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Economic Impacts of Alabama's Agricultural, Forestry, and Related Industries

A report by
The Department of Agricultural Economics and Rural Sociology,
Auburn University

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**The total
output and
employment
impacts of
agriculture,
forestry, and
related industries
were **\$70.4 billion**
and **580,295 jobs**.**

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HIGHLIGHTS

Economic Impacts of Alabama's Agricultural, Forestry, and Related Industries

The agricultural and forestry industries consist of crop, livestock, timber, and fisheries production; food and kindred products manufacturing; and forest product manufacturing. Related industries encompass food and kindred products distribution and agricultural inputs and services. These also utilize goods and services from other industries as well as local labor, which additionally contributes to the state economy.

- The agricultural and forestry industries generate an additional \$0.77 in the state economy per dollar of output.
- The output impact of the agricultural and forestry industries translates to \$10,770 per capita.
- On average, agricultural and forestry production generates 10 jobs per \$1 million in direct sales.
- On average, 1 out of every 4.6 jobs in the state is related to agriculture and forestry.
- Agricultural, forestry, and related industries generate an additional 9 jobs for each job in production agriculture, forestry, and fisheries.
- Agricultural, forestry, and related industries account for the second largest number of jobs in the state.

In summary, the agricultural, forestry, and other related industries have a significant impact on Alabama's economy in output (**\$70.4 billion**), value added (**\$30.8 billion**), and jobs created (**580, 295 jobs**). They also provide social benefits and ecosystem services, which greatly enhance the quality of life in Alabama, but are not accounted for in this analysis.

The U.S. Fish and Wildlife Services reported the output and employment impacts of hunting, sportfishing, and wildlife watching, which totaled \$3.6 billion and 42,319 jobs in 2006 (see appendix). The impacts of all nature-based recreation are even higher.



INTRODUCTION



Alabama's Agricultural Industry

Agriculture represents a significant component of the Alabama economy. In 2010, the farm gate sales of agricultural commodities totaled \$4.7 billion (Figure 1). The sales* of agricultural commodities included the following:

- \$3.8 billion for livestock and poultry
- \$918.3 million for crops

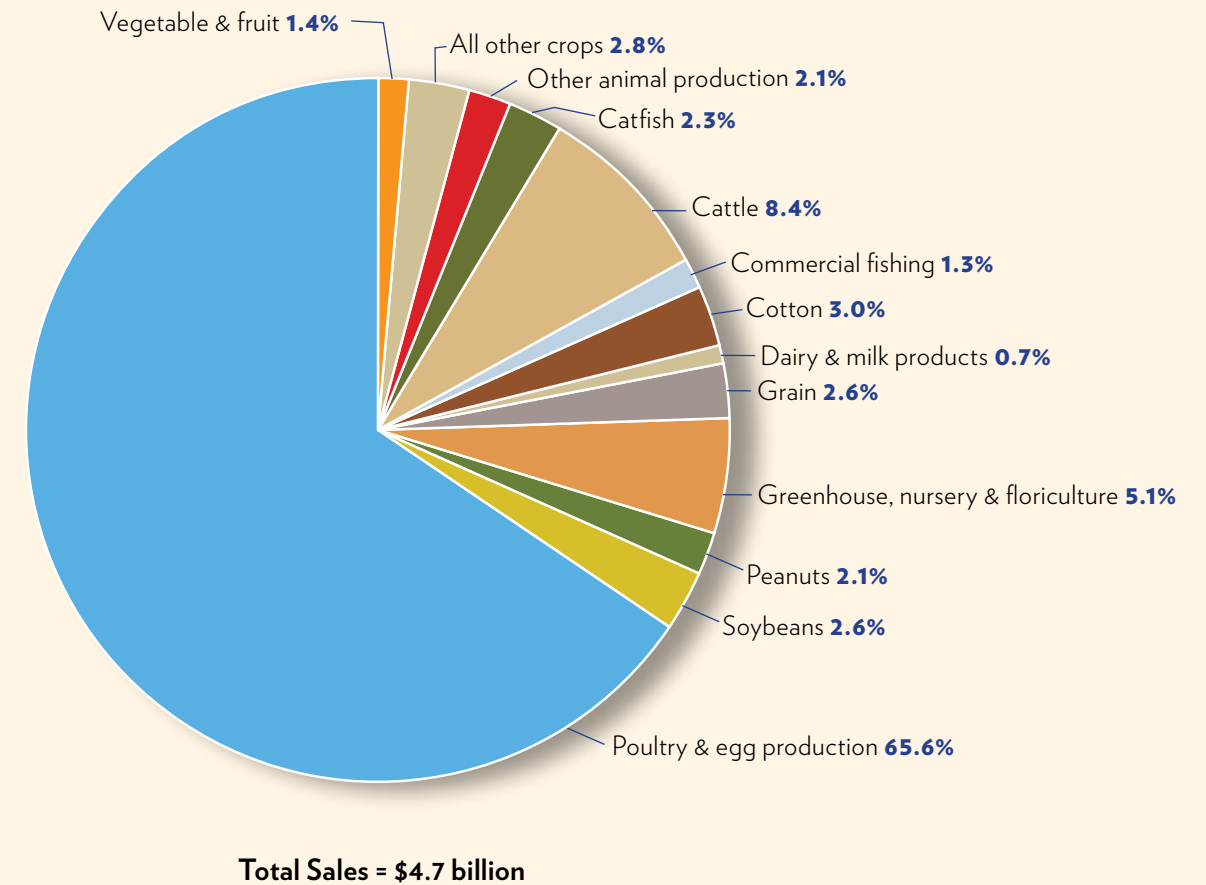
Agricultural production sales included the following:

- \$3.1 billion for poultry and eggs
- \$394.5 million for cattle
- \$237.8 million for greenhouse, nursery, and floriculture production
- \$139.9 million for cotton
- \$122.1 million for soybeans
- \$119.7 million for grain farming
- \$107.5 million for catfish

*Sales are gross receipts or income (at invoice values) received for commodities or services provided.



