meat and Dairy?

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Executive Summary

The following study, *The Local Food Impact: What if Georgians Ate Georgia Meat and Dairy?*, conducted by the University of Georgia, College of Agricultural and Environmental Sciences, Center for Agribusiness and Economic Development (CAED), is a supplement to the earlier study *Local Food Impact: What if Georgians Ate Georgia Produce?* This supplemental work extends the work of the original in exploring the potential impact of Georgia consumers purchasing more locally grown food products, defined as grown and sold within the state. The topic is a popular one in recent years for many reasons, including additional interest from consumers and new information about the many benefits from purchasing and consuming local food products. Yet there exists few measurable details about what these purchases can mean to the Georgia economy. Some highlights from the study include:

- The most recent Agricultural Census (2007) identified nearly 48,000 farms in Georgia, a decrease of 3% from 2005. In contrast, the total dollar value of the agricultural products sold on Georgia farms increased 45% over the same period. Georgia's Farm Gate Value Report for 2007 reported a direct farm gate value of \$11.6 billion for food and fiber production, which resulted in a total economic impact to the state of over \$58 billion. This impact comes from a diverse array of commodities, of which meat and dairy comprises a large portion.
- Closing the gap between what Georgia produces and local consumers eat can provide a valuable source of additional direct or local sales and the resulting economic effects. If Georgians produced all of the meat and dairy products consumed, it could provide a way to close this utilization gap (the difference between state-wide production and consumption) of over \$3.3 billion per year. Even if this level can't be achieved, simply closing the gap in dairy, for example—could mean an additional \$99.8 million of direct revenue to local producers.
- One component of local food sales is direct-to-consumer marketing by farmers or producers. In 2007 Georgia meat and dairy farms sold \$4.0 million dollars worth of products directly to consumers by methods such as Community Supported Agriculture (CSA), farmer's markets, roadside stands, or other

methods. Considering all linkages within the economy (multiplier effects), these direct sales involved a total of over 69 jobs, \$801 thousand in labor income, \$2.0 million in value added, and \$6.3 million in output in the Georgia economy.

- If Georgia meat and dairy farms increased their direct-to-consumer sales per farm to the same average dollar value per farm as reported nationally, the result would be an increase from \$4.0 million in direct sales to \$4.9 million. This increase of direct sales, when including linkages throughout the economy, would contribute over 92 jobs, \$946 thousand in labor income, \$2.6 million in value added, and \$7.6 million in output to the Georgia economy.
- Another scenario analyzed the impact on the state's economy if Georgia farmers increased their proportion of direct-to-consumer meat and dairy sales to the level found nationally, resulting in an increase from \$4.0 million in direct sales to over \$9.6 million. In this scenario, the overall contribution—including multiplier effects—would be 110 jobs, \$2.4 million in labor income, \$4.9 million in value added, and \$15.8 million in output.
- Using the Center for Agribusiness and Economic Development's Farm Gate Value Report as the basis, an additional scenario estimates the economic changes that would occur with every 5% increase in consumer local purchases as a direct sale from the farmer/producer. Considering linkages throughout the economy, the total effect to the Georgia economy for each 5% of consumer meat and dairy direct purchases captured locally is approximately 61 jobs, \$990.5 thousand in income, \$2.2 million in value added, and \$6.5 million in output.
- As stated in *Local Food Impact: What if Georgians Ate Georgia Produce?*, if each of the approximately 3.7 million households in the State devoted \$10 per week of their total food dollars to purchasing any Georgia grown products—from any source, not just directly from producers—it could provide over \$1.9 billion food dollars reinvested back into the state. This simulation allows an exploration of what a relatively small change in consumer behavior and budget can mean to the state's economy as a whole.

Background and Overview

The goal of this study – assessing the potential economic impact of consumers purchasing more locally grown meat and dairy food products – is an extension to the earlier study *Local Food Impact: What if Georgians Ate Georgia Produce?* See the report online at <http://www.caed.uga.edu/publications/2010/pdf/CR-10-03.pdf> for the full background and overview section, including a review of similar studies.¹

Data and Methodology

The findings in this study are based on data from several sources, including the United States Census of Agriculture (2007), the UGA Center for Agribusiness and Economic Development (CAED) Farm Gate Value Report, and data from the Minnesota Implan Group, Inc. economic analysis model.

Principles of Economic Impact Analysis

Economic impacts result from a multiplier effect that begins with input expenditures stimulating business to business spending, personal income, employment, and tax revenue. Economic impacts can be estimated using input-output models (in this case, IMPLAN from the Minnesota Implan Group, Inc.) that separate the economy into various industrial sectors such as agriculture, construction, manufacturing, trade, and services. The input-output model then calculates how a change in one industry changes output, income, and employment in other industries. These changes, or impacts, are expressed in terms of direct and indirect effects. Impacts are interpreted as the contribution of the enterprise to the total economy. Direct effects represent the initial impact on the economy of the operations of a specific business enterprise, such as a farming operation. Indirect effects are changes in other industries caused by the direct effects and include changes in household spending generated by direct effects. Thus, the total economic impact is the sum of direct and indirect effects. Input-output analysis can interpret the effects of an enterprise in a number of ways including output (sales), labor income (employee compensation and proprietary income), employment (jobs), and tax revenue (Olson and Lindall 2004)

IMPLAN models include a regional purchase coefficient (RPC) for each impact variable that represents percentage of demand that is satisfied by production within an impact area (which we are calling local, in this case). Demand for inputs not satisfied within the impact area represent leakages that have no indirect impacts in

¹ For consistency, the exact methodology utilized in the produce study will be replicated for meat and dairy, with differences only where data requires an adaptation. Any modifications will be noted as applicable in the sector where it occurs.

the impact area. Enterprises vary in their multiplier effects due to differing expenditure levels, RPC's, and sectors in which their expenditures are directed. Impact analysis involves quantification of spending levels and proper allocation to impacted sectors.

Output impacts are a measure of economic activity that results from enterprise expenditures in a specific industrial sector. Output is equivalent to sales, and this multiplier indicates how initial economic activity in one sector leads to sales in other sectors. Labor income impacts for employees and proprietors measure purchasing power that is created due to the output impacts. This impact provides the best measure of how standards of living might be affected for residents in the impact area.

