The University of Georgia

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

Economic Contribution of Cotton Production in the Georgia Economy, 2011

Prepared by:
Sharon P. Kane, W. Don Shurley, and Kent Wolfe
Center Report: CR-13-04
June 2013

Table of Contents

Tables and Figures

Economic Contribution of Cotton Production in the Georgia Economy, 2011

Sharon P. Kane[1], W. Don Shurley[2], Kent Wolfe[3]

Background and Overview

The most recent Farm Gate Value (2011) of cotton production was $1.5 billion for the state of Georgia. This is an estimate of the farmer's gross income from cotton and cottonseed. Cotton is the state's largest crop in acreage and value and accounted for 11.6% of Total Farm Gate Value and 51% of all Row and Forage Crop Value (RFCV) in 2011.

Farm Gate Value (FGV) is a function of acres harvested, yield per acre, and prices received for cotton and cottonseed. There were nearly 1.6 million acres of cotton harvested in 91 Georgia counties in 2011. The average lint yield reported for FGV was 870 pounds per acre; average price received was 98 cents per pound for lint and $200 per ton for cottonseed. For the most recent 5 years of Farm Gate Value data (2007-2011), cotton has ranked second or third among all agricultural enterprises in value and first among row and forage crops (Table 1).

Table 1. Farm Gate Value, Row & Forage Crop Value and Cotton Rankings, 2011

Year	Farm Gate Value (FGV)Rank	% FGV	Row & Forage Crop Value (RFCV) Rank	% RFCV
2007	2	5.4	1	37.4
2008	3	4.9	1	29.1
2009	2	6.3	1	37.9
2010	2	9.7	1	49.5
2011	2	11.6	1	51.1

Source: UGA Center for Agribusiness and Economic Development, Farm Gate Value Report, 2007-2011. Author's calculations.

In addition to the $1.5 billion contribution of cotton production, this production also results in sales of inputs and agricultural services. There are also purchases due to the income earned directly in the cotton production sector and in related agribusiness industries. Georgia cotton production is supported by an infrastructure that includes ginning and warehousing, transportation, input supply

[1]Community and Economic Development Specialist, University of Georgia, College of Agricultural and Environmental Sciences, Center for Agribusiness and Economic Development, Athens, GA. www.caed.uga.edu
[2] Professor/Economist-Cotton, University of Georgia, College of Agricultural and Environmental Sciences, Department of Agricultural and Applied Economics, Tifton, GA. www.agecon.uga.edu; www.ugacotton.com
[3] Director and Marketing Analyst, University of Georgia, College of Agricultural and Environmental Sciences, Center for Agribusiness and Economic Development, Athens, GA.

firms, machinery and equipment sales and service, financing, etc. Cotton production's total contribution in 2011 was $2.5 billion and accounted for over 15,400 jobs within the economy.

This study determines the economic contribution of cotton production in Georgia from the farm backward. This includes the value of cotton and cottonseed production, the purchases necessary to generate production, and household spending by producers and support industry employees. In 2011, the value of cotton production was $1.5 billion. The total economic contribution was $2.5 billion—translating to an economic multiplier of 1.64 for output.

This study does not include economic impacts of cotton from the farm gate (production) forward such as textile manufacturing, shipping/exporting, cottonseed processing, etc.

Methodology and Interpretation

In this study, we analyze the economic role of the cotton production sector on the Georgia economy from two geographic perspectives. This includes both a statewide analysis and a view from an individual county perspective. This approach estimates the magnitude of the importance of cotton production considering the additional sectors that are affected as a result of cotton production and the spending of employees in both.

The methodology applied is an examination of economic contribution. Economic contribution is estimated with models that separate the economy into various industrial sectors such as agriculture, construction, manufacturing, trade, and services; quantifying the relationships between these sectors. For this analysis, we use IMPLAN economic assessment data and software. This model assists in calculating how the cotton production sector and the expenditures from producing cotton affect output, income, and employment in other industries. These changes are expressed in terms of direct and indirect effects for each sector of the economy, and help to explain the overall role or importance of the cotton production sector to the total economy.