Figure 1. Sales of Agricultural Products by Commodity Groups



Source: Federal government data as reported in IMPLAN (MIG, Inc. 2010). The sales of catfish and peanuts are disaggregated from "Other animal production" and "All other crops" using NASS and ERS data (NASS 2011; ERS 2012).

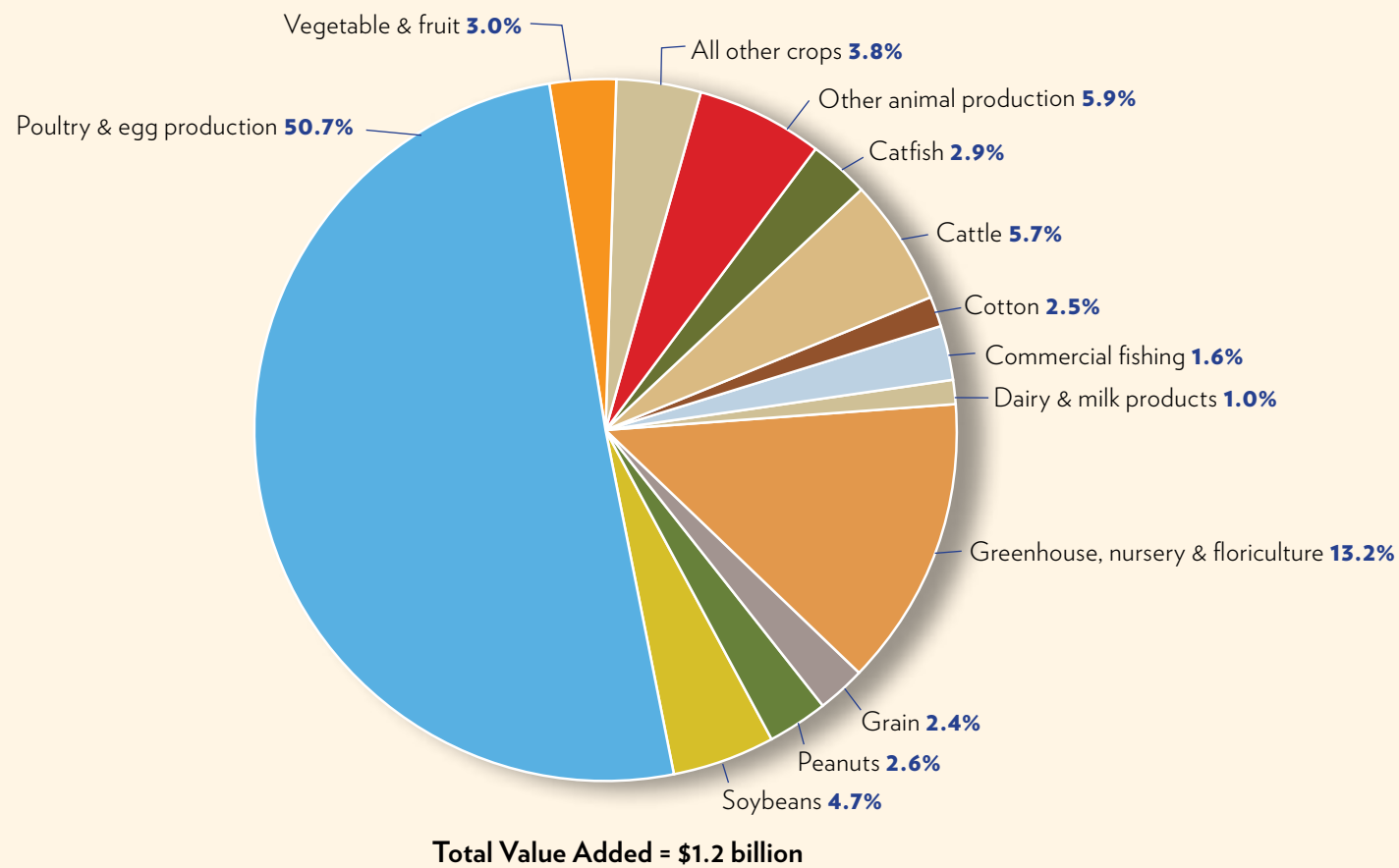


Value Added

The value added* of products totaled \$1.2 billion (Figure 2). The value added of agricultural commodities includes the following:

- \$784.9 million for livestock and poultry (the largest sector is poultry and egg with \$587 million)
- \$373.5 million for crops (the largest sector is greenhouse, nursery, and floriculture with \$152.8 million)

Figure 2. Direct Value Added of Agricultural Products by Commodity Groups



Source: Federal government data as reported in IMPLAN (MIG, Inc. 2010).
The sales of catfish and peanuts are disaggregated from "Other animal production" and "All other crops" using NASS and ERS data (NASS 2011; ERS 2012).