An enterprise involves a specified number of employees that is determined by the technology of the enterprise. Employment multipliers indicate the effect on employment resulting from the enterprise initiating economic activity. IMPLAN indirect employment includes both full-time and part-time jobs without any distinction. Jobs calculated within an IMPLAN industrial sector are not limited to whole numbers and fractional amounts represent additional hours worked without an additional employee. With no measure of hours involved in employment impacts, IMPLAN summations for industrial sectors which include fractional employment represent both jobs and job equivalents. Since employment may result from some employees working additional hours in existing jobs, instead of terming indirect employment impacts as "creating" jobs, a more accurate term is "involving" jobs or job equivalents.

Georgia's Agricultural Industry by the Numbers

In order to put the study into proper perspective, we will look at how Georgia's agricultural industry is described in the Census of Agriculture and CAED publications *Farm Gate Value Report* and *Ag Snapshots*. These resources provide not only descriptive information, but also lay the groundwork for our analysis of locally grown in Georgia.

2007 Census of Agriculture

The United States Department of Agriculture (USDA), National Agricultural Statistics Service (NASS) conducts a Census of Agriculture ("Ag Census") every five years, with the most recent one in 2007. In the Georgia State Profile (NASS-USDA 2007), the Ag Census found that 47,846 farms were identified, a decrease of

3 percent from the 49,311 identified in 2002. Similarly, the farmland decreased 6 percent from 10.7 million acres to 10.2 million acres and average size of farm decreased 3 percent from 218 acres to 212 acres. In contrast, the market value of agricultural products sold on those farms increased 45% from \$4.9 billion to \$7.1 billion, with an increase of 49% in the average per farm from \$99,608 to \$148,662 (see Table 1 for summary).²

Table 1. Selected Findings from 2007 Census of Agriculture, Georgia

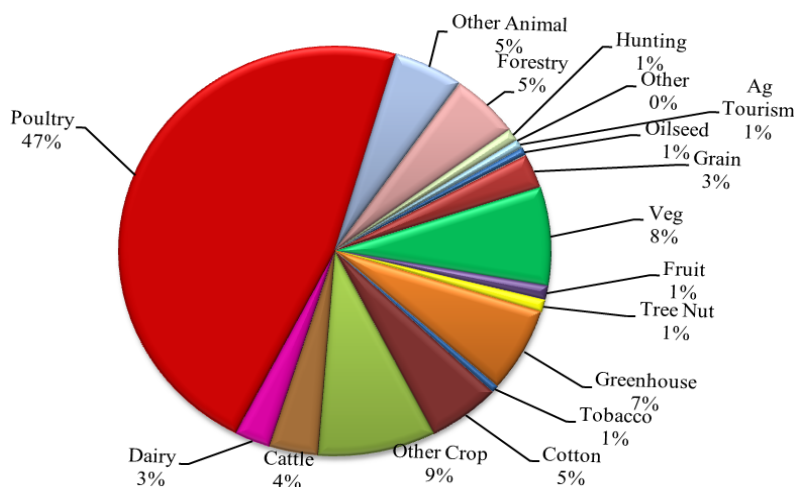
	2007	2002	% Change
Number of Farms	47,846	49,311	-3
Land in Farms	10,150,539 acres	10,744,239 acres	-6
Average Size of Farm	212 acres	218 acres	-3
Market Value of Products Sold	\$7.112 billion	\$4.911 billion	+45
Avg. Per Farm Market Value Sold	\$148,662	\$99,608	+49

Source: United States Department of Agriculture, National Agricultural Statistics Service, 2007 Census of Agriculture, State Profile, Georgia. Accessed 03/22/10 http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/County_Profiles/Georgia/cp99013.pdf.

Georgia Farm Gate Value Report

Another informative source of Georgia Agricultural data is the Farm Gate Value Report (FGVR), published annually by the CAED. Figure 1 highlights the total farm gate value summarized by sector for 2007. The chart shows that the poultry sector comprises nearly half of all the production value, with the remaining sectors demonstrating the rich diversity of Georgia’s agricultural commodities.

Figure 1. Georgia Farm Gate Value Report, by Sector, 2007



Source: University of Georgia, Center for Agribusiness and Economic Development, 2007 Farm Gate Value Report.

² These trends are fairly similar throughout the United States for the time period in question. View the Economics Fact Sheet for the U.S. from the 2007 Ag Census at http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Fact_Sheets/economics.pdf for more details.

Ag Snapshots

According to *Ag Snapshots* (CAED, 2008) for 2007, Georgia's total farm gate value was \$11.6 billion, with food and fiber production and directly related processing generating a total economic impact of \$58.5 billion and creating more than 389 thousand jobs in 2007. Because of the large poultry sector in Georgia, the meat and dairy portion of farm gate value is quite large. Not counting poultry, the other meat and dairy sectors comprise only about 12% of the total farm gate value.

Commodity Analysis

As a starting point for assessing the impact of locally grown meat and dairy products, we begin with an analysis of specific Georgia commodities, considering the amount of current annual production (2007) and how that production compares to consumption.³ From the data, we construct an approximation of what production would be if Georgians consumed the U.S. per capita average, calculated in both weight and dollar values (see Table 2 for details), and then a "utilization gap" or estimate of the production if Georgia produced all that it consumed based on the calculations (in pounds and in dollars). The end result is an approximation of what the potential "state shortage" (consumption > production) or "state surplus" (production > consumption) could be based on these consumption and production values. If there is a "state shortage" for a particular commodity, it indicates that Georgia may not be producing enough of that commodity to meet statewide consumption, as based on national consumption patterns. Although the figures provide only an approximation or outer bound, it gives an idea of what commodities are produced within the state but not at levels high enough to meet the entire annual consumption of Georgians.

The application of utilization gap calculations enables an exploration of the potential of these particular commodities as a source for additional direct or local sales and resulting revenue for producers and the overall economy of Georgia. For example, if all of the beef consumed by Georgians were produced and sold in the state, it could mean an additional \$529.7 million of direct revenue or sales to producers in closing this gap⁴. If all of the dairy products consumed by Georgians were produced and sold within the State, there could be an additional

³ Estimated consumption was used because no specific figures exist for statewide consumption in Georgia at this level of detail. Because of this data limitation, we use per capita U.S. consumption and Georgia's population figures instead.

⁴ Recall that this analysis assumes that sufficient production capacity exists to meet any suggested increases. The analysis presents a simplified view of production and consumption to highlight possible areas of potential, and does not rule out any particular commodity or commodity group as a local/direct sales opportunity.