Direct effects represent the initial influence of cotton production on the economy, while the indirect effects reflect sales in other industries caused by the direct effects of production as well as household spending due to earnings and the resultant spending. Thus, the total economic contribution of cotton production is the sum of direct and indirect effects. The analysis is interpreted in terms of employment (jobs)[4], labor income (employee compensation including benefits and

[4] A job in IMPLAN = the annual average of monthly jobs in that industry (this is the same definition used by Quarterly Census of Employment and Wages (QCEW), Bureau of Labor Statistics (BLS), and Bureau of Economic Analysis (BEA) nationally). Thus, 1 job lasting 12 months = 2 jobs lasting 6 months each = 3 jobs lasting 4 months each. A job can be either full-time or part-time. Source: www.implan.com, glossary of terms.

proprietor income), and output (market value of goods and services produced[5]). The output figures used as the basis for this study were from the 2011 Farm Gate Value Report[6].

Contribution analysis differs from the more common economic impact analysis of an event or change in the economy, which measures marginal impact. Instead, contribution analysis demonstrates the economic attribution of a project, business, or existing industry (i.e., cotton production). The important difference is that in contribution analysis, direct effects represent all sales by the indicated sector (i.e. production) and indirect effects are all sales in the supply chain plus household spending. Together these figures show the magnitude of the cotton production sector, all the industries that supply inputs to that production, and all the spending from households that draw income from those sectors. This study does not represent net economic benefits, cost-benefit analysis, nor does it measure any of the social benefits that might accrue to the state of Georgia for having cotton production occur there.

Economic Output Contribution of Cotton Production – State Economy

Table 2 summarizes the direct, indirect, and total economic contribution of cotton production for the entire state of Georgia in 2011. The direct contribution is based on figures from the CAED Farm Gate Value Report for cotton production for each county, which is approximately $1.5 billion in output, and represents approximately 7,200 jobs with $268 million in labor income (see footnote for definition of jobs using this methodology). This results in a total contribution of the cotton production sector and related industries of $2.5 billion in output, accounting for 15,420 jobs, and $572 million in labor income. Table 3 goes into further detail outlining the top ten sectors affected by cotton production in 2011. As expected, the most significant numbers are in the cotton farming sector, which accounts for the direct impacts mentioned above. The second highest contribution is found in support activities for agriculture and forestry, which might include input supply firms, custom operators, ginning and storage, and other production support activities.

As mentioned previously, the economic contribution includes household spending by workers employed in both the directly and indirectly related industries. This results in sectors such as real estate, food services, monetary authorities, health care practitioners, and employment services being

[5] Sometimes similarly referred to as sales or revenue.
[6] This report is published annually and may be found at the CAED website – www.caed.uga.edu. As of publication, the 2011 report is the most current available. The cotton production value as defined in the report includes cotton and cottonseed production.

found in the top ten. Further, since the supply chain to cotton production is included, sectors such as maintenance and construction of non-residential structures, wholesale trade, and truck transportation are also on the top ten list.

Table 2. Employment, Income, & Output Contribution of Georgia Cotton Production, 2011

Contribution Type	Employment	Labor Income	Output
	(#)	*($ Millions)*	
Direct Effect	7,262	267.7	1,508.3
Indirect Effect	8,158	304.0	960.7
Total Effect	15,420	571.7	2,469.0

Table 3. Top Ten Georgia Industries Affected by Cotton Production, 2011*

Industry Description	Employment	Labor Income	Output
	(#)	*($ Millions)*	
Cotton farming	7,262	267.7	1,508.3
Support activities for agriculture/forestry	2,308	55.7	60.6
Real estate establishments	911	12.2	128.1
Food services & drinking places	403	8.5	22.6
Maintenance/repair construction-nonresidential	365	16.7	33.0
Monetary authorities & depository credit activities	235	18.5	93.1
Wholesale trade businesses	224	17.8	42.0
Transport by truck	173	7.8	22.2
Offices of physicians, dentists, health practitioners	162	11.8	18.8
Employment services	145	3.9	5.3

*Top ten ranked by employment

Another way to put the contribution of cotton production in perspective is see how the major sectors of the economy are affected (Table 4). Beyond the effects directly on the agriculture sector, we find that there is a broad ranging contribution, everything from service sectors, manufacturing, trade, transportation and other industries. Together, this represents the portion of the economy that comprises the full $2.5 billion impact of the cotton production sector.