***Value Added** is a broad measure of income, representing the sum of employee compensation, proprietor income, other property income, indirect business taxes, and capital consumption (depreciation). Value added is a commonly used measure of the contribution of an industry to regional economy because it avoids double counting of intermediate sales.

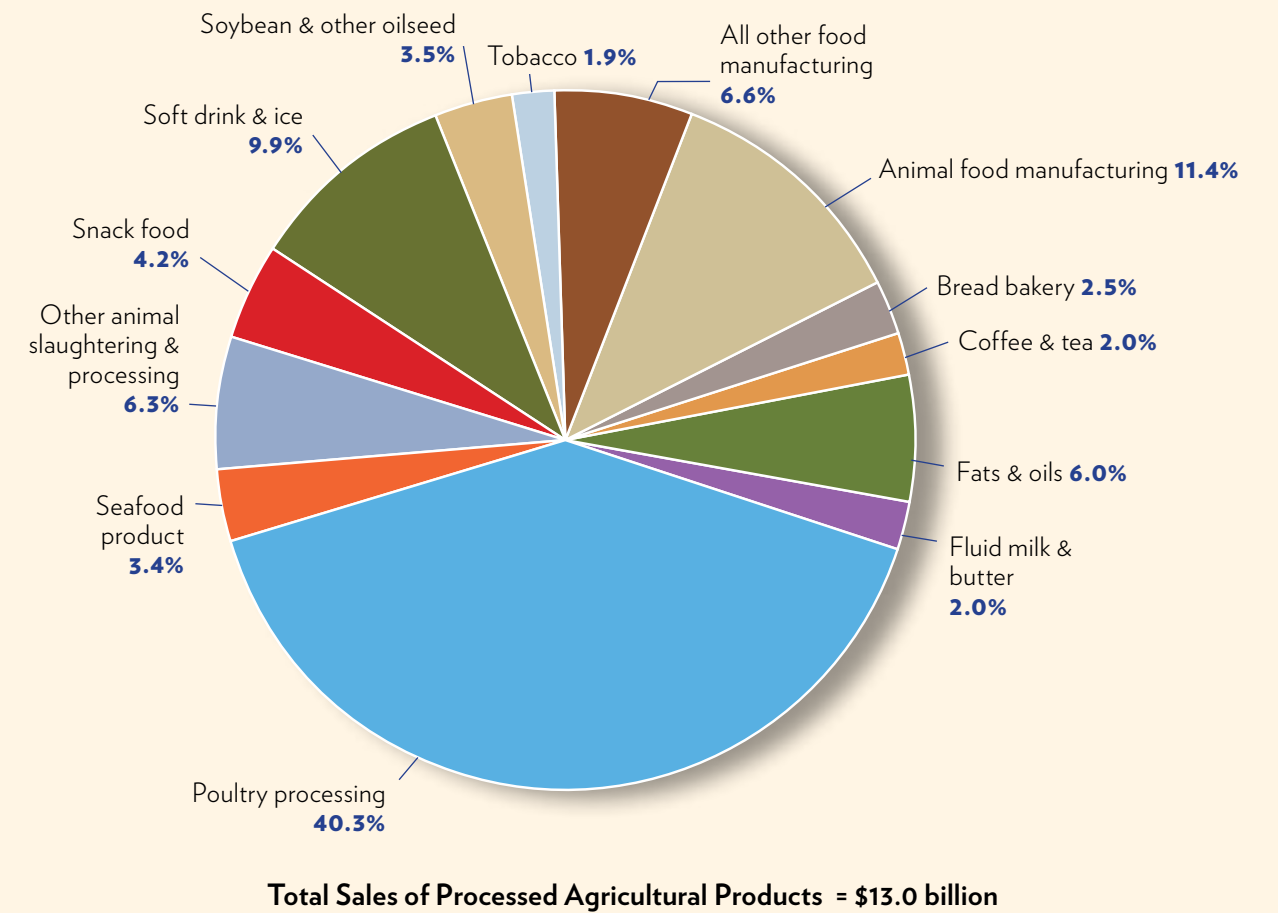


Processing Sectors

The sales of primary agricultural processing sectors totaled \$13.0 billion in 2010 (Figure 3). The following are the largest manufacturing sectors:

- \$5.2 billion for poultry processing
- \$1.5 billion for animal food manufacturing
- \$1.3 billion for soft drink and ice manufacturing

Figure 3. Sales of Primary Agricultural Processing Sectors



Source: Federal government data as reported in IMPLAN (MIG, Inc. 2010).