\$99.8 million in direct revenue or sales. The net utilization gap (sum of positive and negative) for all of the commodities considered could add up to over \$3.3 billion if Georgia produced all that it consumed.⁵

⁵ This analysis for meat and dairy products is – by necessity – not as commodity specific as the analysis for produce because of data availability. In terms of poultry, it is important to note that the most recent *Ag Snapshots* shows that Georgia has led the nation in broiler production for 25 consecutive years. Because of this fact, it is not an unexpected result that the poultry category would indicate a state surplus.

Table 2. Comparison of Georgia and U.S. Per Capita Meat and Dairy Consumption, 2008

Estimated 2008 Georgia Population (9,685,744) ¹	2008 Farm Gate Production in lbs ²	2008 Per Capita US Consumption in lbs ³	GA Equivalent Consumption in lbs. ⁴	Utilization Gap (in lbs) ⁵	Average Price/lb ⁶	Dollar Value of Utilization Gap ⁷	State Shortage (Consumption > Production) or State Surplus (Consumption < Production)
9,685,744							
Beef ⁸	327,548,342	92.0	891,088,448	(563,540,105.6)	\$0.94	-\$529,727,699	State Shortage
Poultry ⁹	8,842,007,020	96.5	934,674,296	7,907,332,724.0	\$0.46	\$3,637,373,053	State Surplus
Dairy ¹⁰	1,396,254,050	191.0	1,849,977,104	(453,723,054.0)	\$0.22	-\$99,819,072	State Shortage
Pork ¹¹	115,016,462	63.0	610,201,872	(495,185,410.3)	\$0.47	-\$232,737,143	State Shortage
Sheep ¹²	677,880	1.1	10,654,318	(9,976,438.4)	\$1.25	-\$12,470,548	State Shortage
Net Value of Utilization Gap						\$3,292,346,290.32	

¹ Source: 2010 Georgia County Guide, Center for Agribusiness and Economic Development, February 2010. ² Source: 2008 Georgia Farm Gate Value Report, Center for Agribusiness and Economic Development, May 2009. ³ Data for 2008 consumption based on carcass weight from USDA ERS Food Availability (Per Capita) Data System. ⁴ Value = Per capita consumption (Column 3) multiplied by Georgia population (9,685,744). ⁵ Utilization Gap = Farm Gate Production - Georgia Equivalent Consumption. ⁶ 2008 Georgia Farm Gate Value Report, Center for Agribusiness and Economic Development, May 2009. ⁷ Dollar Value of Utilization Gap = Utilization Gap multiplied by Average price /lb. ⁸ Production Includes Farm Gate Value of cattle finished outside the county. Consumption includes beef and veal figures. ⁹ Per Capita consumption of young chickens (broilers) only. There is insufficient data to match egg related farmgate production with egg consumption figures. ¹⁰ Price = mode for 2008 ¹¹ Farm Gate Value includes both farrow to finish and finishing only operations. ¹² Consumption includes both lamb and mutton.

Developing Scenarios to Examine Impact

In addressing the question of the impact of locally produced meat and dairy products in Georgia, it is important to note that the emphasis of this portion of the analysis is on examining impacts that take place utilizing the *local* distribution and marketing system, not a typical retail food chain which may or may not include truly local meat and dairy purchases. The examination is not to minimize the importance of the retail food chain and its distributional efficiencies and impact, but to point out that local sales present opportunities for economic impact and to begin to measure those impacts.

Since the agricultural products referenced in the Ag Census are being sold directly to individuals for consumption and the data is readily available in summary form, we will use these figures as a beginning approximation of local direct sales as defined in this study. Other researchers have suggested that the data from the Ag Census represents the best available in measuring consumption of local food, one stating that “No other data source provides greater accuracy or insight about consumption of local food.” (Timmons and Wang 2010)⁶. In addition, the Ag Census provides delineation of these sales by different types of farms, which enables us to separate the direct sales figures by those classified as various meat and dairy categories, as consistent with the goals of the study⁷.

The data from the Ag Census used for these scenarios include the total number of farms with direct sales, total number of farms with any sales, and the total dollar value of each type of sales. From this information is calculated the average direct sales per farm and the portion of total sales for both the U.S. and Georgia. Based on these figures, the following scenarios are developed:

- Scenario One: Economic impact of the meat and dairy direct to consumer farm sales in Georgia exactly as reported in 2007 Ag Census.

⁶ See the appendices of this report for tables featuring data on direct sales from all U.S. states and comparison of Georgia to other southern states.

⁷ The classification scheme is by North American Industry Classification System (NAICS). Details about this classification scheme may be found online at <http://www.census.gov/eos/www/naics/>. The specific “meat and dairy” categories include 112111 Beef cattle ranching & farming, 112112 Cattle feedlots, 11212 Dairy cattle & milk production, 1122 Hog and pig farming, 1123 Poultry and egg production, 1124 Sheep and goat farming, 1125 Animal aquaculture, 1129 Other animal production. Data limitations require that they be defined in this manner when using the 2007 Ag Census by NAICS.

- Scenario Two: Potential economic impact of the direct sales from meat and dairy farms in Georgia in 2007 if the existing farms changed⁸ the amount of direct sales per year to the U.S average amount per farm as reported in the 2007 Ag Census.
- Scenario Three: Potential economic impact of the direct sales from meat and dairy farms in Georgia in 2007 if the existing farms raised the amount of direct sales per year to the U.S average percent of total agricultural sales as reported in the 2007Ag Census.

Findings reveal that there were 1,064 Georgia farms classified as meat or dairy farms (see earlier footnote for NAICS definitions) which sold a total of approximately \$4.0 million in products directly to individuals for human consumption in 2007 (see Table 4). This amounts to an average of \$3,749 for Georgia meat or dairy farms, ranging over a low of \$1,302 for sheep and goat farms to a high of \$7,190 for poultry. The U.S. figure is \$4,761 average per farm, with the national low average in sheep and goat farms at \$1,820 and high of \$16,329 for dairy. Note from Table 3 that the Georgia average per farm is less than the U.S. average in every category except for poultry.