Table 4. Cotton Production: Output Contribution to Major Sectors, 2011

Description	Direct	Indirect	Total
Agriculture	$1,508.3	$69.8	$1,578.1
Mining		$9.2	$9.2
Construction		$34.7	$34.7
Manufacturing		$121.6	$121.6
TIPU*		$87.1	$87.1
Trade		$84.5	$84.5
Service		$534.7	$534.7
Government		$19.1	$19.1
Total	$1,508.3	$960.7	$2,469.0

*Transportation, Information, & Public Utilities

Economic Output Contribution of Cotton Production in County Economies

In order to capture the perspective from a local level, IMPLAN models for each of the 91 Georgia counties that produced cotton in 2011 were used to gauge the economic contribution from that viewpoint. All of the definitions mentioned above still apply, yet now the contribution is quantified in terms of the county in which the production occurred. Table 5 shows for each county the direct and total contribution of cotton production and related sectors, the output for that county economy, the percent of cotton production contribution, and a ranking (1 to 91, with 1 representing the highest portion of cotton production contribution as a percentage of the county economy).

Table 5. Direct & Total Contribution, Economy Output, Impact as % of Economy, and Rank of Percent for Georgia Cotton Production by County, 2011

County	Direct Impact ($)	Total Impact ($)	Economy Output ($)	Total Contribution % of Economy Output	Rank of Percent*
Appling	32,529,212	39,106,024.5	1,942,376,686	2.01%	45
Atkinson	16,503,869	20,241,581.2	346,414,767	5.84%	21
Bacon	19,991,322	26,424,620	772,111,122	3.42%	28
Baker	18,981,000	24,199,869	151,886,802	15.93%	2
Bartow	1,767,442	2,426,372	8,405,861,610	0.03%	82
BenHill	14,896,061	20,178,680	1,392,582,201	1.45%	53
Berrien	41,521,277	54,813,571	776,161,285	7.06%	14
Bleckley	10,871,784	13,772,551	519,080,542	2.65%	35
Brantley	674,825	815,105	413,950,126	0.20%	70
Brooks	65,026,908	83,746,131	563,652,892	14.86%	4
Bryan	1,020,201	1,372,007	1,099,440,299	0.12%	74
Bulloch	56,274,885	80,426,215	3,143,475,053	2.56%	37
Burke	20,812,500	26,504,151	1,908,556,014	1.39%	54