Alabama's Forestry Industry

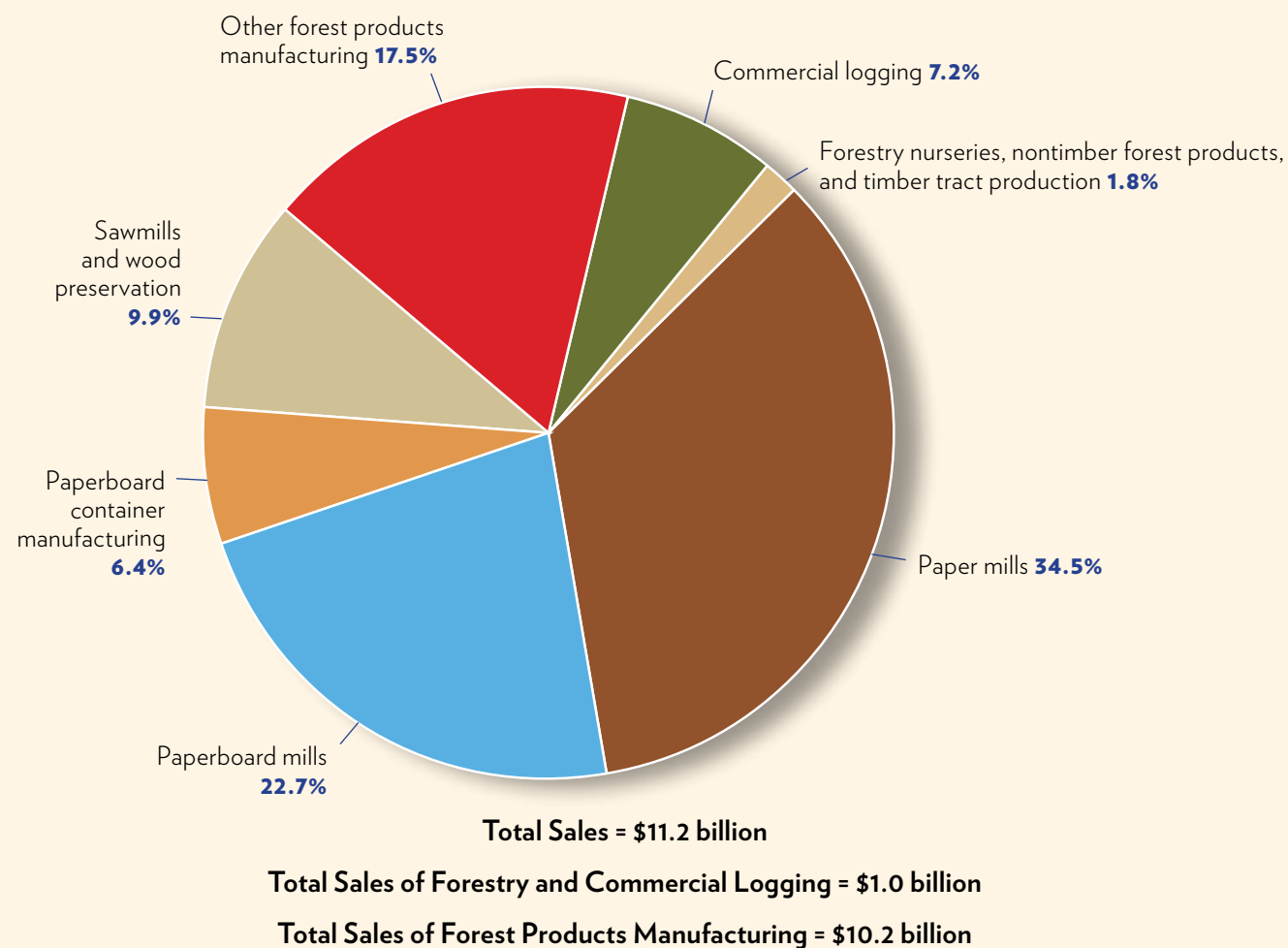
The sales of forest products and related sectors totaled \$11.2 billion in 2010 (Figure 4). This includes the following:

- \$10.2 billion for forest products manufacturing
- \$805.8 million for commercial logging
- \$204 million for forestry nurseries, nontimber forest products, and timber tract production

Forest products manufacturing made up 91 percent of all forestry-related sales of which these are the largest sectors:

- \$3.8 billion for paper mills
- \$2.5 billion for paperboard mills

Figure 4. Sales of Forest Products and Related Sectors



Note: The total sales excludes the output of commercial hunting and trapping, which is less than 2 thousandths of total sales.

Source: Federal government data as reported in IMPLAN (MIG, Inc. 2010).