Table 3. Profile of Direct Sales in Georgia and U.S., 2007

	Georgia Direct Sales			United States Direct Sales		
	Farms	Sales	Avg. per Farm	Farms	Sales	Avg. per Farm
Beef	575	\$ 2,224,301	\$ 3,868	42,643	\$ 177,476,931	\$ 4,162
Dairy	21	\$ 62,953	\$ 2,998	3,221	\$ 52,594,372	\$ 16,329
Poultry & Eggs	144	\$ 1,035,358	\$ 7,190	8,833	\$ 54,897,724	\$ 6,215
Hog Farms	49	\$ 64,249	\$ 1,311	5,227	\$ 18,970,374	\$ 3,629
Sheep & Goat	161	\$ 209,587	\$ 1,302	9,127	\$ 16,613,344	\$ 1,820
Aquaculture/other	114	\$ 392,949	\$ 3,447	10,207	\$ 56,787,127	\$ 5,564
TOTAL	1,064	\$ 3,989,397	\$ 3,749	79,258	\$ 377,339,872	\$ 4,761

Note: Data in this table only refers to farms, sales, and averages for those farms with direct sales. Source: 2007 U.S. Census of Agriculture, National Agricultural Statistics Services, U.S. Department of Agriculture. Calculations by authors.

In Table 4, we see a similar comparison of the direct sales compared with the total market value of agricultural products sold. The total amount of agricultural products sold was near \$5.0 billion for all meat

⁸In the case where the Georgia average is higher than the U.S. average for any category (i.e. poultry), the current Georgia figure will be incorporated into the scenario. The “what if?” scenario approach can then be interpreted to indicate the potential economic impact if Georgia direct sales were *at least as* high as the national average in all given categories.

and dairy farms, with a range of \$280 million for sheep and goat farms and a high of \$4.3 billion for poultry. The direct sales portion of agricultural sales at these farms represented 0.08% for all Georgia meat and dairy farms, compared to the U.S. average of 0.24%. Broken into categories, Georgia exceeds the U.S. portion in the beef category (0.83% in Georgia vs. 0.31% in U.S.), the hog farm category (0.12% in Georgia vs. 0.10% in U.S.), and sheep and goat category (7.44% in Georgia vs. 3.00% in U.S.). In the remaining categories, the Georgia portion of direct sales that comprise total sales of agricultural products is lower than the U.S.

Table 4. Comparison of Direct Sales and Total Agricultural Products Sold, Georgia and U.S. 2007

	Georgia			United States		
	Direct Sales	Total Ag. Products Sold (\$1000)	% of Total	Direct Sales	Total Ag. Products Sold (\$1000)	% of Total
Beef	\$2,224,301	\$ 266,482	0.83%	\$177,476,931	\$ 57,784,399	0.31%
Dairy	\$ 62,953	\$ 280,875	0.02%	\$ 52,594,372	\$ 34,754,031	0.15%
Poultry & Eggs	\$1,035,358	\$ 4,314,492	0.02%	\$ 54,897,724	\$ 37,797,542	0.15%
Hog Farms	\$ 64,249	\$ 52,730	0.12%	\$ 18,970,374	\$ 18,127,114	0.10%
Sheep & Goat	\$ 209,587	\$ 2,816	7.44%	\$ 16,613,344	\$ 554,107	3.00%
Aquaculture/other	\$ 392,949	\$ 50,033	0.79%	\$ 56,787,127	\$ 6,281,894	0.90%
TOTAL	\$3,989,397	\$ 4,967,428	0.08%	\$377,339,872	\$ 155,299,087	0.24%

Note: Data in this table only refers to farms, sales, and averages for those farms with direct sales. Source: 2007 U.S. Census of Agriculture, National Agricultural Statistics Services, U.S. Department of Agriculture. Calculations by authors.

Scenario One

In scenario one, we examine the direct sales figures exactly as reported⁹ by analyzing the economic impact resulting in employment, labor income, value added, and output. Table 5 presents highlights from the analysis for the combined meat and dairy classification groups. The \$4.0 million in sales from the meat and dairy farms directly results in 53.7 jobs with over \$230 thousand in labor income and \$936 million in value added to the Georgia economy. Considering multiplier effects, which includes both indirect and induced effects, the overall value in the economy is 69.5 jobs, over \$800 thousand in labor income, \$2.0 million in value added, and \$6.3 million in output.

⁹ Though this is presented as a “scenario,” it is simply an analysis of the direct sales as reported in the Ag Census to assist in putting the following numbers into perspective.

Table 5. Economic Impact of Direct Sales from Meat and Dairy Farms, Georgia 2007

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	53.7	\$238,321	\$936,438	\$3,989,397
Indirect Effect	11.1	\$382,447	\$745,363	\$1,700,059
Induced Effect	4.7	\$180,918	\$336,285	\$570,700
Total Effect	69.5	\$801,686	\$2,018,086	\$6,260,156

Source: Based on data from 2007 U.S. Census of Agriculture, National Agricultural Statistics Services, U.S. Department of Agriculture. Calculations by authors using Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive west, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

Scenario Two

In this scenario, we estimate the economic impact if the existing Georgia farms that had direct sales in 2007 increased their sales to the same level as the U.S. national average¹⁰. In this case, there would result an average change from \$3,749 per farm to \$4,761 (+\$1,012) for the meat and dairy farms, an increase of 27% (See Table 5). Table 6 shows the resulting impact from this change for the meat and dairy classification group as defined. The resulting \$4.9 million in sales from the meat and dairy farms directly results in 73.4 jobs with over \$273 thousand in labor income and \$1.3 million in value added to the Georgia economy. Considering multiplier effects, which includes both indirect and induced effects, the overall impact to the economy would result in over 92 jobs, over \$946 thousand in labor income, \$2.6 million in value added, and \$7.6 million in output.¹¹

Table 6. Potential Economic Impact of Direct Sales from Meat and Dairy Farms at U.S. Average per Farm, Georgia 2007

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	73.4	\$273,804	\$1,283,478	\$4,876,503
Indirect Effect	13.3	\$458,914	\$891,478	\$2,009,959
Induced Effect	5.5	\$213,493	\$396,805	\$673,387
Total Effect	92.2	\$946,211	\$2,571,761	\$7,558,849

Source: Based on data from 2007 U.S. Census of Agriculture, National Agricultural Statistics Services, U.S. Department of Agriculture. Calculations by authors using Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive west, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

¹⁰ A similar change in overall impact could occur with other types of changes. For example, if a greater number of farms sold the same average amount, there would still be an increase in the economic impact. Recall that in any of the classifications in which Georgia farms currently sell greater than the U.S. average, the current Georgia average will be used in the analysis.