County	Direct Impact ($)	Total Impact ($)	Economy Output ($)	Total Contribution % of Economy Output	Rank of Percent*
Calhoun	18,487,883	23,909,180	242,703,952	9.85%	8
Candler	12,487,500	16,746,899	489,803,143	3.42%	29
Charlton	91,575	112,870	405,435,202	0.03%	84
Chattooga	302,725	358,990	1,311,523,841	0.03%	85
Clay	9,076,914	10,229,022	100,139,428	10.21%	7
Clinch	1,481,850	1,963,089	719,119,525	0.27%	66
Coffee	52,932,681	73,825,535	2,967,223,392	2.49%	39
Colquitt	55,056,000	72,734,648	2,913,327,806	2.50%	38
Cook	21,814,236	29,674,021	664,359,327	4.47%	23
Crawford	235,098	293,286	455,589,225	0.06%	79
Crisp	28,170,302	36,753,470	1,123,989,961	3.27%	30
Decatur	52,080,268	65,420,996	1,565,635,193	4.18%	26
Dodge	21,090,000	24,856,090	786,070,926	3.16%	33
Dooly	67,699,733	80,671,062	732,064,860	11.02%	6
Dougherty	6,715,500	9,737,545	7,762,121,597	0.13%	72
Early	49,791,159	63,544,510	999,537,947	6.36%	16
Echols	4,995,000	6,436,207	128,522,858	5.01%	22
Effingham	6,099,450	7,342,461	2,417,519,000	0.30%	64
Elbert	135,642	178,478	1,135,457,574	0.02%	87
Emanuel	22,652,791	28,658,927	1,196,860,351	2.39%	41
Evans	6,181,313	7,784,696	996,899,664	0.78%	58
Floyd	1,545,925	1,995,336	6,914,698,419	0.03%	83
Glascock	2,679,540	2,948,923	49,577,326	5.95%	19
Grady	31,247,987	38,785,077	1,208,570,665	3.21%	32
Hancock	180,375	219,163	175,586,234	0.12%	73
Hart	84,360	101,541	1,460,646,382	0.01%	90
Houston	10,052,438	12,585,895	11,679,533,414	0.11%	75
Irwin	41,461,164	49,745,012	444,508,017	11.19%	5
JeffDavis	24,353,705	31,051,349	726,781,407	4.27%	25
Jefferson	14,812,950	19,591,298	992,636,630	1.97%	47
Jenkins	19,518,501	22,426,877	278,133,730	8.06%	11
Johnson	4,412,250	5,382,749	298,121,399	1.81%	49
Lamar	375,624	515,429	627,551,134	0.08%	77
Lanier	11,904,750	14,656,535	241,270,895	6.07%	18
Laurens	5,561,433	7,388,743	2,392,063,113	0.31%	63
Lee	14,087,280	17,570,757	806,942,902	2.18%	42
Liberty	87,801	113,734	6,775,997,948	0.00%	91
Long	417,582	461,697	171,178,530	0.27%	67
Lowndes	14,279,595	19,182,253	7,708,382,204	0.25%	68
Macon	18,292,800	20,440,451	751,550,037	2.72%	34
Marion	559,884	665,650	351,131,909	0.19%	71
Miller	54,922,226	68,486,353	276,370,732	24.78%	1
Mitchell	65,974,793	80,189,429	1,829,124,731	4.38%	24
Monroe	147,769	186,369	1,210,318,510	0.02%	88

County	Direct Impact ($)	Total Impact ($)	Economy Output ($)	Total Contribution % of Economy Output	Rank of Percent*
Montgomery	7,093,893	8,955,231	277,740,220	3.22%	31
Morgan	683,760	897,189	1,098,457,707	0.08%	78
Oconee	416,250	539,081	1,350,866,058	0.04%	80
Peach	2,494,947	3,065,833	1,282,683,085	0.24%	69
Pierce	14,124,167	17,458,114	668,698,376	2.61%	36
Polk	1,305,804	1,579,512	1,845,738,859	0.09%	76
Pulaski	26,098,875	32,416,770	462,608,742	7.01%	15
Quitman	982,905	1,083,132	51,608,042	2.10%	44
Randolph	9,829,050	12,321,685	306,054,362	4.03%	27
Richmond	1,373,348	2,422,374	17,715,265,548	0.01%	89
Schley	1,176,600	1,334,442	241,808,626	0.55%	60
Screven	31,274,250	40,686,506	657,465,040	6.19%	17
Seminole	32,759,308	43,796,864	493,067,788	8.88%	9
Stewart	2,252,745	2,731,257	184,342,472	1.48%	52
Sumter	25,641,000	35,589,353	1,640,541,650	2.17%	43
Tattnall	8,803,550	11,527,755	1,123,013,567	1.03%	55
Taylor	1,634,364	1,947,909	363,633,580	0.54%	61
Telfair	12,766,832	15,591,432	778,755,937	2.00%	46
Terrell	27,234,960	34,247,708	469,660,662	7.29%	12
Thomas	36,169,350	47,089,123	3,132,650,683	1.50%	51
Tift	31,729,800	45,565,659	2,629,958,868	1.73%	50
Toombs	10,032,125	14,166,985	1,597,782,301	0.89%	57
Treutlen	2,864,434	3,359,636	173,755,893	1.93%	48
Turner	24,116,859	30,929,259	425,402,347	7.27%	13
Twiggs	3,921,353	4,581,024	190,711,934	2.40%	40
Walton	499,500	629,671	2,797,928,033	0.02%	86
Ware	4,415,580	5,606,996	1,923,850,498	0.29%	65
Warren	1,221,000	1,567,851	252,771,582	0.62%	59
Washington	3,432,120	4,254,071	1,048,148,905	0.41%	62
Wayne	13,123,885	15,689,476	1,627,815,997	0.96%	56
Webster	6,134,415	7,011,790	118,296,519	5.93%	20
Wilcox	32,417,550	37,878,387	244,161,002	15.51%	3
Wilkinson	184,556	229,213	702,094,510	0.03%	81
Worth	54,655,984	68,732,436	779,568,330	8.82%	10
Total	1,508,274,752	1,925,433,204	146,577,038,161	1.31%	
Average	16,574,447.83	21,158,606.63	1,610,736,683	3.33%	