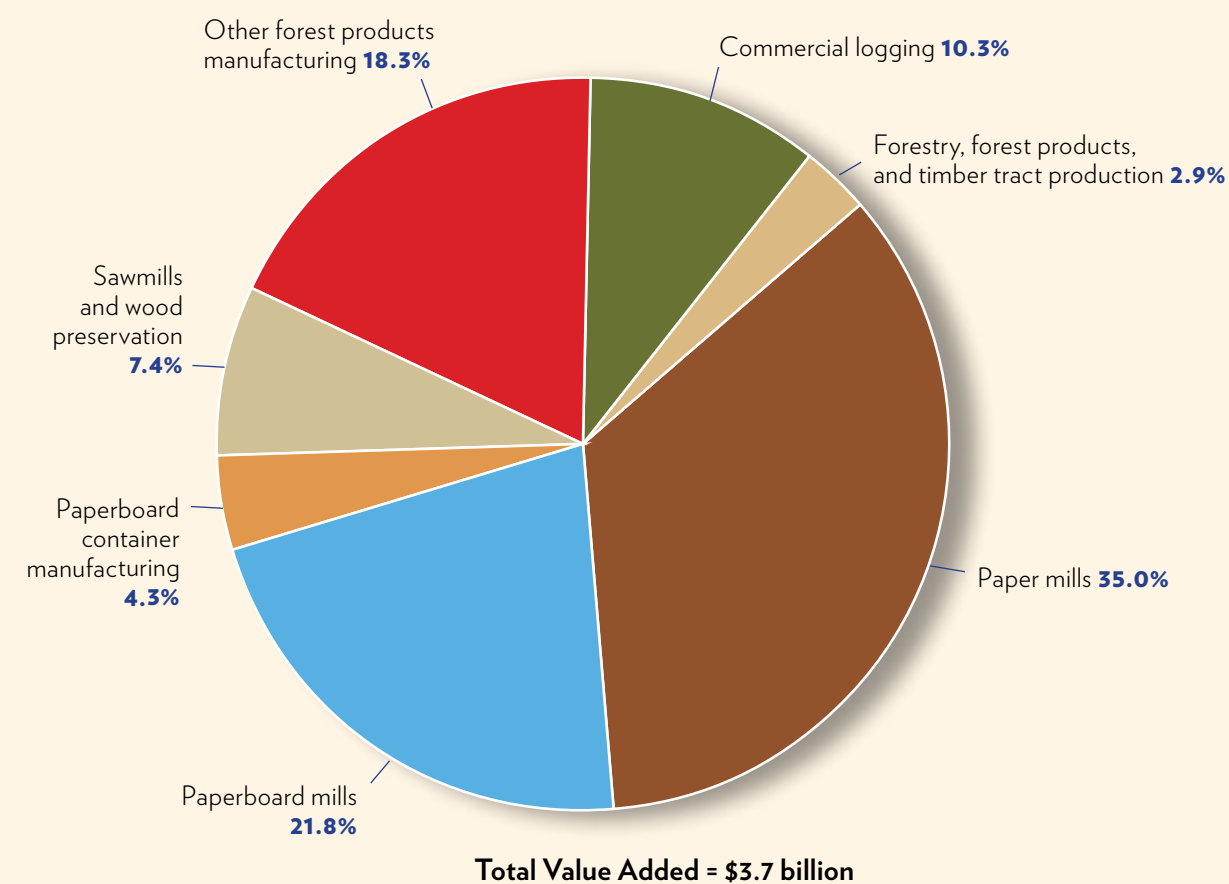
Value Added

The value added of forest products and related sectors totaled \$3.7 billion in 2010 (Figure 5).

This includes the following:

- \$3.2 billion for forest products manufacturing
- \$383.8 million for commercial logging
- \$107.7 million for forestry nurseries, nontimber forest products, and timber tract production

Figure 5. Direct Value Added of Forest Products and Related Sectors



Note: The total value added excludes the value added of commercial hunting and trapping, which is less than 5 thousandths of total value added.

Source: Federal government data as reported in IMPLAN (MIG, Inc. 2010)

METHODS



Economic Model

This study uses the IMPLAN* (Impact analysis for PLANing: Minnesota IMPLAN Group, Inc.) model to capture the connections among agricultural industries and the rest of the state's economy and analyzes their economic impacts. Economic impacts are change in total economic activity (e.g., output and employment) associated with an industry, event, or policy in an existing regional economy. The total economic impacts are the sum of direct effects, indirect effects, and induced effects.

Based on input-output tables of the economy, multipliers were estimated for the state to express the change in statewide output, jobs, and value added associated with a unit change in direct output of a specific sector or industry. Indirect effects multipliers represent the changes in sales or employment within the region in industries supplying goods and services to businesses, while induced effects multipliers represent the changes within the region resulting from spending of the income earned in the direct and supporting industries such as housing, utilities, and food. Both indirect and induced effects were only estimated for foreign and domestic exports, or sales to customers visiting from other states, which represent new money flowing into Alabama's economy.



*IMPLAN is a professional software for impact analysis and social accounting developed by Minnesota Implan Group, Inc. Version 3 was used for this study.



Sectors Included

More than 90 individual industry sectors were identified as related to agriculture and forestry commodity production, including input supply and supporting services, food and kindred product manufacturing, forest product manufacturing, and food and kindred product distribution. Note that some industry sectors in this analysis were reclassified from their original major industry group designation under the North American Industry Classification System (NAICS) to be included as part of the broadly defined agriculture-related industries. The rationale for including processing and manufacturing industries in this analysis is that they share a common dependence upon the agriculture and forestry base and would not exist in the state if not for the basic production activities. Food and kindred product distribution sectors, such as wholesalers, food stores, and restaurants, are the endpoint of the market chain for the delivery of agricultural and forestry products to final consumers.

Measures of Impacts

Three indicators are used to represent the economic importance of agriculture, forestry, and related industries:

- Total impact on state output (measured by statewide sales)
- Total impact on state employment (measured by full-time and part-time jobs generated)
- Total impact on value added (measured by the value added to raw materials in these industries)

Although this study mainly focuses on the total impacts of agriculture, forestry and related industries at the state level, the economic impacts at economic region and subsector levels (such as peanut, catfish, and goat production) are estimated.