¹¹ This analysis does not estimate the potential loss of impact to other industries, such as retail food sales, because a consumer might substitute a directly sold product for one sold at retail. The same applies to all the scenarios in this research effort.

Scenario Three

In the third scenario proposed, we estimate the impact if Georgia meat and dairy farms with direct sales increased to the same proportion of agricultural products sold as the U.S. average¹². In this case, it would be a change from the current Georgia average of 0.08% of all agricultural sales to 0.24% for the U.S. average. In order to estimate this scenario, we apply the U.S. percentages to the respective Georgia sales figure. Table 7 shows the potential effects of these changes for meat and dairy farms. The resulting \$9.6 million in sales from the meat and dairy farms directly results in 73.7 jobs with over \$867 thousand in labor income and \$2.1 million in value added to the Georgia economy. Considering multiplier effects, which includes both indirect and induced effects, the overall impact to the economy would result in over 110 jobs, over \$2.4 million in labor income, \$4.9 million in value added, and \$15.8 million in output.

Table 7. Potential Economic Impact of Direct Sales from Meat and Dairy Farms at U.S. Direct Sales Proportion, Georgia 2007

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	73.7	\$867,853	\$2,141,859	\$9,641,917
Indirect Effect	22.6	\$957,462	\$1,728,577	\$4,478,766
Induced Effect	13.8	\$532,522	\$990,139	\$1,680,521
Total Effect	110.1	\$2,357,837	\$4,860,575	\$15,801,204

Source: Based on data from 2007 U.S. Census of Agriculture, National Agricultural Statistics Services, U.S. Department of Agriculture. Calculations by authors using Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive west, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

Using the Georgia Farm Gate Value Report for Assessing the Impact of Locally Grown

Each year, the University of Georgia's Center for Agribusiness and Economic Development publishes the Georgia Farm Gate Value Report (FGVR), a compilation of survey results from Georgia Cooperative Extension county agents and commodity specialists. The purpose of the publication is to provide annual county-level information for the value of all food and fiber commodities grown in the state of Georgia (Boatright and McKissick 2008). This unique source of agricultural data provides estimates different from

¹² Recall the approach for this study that the case where the Georgia proportion is higher than the U.S. proportion for any category, the current Georgia figure will be incorporated into the scenario. The "what if?" scenario approach can then be interpreted to indicate the potential economic impact if Georgia direct sales were *at least as high* as the national average in all given categories.

other available resources, so it is likely that the Farm Gate Value report numbers will not match those from other sources.¹³

Given that there are the expected differences in the Ag Census and FGVR for 2007, we utilize the FGVR numbers as the starting point in additional scenarios to estimate the potential economic impact of local foods. The data is then analyzed applying proportions from the IMPLAN model to subtract the value of intermediate products (used as input into another product), which by definition would not represent a final, direct sale to a consumer.¹⁴ This calculation represents an estimate of the final demand for the product, or sales for final use by the purchaser. To further refine the estimate, IMPLAN provides proportions of local (recall that by definition, this means the State of Georgia) final demand by households, government, inventories, and exports. In the case of the meat and dairy production sectors, final demand is primarily split (on average) between households (4.5%) and exports (95.1%), with the small fraction left going to federal, state and local governments, and for inventories. Since neither exports nor inventories represent a local purchase, we will examine only the fraction of the value that represents final demand by households and governments for this scenario.

The resulting estimate of final demand for meat and dairy includes all methods of sales – from direct to consumer to wholesale to retail – therefore a scenario is developed to estimate the potential of capturing a particular portion of these sales as direct to consumers. For purposes of this analysis, we will estimate what capturing 5% of this total final demand as directly sold to household consumers might mean to the Georgia economy. Because of the linear nature of the IMPLAN model, this may be further generalized as an interpretation of what *each* 5% increment of increased direct sales might mean to the economy and the potential retail value of these figures. See Table 8 for these calculations using 2007 figures for Georgia and Figure 3 for a representation of the range between producer and retail values.

¹³ See “A Comparison of Agricultural Data Sources,” page ii of the Georgia Farm Gate Value Report for more details on these comparisons. Each year’s report is available online at <http://www.caed.uga.edu/publications/annual.html>.

¹⁴ The proportion of production value used for intermediate demand is derived from the IMPLAN database in order to obtain an estimate of final demand as follows. Total Production Value minus Intermediate Demand Value = Final Demand Value. Further calculations are made to determine what portion of that is sold to meet household and other final demand. Exports are excluded from this estimate because an export would not constitute a local sale.

Table 8. Estimates of Final Demand for Direct Local Purchases to Households, Georgia 2007

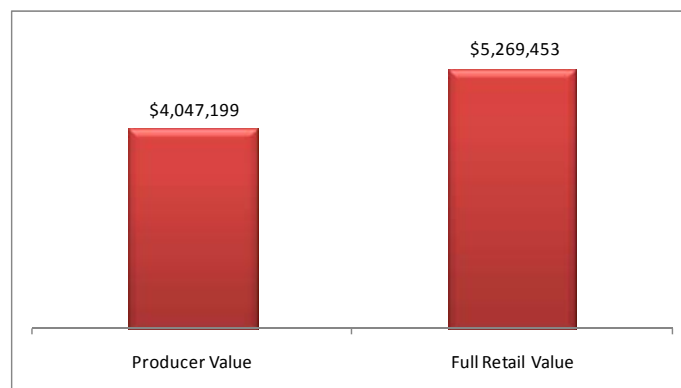
	2007			
	Beef Cattle	Dairy	Poultry & Eggs	Other Animal***
Georgia Farm Gate Value	\$423,272,771	\$310,023,659	\$5,432,743,528	\$601,268,433
Total Estimated Final Demand Sales to Households*	\$370,713	\$2,581,361	\$52,984,646	\$23,007,265
Capture 5% For Direct Local Sales - Producer Value	\$18,536	\$129,068	\$2,749,232	\$1,150,363
Potential Retail Value of 5%**	\$24,133	\$168,047	\$3,579,500	\$5,269,453

*This figure also includes a small proportion (~1%) shown in the model to be sold to Federal, State and Local Governments.