Source: University of Georgia, Center for Agribusiness and Economic Development.
*Ranked by largest percent of county economic output, in which case the largest equals 1 and smallest equals 91.

Dooly County had the greatest direct contribution of $67.7 million in output. The total (direct plus indirect) is $80.7 million. This represents just over 11% of Dooly County economic output. Dooly County ranks first in total output value, and sixth in terms of cotton production output as

percentage of the county economy. Miller County cotton production total contribution ranks first as percentage of the county economy with 24.8%. Direct contribution for Miller Co. is $54.9 million and total is $68.5 million.

In the ranking of all the counties by percentage of total economies contribution due to cotton production, we find that the role of cotton production and related sectors is more than 1% of the total economy in 55 Georgia counties[7]. Of these 55 counties, total economic output contribution from cotton is greater than 3% of the economy in 33 counties, greater than 7% in 15counties, and greater than 10% in 7 counties. Miller, Baker, and Wilcox Counties have the highest rankings for the total contribution of cotton output as percentage of the economy. Brooks, Irwin, Dooly, Clay, Calhoun, and Seminole Counties, each with at least 8.9% complete the top ten rankings as percentage of the total economy.

Figure 1 shows cotton producing counties with more than 1% of the total economy deriving from cotton production. There is a belt of cotton production extending from the southwestern corner of Georgia to central eastern counties. Counties with the greatest dependence on cotton production are in the southwest. Economic impacts in the cotton industry have the greatest effects on county economies with the most dependence on cotton production. Thus, any public policy decisions that may affect the cotton industry could have consequences that are concentrated in these counties.