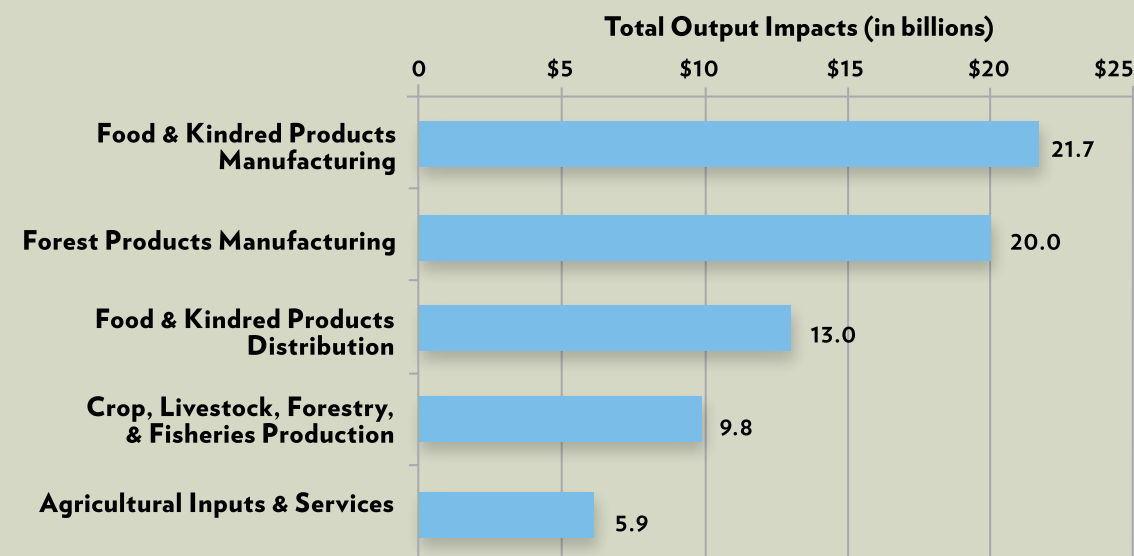
RESULTS



Total Output Impacts

The total output impact (including direct output, indirect effects, and induced effects) of agriculture, forestry, and related industries is estimated to be **\$70.4 billion** (Figure 6). The impact of the agricultural and forestry industries alone is about three quarters of the total for agricultural, forestry, and related industries. The estimated output impacts almost doubles the \$29 billion figure of total sales of the agricultural and forestry industries. The direct output and output impacts for individual sectors are presented in Table 1. Due to the data limitation, the impact of nature-based recreation was beyond the scope of study.

Figure 6. Statewide Output Impacts of Agriculture, Forestry, and Related Industries in Alabama



Total Output Impact for the Agricultural and Forestry Industries = \$51.5 billion

Total Output Impact for Related Industries = \$18.9 billion

Total Output Impact for the Agricultural, Forestry, and Related Industries = \$70.4 billion

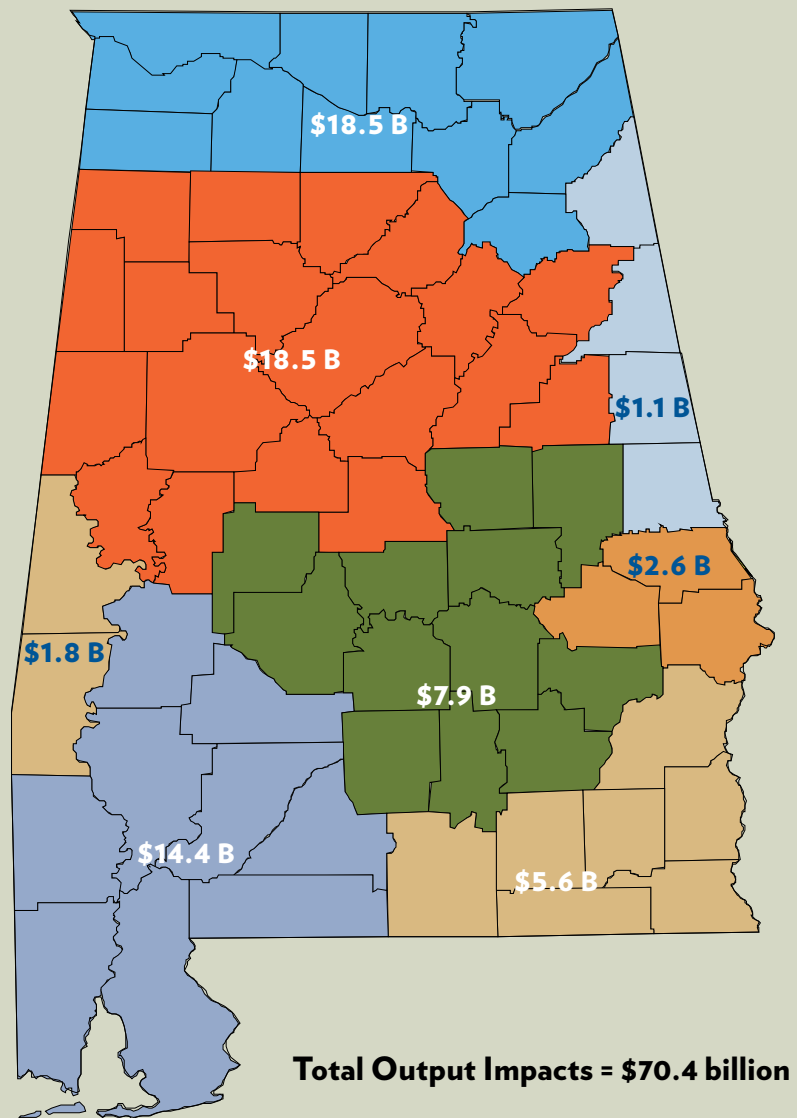
Source: Federal government data as reported in IMPLAN (MIG, Inc. 2010). Estimates include regional multiplier effects.