According to the IMPLAN model user manual, these purchases can be both education and non-education related, including K-12 and public universities, police protection, and sanitation. **Full retail value would include costs for wholesale, transportation, etc., but does not include any costs of processing. Actual prices received by producers for direct sales might fall somewhere between “producer prices” and full retail. The estimate of full retail value is based on the margin provided by the IMPLAN model.

Calculations by authors using Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive west, Suite 140, Stillwater, MN 55082, www.implan.com, 1997 and UGA/CAED Georgia Farm Gate Value Report 2007. . ***Other Animal combines previously mentioned categories of hog, sheep, goat, aquaculture, and other. Due to the aggregated nature of the IMPLAN model, this is the only manner in which these results can be presented with the information given.

Figure 2. Producer and Full Retail Value* of Potential Direct Local Sales of Meat and Dairy Products



*Full retail value would include costs for wholesale, transportation, and other costs to bring product to market, but does not include processing for value added products. Actual prices received by producers for direct sales might fall somewhere between “producer value” and full retail.

Farm Gate Value Scenario

The scenario is best described as follows:

- The *potential* economic impact of the direct sales from meat and dairy farms in Georgia in 2007 for every 5% increase in consumer local purchases as a direct sale from the producer. This analysis includes the corresponding employment, income, value added, and output potential resulting from those sales.

As mentioned above, because of the linear nature of the IMPLAN model, this may be further generalized as an interpretation of what *each* 5% increment of consumer local direct sales in the meat and dairy production sectors might mean to the economy. Table 9 outlines the potential economic impact from each 5% of consumer local direct sales resulting from this methodology and scenario. The estimated \$4.0 million in sales from the farms directly results in 47 jobs with over \$384 thousand in income and \$1.2 million in value added to the Georgia economy. Considering multiplier effects, which includes both indirect and induced effects, the overall value in the economy would represent over 61 jobs, \$13.6 million in income, \$19.2 million in value added, and \$43.7 million in output.

Table 9. Potential Economic Impact of 5% Increase in Local Direct Sales from Meat and Dairy Farms, Georgia 2007

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	47.0	\$384,400	\$1,155,170	\$4,047,199
Indirect Effect	8.4	\$382,450	\$666,804	\$1,764,686
Induced Effect	5.8	\$223,684	\$415,883	\$705,847
Total Effect	61.3	\$990,533	\$2,237,858	\$6,517,732

Source: Based on data from 2007 U.S. Census of Agriculture, National Agricultural Statistics Services, U.S. Department of Agriculture and Farm Gate Value Report, Center for Agribusiness and Economic Development, University of Georgia. Calculations by authors using Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive west, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

Additional \$10 Per Week Scenario

In the previously referenced study, *Local Food Impact: What if Georgians Ate Georgia Produce?* we referred to a study conducted in Virginia (Benson and Bendfelt 2007) that quantified the impact of each household in the state spending an additional \$10 per week of their total food dollars on fresh local produce and farm-based Virginia products, regardless of where the sale takes place (i.e. not just those that are direct-to-consumer, but also at other venues like grocery stores that may sell local products). This simulation allows an exploration of what a relatively small change in consumer behavior and budget can mean to the community. A similar analysis for the State of Georgia shows that if each of over 3.7 million households in Georgia (2007 IMPLAN data) devoted \$10 per week of their total food dollars—purchased from any source—to locally grown products, it could mean over \$1.94 billion food dollars reinvested back into the State.

Summary of Findings

This study has provided an analysis of the potential economic impact of various scenarios describing how a change in local meat and dairy sales in Georgia might affect output, labor income, and value added. These views provide a framework for considering the direct impact of additional local produce purchases within the State and a benchmark for measuring how incremental changes might increase the economic importance of these sales. The 2007 Ag Census reported nearly \$4 million in direct sales from meat and dairy farms. The first scenario looked at these direct sales, which involved a total of over 69 jobs, \$801 thousand in labor income, \$2.0 million in value added, and \$6.3 million in output in the Georgia economy

In the next scenario, researchers analyzed the impact if Georgia farmers increased their average direct sales of meat and dairy to the level found nationally. This scenario could result in an overall contribution of 92.2 jobs, \$946 thousand in labor income, \$2.6 million in value added, and \$7.6 million in output. A similar scenario in which Georgia meat and dairy farms increased the proportion of their direct sales to the national average level could result in an overall contribution of 110.0 jobs, \$2.4 million in labor income, \$4.9 million in value added, and \$15.8 million in output.

Using the Center for Agribusiness and Economic Development's Farm Gate Value Report as the basis, an additional scenario estimated the economic changes that would occur with every 5% of consumer local purchases as a direct sale from the farmer/producer. Considering multiplier effects, the overall contribution for each 5% of local sales captured is approximately 61.3 jobs, \$990 thousand in income, \$2.2 million in value added, and \$6.5 million in output. Recall that the methodology makes this result applicable for every 5% increment of consumer local purchases that might occur (See Table 10 for full summary). Lastly, similar to a Virginia study, researchers found that if each of the approximately 3.7 million households in the State devoted \$10 per week of their total food dollars to locally grown food products – from any source, not just directly from producers – there could be over \$1.9 billion food dollars reinvested back into the state. The following table summarizes the total impacts for each scenario¹⁵:

¹⁵ No calculation was made for the total economic impact of households increasing local purchases by \$10 per week because there is not enough information about those simulated purchases beyond the direct potential. Therefore, this category is not included in the table, which is a summary of total economic impacts of the other scenarios.

Table 10. Summary of Total Economic Impact from Each Scenario

	TOTAL ECONOMIC IMPACT			
	(Number)	(Million)		
Description	Employment	Labor Income	Value Added	Output
Scenario 1: 2007 Ag Census Report	69.5	\$0.80	\$2.0	\$6.3
Scenario 2: Increase to U.S. Avg. Sales/Farm	92.2	\$0.95	\$2.3	\$7.6
Scenario 3: Increase to U.S. Proportion Direct Sales	110.1	\$2.40	\$4.9	\$15.8
Scenario 4: Capture 5% of Purchases as Direct Sales*	61.3	\$0.99	\$2.2	\$6.5

*Because of the linear nature of the IMPLAN model, this would essentially translate to a figure for *each* 5% of consumer local purchases as direct sales as calculated under scenario four. Source: Based on data from 2007 U.S. Census of Agriculture, National Agricultural Statistics Services, U.S. Department of Agriculture and Farm Gate Value Report, Center for Agribusiness and Economic Development, University of Georgia. Calculations by authors using Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive west, Suite 140, Stillwater, MN 55082, www.implan.com, 1997.