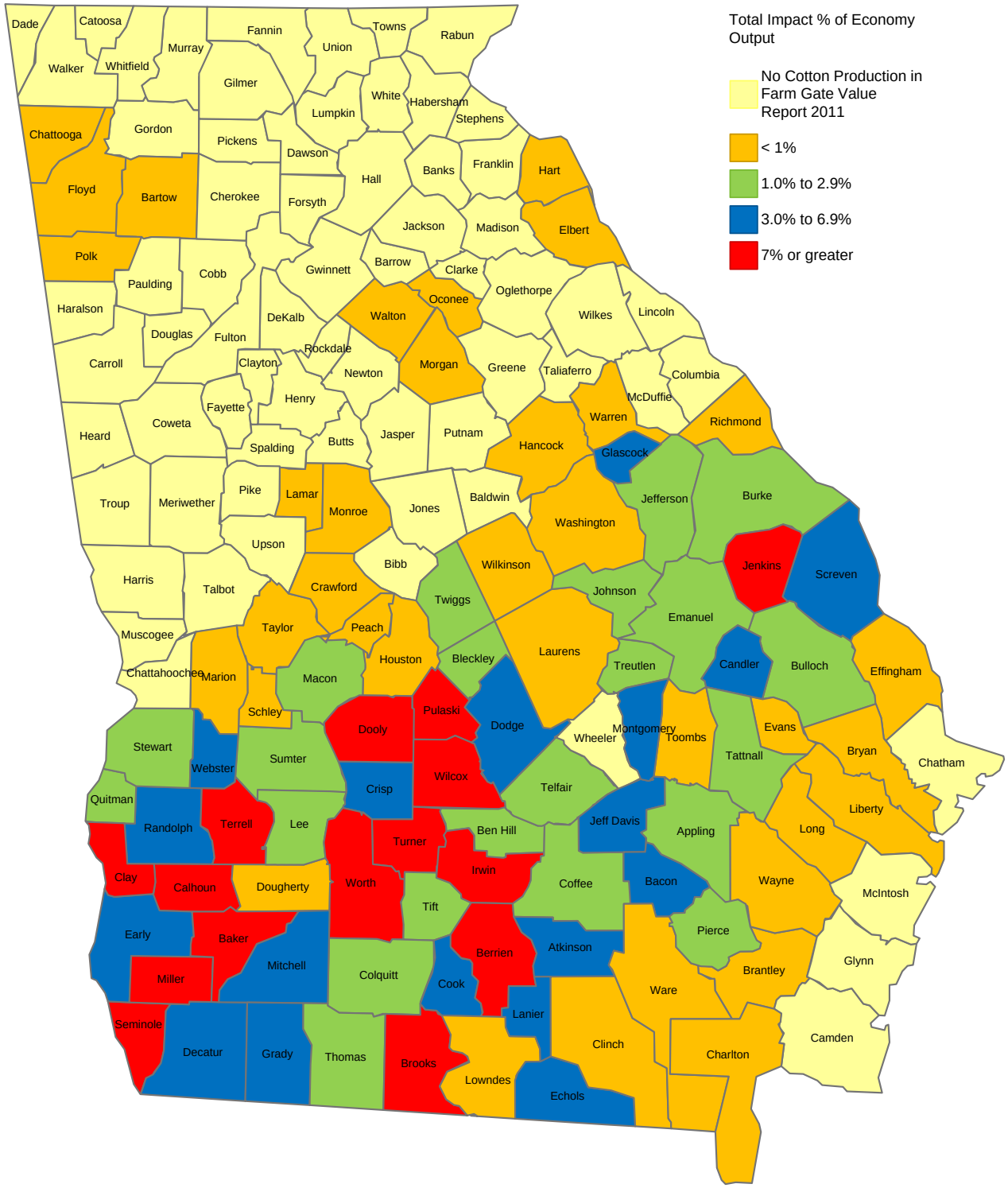
Summary

Production in the Georgia cotton industry has economic consequences throughout the state economy. Cotton production leads to sales of inputs and agricultural services, as well as purchases that are due to income earned directly in production and in related industries. This analysis helps to evaluate the magnitude of the cotton production sector, its supply chain, and the spending of those receiving income from both. Statewide, this research finds that the economic role of cotton production is $2.5 billion of Georgia's over $760 billion economy, and accounted for over 15,400 jobs in 2011.

From the county perspective, the role of cotton production is more than 1% of the total economy in 55 Georgia counties. Figure 1 shows that of these 55 counties, total economic output impact from cotton is greater than 3% of the economy in 33 counties, greater than 7% in 15 counties, and greater than 10% in 7 counties.

[7] Compare this to 46 counties that represented over 1% in total economic impact from a CAED study completed by Dr. Archie Flanders in 2006, a study completed under a slightly different methodological plan. Dr. Flanders work was invaluable in the framework for this study.

Figure 1. Economic Contribution of Cotton Production as % of Total County Economy, 2011



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.
>
> To provide agricultural, natural resource, and demographic data for private and public decision makers.

To find out more, visit our Web site at: http://www.caed.uga.edu

Or contact:

Dr. Kent Wolfe, Director
Center for Agribusiness and Economic Development
Lumpkin House
The University of Georgia
Athens, Georgia 30602-7509
Phone (706)542-1861

Report Number: CR-13-04 **June 2013**

Issued in furtherance of Cooperation Extension Acts of May 8 and June 30, 1914, the University of Georgia College of Agricultural and Environmental Sciences, and the U.S. Department of Agriculture cooperating.

J. Scott Angle, Dean and Director