This study estimates the total output impacts of agriculture, forestry, and related industries for each economic region (defined by the Bureau of Economic Analysis) in Alabama (Figure 7).

Figure 7. Total Output Impacts in Alabama Regions by Agriculture, Forestry, and Related Industries



Source: Federal government data as reported in IMPLAN (MIG, Inc. 2010). Estimates include regional multiplier effects.



Table 1. Statewide Output Impact of Sectors in Agriculture, Forestry, and Related Industries*

Crop, Livestock, Forestry, & Fisheries Production	Direct Output (\$Mn)	Output Impact (\$Mn)
Poultry and egg production	3,079.1	5,002.9
Commercial logging	805.8	1,144.9
Greenhouse, nursery, and floriculture production	237.8	561.6
Cattle ranching and farming	394.5	524.5
Support activities for agriculture and forestry	247.6	512.6
Cotton farming	139.9	290.1
All other crop farming	123.5	267.4
Soybeans	122.1	258.5
Grain farming	119.7	253.9
Forestry nurseries, nontimber forest products, and timber tract production	204.5	240.2
Peanuts	97.6	211.4
Catfish	107.5	158.2
Commercial fishing	61.9	101.3
Animal production, except cattle, catfish, goat, and poultry and eggs	68.4	100.7
Vegetable and melon farming	48.1	65.0
Goat	31.0	45.6
Dairy cattle and milk production	31.3	36.2
Fruit farming	19.6	25.6
Tree nut farming	9.9	18.0
Total for Crop, Livestock, Forestry, & Fisheries Production	5,949.8	9,818.5

*Output Impact = Direct Output + Indirect Effects + Induced Effects

Note: The output impacts of peanuts, catfish, and goat production were estimated using IMPLAN multipliers.

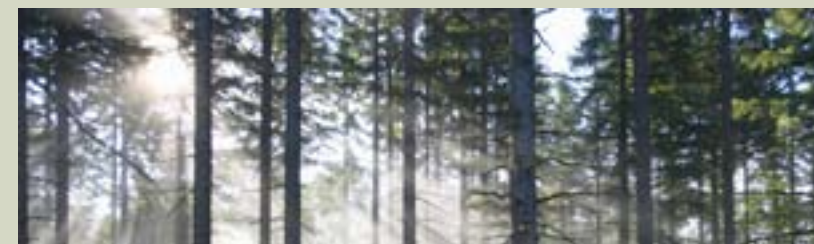




Table 1 Continued

	Direct Output (\$Mn)	Output Impact (\$Mn)
Food & Kindred Products Manufacturing		
Poultry processing	5,248.6	10,146.1
Soft drink and ice manufacturing	1,287.3	1,595.8
Animal (except poultry) slaughtering, rendering, and processing	823.2	1,569.2
Dog and cat food manufacturing	702.5	1,135.1
Snack food manufacturing	550.1	947.5
Other animal food manufacturing	782.0	886.4
Fats and oils refining and blending	775.5	866.3
Seafood product preparation and packaging	444.4	729.1
Soybean and other oilseed processing	456.5	672.8
Bread and bakery product manufacturing	331.0	590.3
Coffee and tea manufacturing	257.3	440.9
Tobacco product manufacturing	250.8	358.1
Fluid milk and butter manufacturing	259.7	333.6
Ice cream and frozen dessert manufacturing	191.7	300.8
Seasoning and dressing manufacturing	194.7	246.5
Wet corn milling	88.5	161.6
Cookie, cracker, and pasta manufacturing	88.5	148.8
All other food manufacturing	68.0	136.0
Frozen food manufacturing	72.5	114.4
Flour milling and malt manufacturing	44.1	84.5
Cheese manufacturing	39.6	63.8
Breweries	30.0	49.1
Confectionery manufacturing from purchased chocolate	16.0	25.7
Sugar cane mills and refining	12.1	19.7
Nonchocolate confectionery manufacturing	10.6	19.3
Flavoring syrup and concentrate manufacturing	4.2	7.5
Fruit and vegetable canning, pickling, and drying	1.8	3.4
Wineries	0.9	1.1
Total for Food & Kindred Products Manufacturing	13,032.1	21,653.4



Table 1 Continued

	Direct Output (\$Mn)	Output Impact (\$Mn)
Forest Products Manufacturing		
Paper mills	3,848.7	7,526.4
Paperboard mills	2,534.6	5,322.1
Sawmills and wood preservation	1,108.0	2,177.1
Paperboard container manufacturing	719.2	1,167.3
Pulp mills	364.6	871.9
Wood windows and doors and millwork manufacturing	331.7	697.5
Veneer and plywood manufacturing	226.7	484.2
Coated and laminated paper, packaging paper and plastics film manufacturing	223.4	397.3
All other paper bag and coated and treated paper manufacturing	228.4	349.6
Reconstituted wood product manufacturing	151.4	275.2
All other converted paper product manufacturing	90.1	167.0
Wood container and pallet manufacturing	119.1	164.6
Engineered wood member and truss manufacturing	69.7	152.2
All other miscellaneous wood product manufacturing	85.1	151.4
Stationery product manufacturing	59.4	101.3
Total for Forest Products Manufacturing	10,160.1	20,004.9
Total for the Agricultural and Forestry Industries	29,142.0	51,476.7