Considerations and Future Research

As mentioned in the previous study and re-stated here, there are multiple aspects to consider in the pursuit of selling more local products in Georgia. One consideration is to explore what motivates a consumer to buy directly from a producer or farmer. Some researchers have suggested that different customer groups value the attributes of local produce in diverse manners (Bond, Thilmany et al. 2008; Thilmany, Bond et al. 2008). In an earlier study, the same authors (Bond, Thilmany et al. 2006) developed some useful generalizations for direct purchasers of local produce, finding that they have similar preferences to other consumers in terms of quality, but value convenience, presentation and competitive prices somewhat differently. They suggest consideration of these differences in marketing depending on whether the goal is to increase patronage by existing customers or to gain new customers. In increasing patronage of current customers, they respond to differentiation of local produce – emphasizing production practice (i.e. organic) or other quality attributes – meeting the needs of these customers for “superior, nutritionally enhanced produce that is pest free and locally grown.” Gaining new customers, those who might not typically purchase through direct channels, might require promotion that emphasizes safety attributes, attractive packaging and displays, and even semi-processed produce products to capitalize on the convenience needs of this group.

A USDA study found some of the reasons “Why Consumers Love to Buy Directly from Farmers” (Tropp, Ragland et al. 2008) as summarized in the following table:

Figure 3. Why Consumers Love to Buy Directly from Farmers, USDA



Some have examined the characteristics of those who purchase their produce direct through farmers markets (Zepeda 2009), again making the delineation between those who already shop there and those who might represent a new customer. Zepeda found that those who already shop farmers markets do so because of greater concerns about freshness, nutrition, the environment, farmers, and personal health. Factors such as the enjoyment and frequency of cooking, more than one adult in the household, and being religious increased the likelihood of that person becoming a farmer’s market customer.

(Sharma and Strohbehn 2006) looked at another method of direct sales that may not be as frequently considered – restaurants or other foodservice outlets. Their analysis considered not only the costs to restaurants of buying local, but whether patrons would be willing to purchase local menu items at a slight price premium. Their findings suggest that they would be willing, and that producers can help foodservice operations promote the use of local food ingredients. Chefs of small gourmet, independently-owned restaurants are more likely to purchase local foods, with the largest obstacle to these purchases being a lack of information (Curtis and Cowee 2009).

Knowing that information is critical in marketing to consumers or to foodservice outlets, the CAED interactive website known as MarketMaker (www.marketmaker.uga.edu) and the Georgia Organics

Directory (www.georgiaorganics.org) are two resources that can help to overcome informational hurdles in selling or purchasing local food products. In addition to these existing resources, there needs to be more research regarding purchases of local food in Georgia, including direct-to-consumer and through other methods. Future research efforts might include conducting an analysis similar to this study on other types of farm products, or other likely direct-to-consumer products. In addition, because this methodology required the use of secondary data collected for other purposes, it would be meaningful to gather primary information about Georgia local or direct food sales. These primary research efforts might include surveys of farmers markets or other foodservice outlets, such as restaurants or institutions such as schools and colleges. These data collection efforts could provide a basis for answering existing questions or finding new questions. A recent literature-review-based study of local food systems (Martinez, Hand et al. 2010) found several obstacles for market entry or expanding local food sales, including: constraints on capacity for small farmers and lack of distribution systems to move local products into mainstream sales outlets; inadequate research, education, and training in local food marketing; and limited knowledge of important regulations, such as food safety requirements. Future research efforts should be designed to tackle these barriers and/or promote awareness of existing resources to help alleviate them.

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Appendices

Table 11. Agricultural Census Total Farm and Direct Sales, 2002 and 2007, All States and U.S.

	Total Farm Sales (\$1,000)		Direct Sales (\$1,000) (All Categories)		Direct % of Total	
	2007	2002	2007	2002	2007	2002
Alabama	\$ 4,415,550	\$ 3,264,949	\$ 8,325	\$ 8,039	0.189%	0.246%
Alaska	\$ 57,019	\$ 46,143	\$ 1,682	\$ 829	2.950%	1.797%
Arizona	\$ 3,234,552	\$ 2,395,447	\$ 5,247	\$ 3,911	0.162%	0.163%
Arkansas	\$ 7,508,806	\$ 4,950,397	\$ 8,161	\$ 5,674	0.109%	0.115%
California	\$ 33,885,064	\$ 25,737,173	\$ 162,896	\$ 114,356	0.481%	0.444%
Colorado	\$ 6,061,134	\$ 4,525,196	\$ 22,584	\$ 17,406	0.373%	0.385%
Connecticut	\$ 551,553	\$ 470,637	\$ 29,752	\$ 17,108	5.394%	3.635%
Delaware	\$ 1,083,035	\$ 618,853	\$ 3,505	\$ 2,856	0.324%	0.461%
Florida	\$ 7,785,228	\$ 6,242,272	\$ 19,363	\$ 12,370	0.249%	0.198%
Georgia	\$ 7,112,866	\$ 4,911,752	\$ 13,146	\$ 8,958	0.185%	0.182%
Hawaii	\$ 513,626	\$ 533,423	\$ 8,657	\$ 7,089	1.685%	1.329%
Idaho	\$ 5,688,765	\$ 3,908,262	\$ 7,840	\$ 5,889	0.138%	0.151%
Illinois	\$ 13,329,107	\$ 7,676,239	\$ 25,893	\$ 18,412	0.194%	0.240%
Indiana	\$ 8,271,291	\$ 4,783,158	\$ 22,268	\$ 17,968	0.269%	0.376%
Iowa	\$ 20,418,096	\$ 12,273,634	\$ 16,506	\$ 11,651	0.081%	0.095%
Kansas	\$ 14,413,182	\$ 8,746,244	\$ 9,272	\$ 9,001	0.064%	0.103%
Kentucky	\$ 4,824,561	\$ 3,080,080	\$ 15,173	\$ 10,497	0.314%	0.341%
Louisiana	\$ 2,617,981	\$ 1,815,803	\$ 9,175	\$ 4,897	0.350%	0.270%
Maine	\$ 617,190	\$ 463,603	\$ 18,419	\$ 11,237	2.984%	2.424%
Maryland	\$ 1,835,090	\$ 1,293,303	\$ 21,220	\$ 12,551	1.156%	0.970%
Massachusetts	\$ 489,820	\$ 384,314	\$ 42,065	\$ 31,315	8.588%	8.148%
Michigan	\$ 5,753,219	\$ 3,772,435	\$ 58,923	\$ 37,269	1.024%	0.988%
Minnesota	\$ 13,180,466	\$ 8,575,627	\$ 34,667	\$ 22,763	0.263%	0.265%
Mississippi	\$ 4,876,781	\$ 3,116,295	\$ 9,659	\$ 7,506	0.198%	0.241%
Missouri	\$ 7,512,926	\$ 4,983,255	\$ 20,982	\$ 14,712	0.279%	0.295%
Montana	\$ 2,803,062	\$ 1,882,114	\$ 6,321	\$ 4,523	0.226%	0.240%
Nebraska	\$ 15,506,035	\$ 9,703,657	\$ 5,902	\$ 4,015	0.038%	0.041%
Nevada	\$ 513,269	\$ 446,989	\$ 1,074	\$ 1,606	0.209%	0.359%
New Hampshire	\$ 199,051	\$ 144,835	\$ 16,021	\$ 10,420	8.049%	7.194%
New Jersey	\$ 986,885	\$ 749,872	\$ 30,106	\$ 19,126	3.051%	2.551%
New Mexico	\$ 2,175,080	\$ 1,700,030	\$ 11,193	\$ 6,582	0.515%	0.387%
New York	\$ 4,418,634	\$ 3,117,834	\$ 77,464	\$ 59,724	1.753%	1.916%
North Carolina	\$ 10,313,628	\$ 6,961,686	\$ 29,144	\$ 17,245	0.283%	0.248%
North Dakota	\$ 6,084,218	\$ 3,233,366	\$ 2,429	\$ 1,765	0.040%	0.055%
Ohio	\$ 7,070,212	\$ 4,263,549	\$ 54,270	\$ 37,217	0.768%	0.873%
Oklahoma	\$ 5,806,061	\$ 4,456,404	\$ 11,534	\$ 3,735	0.199%	0.084%
Oregon	\$ 4,386,143	\$ 3,195,497	\$ 56,362	\$ 21,411	1.285%	0.670%
Pennsylvania	\$ 5,808,803	\$ 4,256,959	\$ 75,893	\$ 53,760	1.307%	1.263%
Rhode Island	\$ 65,908	\$ 55,546	\$ 6,292	\$ 3,697	9.547%	6.656%

	Total Farm Sales (\$1,000)		Direct Sales (\$1,000) (All Categories)		Direct % of Total	
	2007	2002	2007	2002	2007	2002
South Carolina	\$ 2,352,681	\$ 1,489,750	\$ 12,660	\$ 8,287	0.538%	0.556%
South Dakota	\$ 6,570,450	\$ 3,834,625	\$ 6,158	\$ 3,789	0.094%	0.099%
Tennessee	\$ 2,617,394	\$ 2,199,814	\$ 15,380	\$ 11,227	0.588%	0.510%
Texas	\$ 21,001,074	\$ 14,134,744	\$ 38,696	\$ 25,639	0.184%	0.181%
Utah	\$ 1,415,678	\$ 1,115,898	\$ 10,098	\$ 6,983	0.713%	0.626%
Vermont	\$ 673,713	\$ 473,065	\$ 22,863	\$ 9,567	3.394%	2.022%
Virginia	\$ 2,906,188	\$ 2,360,911	\$ 28,878	\$ 16,825	0.994%	0.713%
Washington	\$ 6,792,856	\$ 5,330,740	\$ 43,537	\$ 34,753	0.641%	0.652%
West Virginia	\$ 591,665	\$ 482,814	\$ 7,097	\$ 4,588	1.199%	0.950%
Wisconsin	\$ 8,967,358	\$ 5,623,275	\$ 43,491	\$ 29,072	0.485%	0.517%
Wyoming	\$ 1,157,535	\$ 863,887	\$ 3,025	\$ 2,381	0.261%	0.276%
United States	\$ 297,220,491	\$ 200,646,355	\$ 1,211,270	\$ 812,204	0.408%	0.405%

Source: Based on data from 2007 U.S. Census of Agriculture, National Agricultural Statistics Services, U.S. Department of Agriculture; calculations by authors.

Table 12. Value of Direct Sales Comparison of Georgia to Southern States & U.S. Average, 2007

National Rank	State	2007 Direct Sales (\$1000)	% of Total sales in 2007	% of National Average Sales in 2007	2002	State Share of Southern States Total (as %)	State Average Relative to Southern States Average (as %)
37	Alabama	\$8,325	0.7%	34.4%	\$8,039	6.3%	56.8%
22	Florida	\$19,363	1.6%	79.9%	\$12,370	14.7%	132.0%
28	Georgia	\$13,146	1.1%	54.3%	\$8,958	10.0%	89.6%
27	Kentucky	\$15,173	1.3%	62.6%	\$10,497	11.5%	103.4%
35	Louisiana	\$9,175	0.8%	37.9%	\$4,897	6.9%	62.5%
33	Mississippi	\$9,659	0.8%	39.9%	\$7,506	7.3%	65.8%
14	North Carolina	\$29,144	2.4%	120.3%	\$17,245	22.1%	198.7%
29	South Carolina	\$12,660	1.0%	52.3%	\$8,287	9.6%	86.3%
26	Tennessee	\$15,380	1.3%	63.5%	\$11,227	11.6%	104.8%
	Total for Southern States	\$132,025	10.9%		\$89,026	100%	
	United States	\$1,211,270			\$812,204		
	National Avg.	\$24,225					
	Southern States	\$14,669					
	Southern State Avg. % of National Avg.	60.6%					
	Southern States % of US total	10.9%					

Source: Based on data from 2007 U.S. Census of Agriculture, National Agricultural Statistics Services, U.S. Department of Agriculture; calculations by authors.

The Center for Agribusiness & Economic Development



The Center for Agribusiness and Economic Development is a unit of the College of Agricultural and Environmental Sciences of the University of Georgia, combining the missions of research and extension. The Center has among its objectives:

To provide feasibility and other short term studies for current or potential Georgia agribusiness firms and/or emerging food and fiber industries.

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