Table 1 Continued

Other Related Industries		
	Direct Output	Output Impact
Food & Kindred Products Distribution		
Food and beverage services	7,426.1	7,683.1
Wholesale trade, food & kindred products	2,491.1	3,347.5
Retail stores, food and beverage	1,674.2	1,676.8
Retail lawn and garden centers	246.6	300.9
Total for Food & Kindred Products Distribution	11,838.0	13,008.4
Agricultural Inputs & Services		
	Direct Output	Output Impact
Pesticide and other agricultural chemical manufacturing	1,319.2	2,416.3
Fertilizer manufacturing	564.6	1,035.5
Landscape services	921.0	1,007.7
Farm machinery and equipment manufacturing	427.1	746.4
Pest control services	331.0	362.2
Veterinary services	278.8	288.6
Lawn and garden equipment manufacturing	15.8	27.9
Mining and quarrying nonmetallic minerals (e.g., phosphate, lime)	3.6	8.3
Total for Agricultural Inputs & Services	3,861.1	5,892.9
Total for Agriculture, Forestry, and Related Industries	44,841.1	70,378.1



Total Employment Impacts

The agricultural, forestry, and related industries are major employers and account for the second largest number of jobs in the state, directly employing nearly 354,000 full- and part-time workers. On average, agriculture, forestry, and related industries generated 8 jobs per million dollars of sales (Table 2).

Table 2. Labor Intensity of Agriculture, Forestry, and Related Industries

Industries	*Jobs/Mn\$
Crop, livestock, forestry & fisheries production	10
Food & kindred products manufacturing	3
Forest products manufacturing	2
Food & kindred products distribution	17
Agricultural inputs & services	8
Average	8

*number of full-time and part-time jobs created per million dollars of output

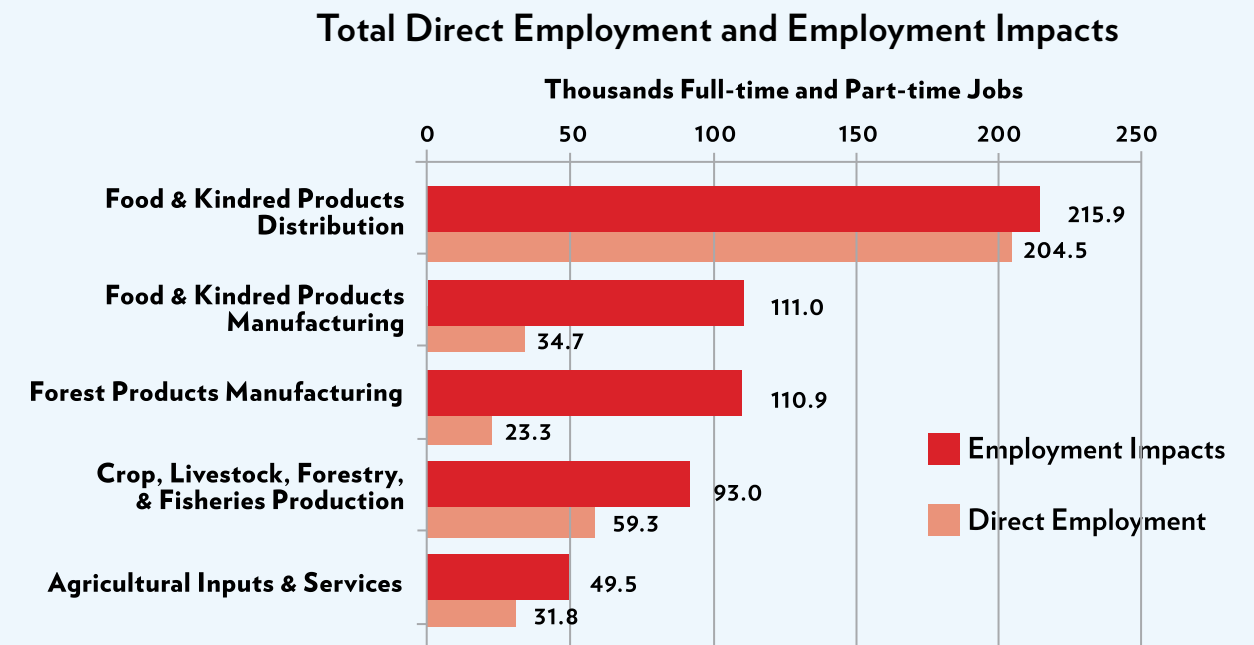




The employment impact (including direct employment, indirect effects, and induced effects) of agriculture, forestry, and related industries totaled **580,295 jobs**, slightly less than the employment impact of manufacturing industries (639,553 jobs) in Alabama. The total employment impact of the agricultural and forestry industries excluding related industries is estimated to be 314,897 jobs in 2010 (Figure 8), more than half of the total for agricultural, forestry, and related industries. The direct employment and employment impacts for individual sectors are presented in Table 3.



Figure 8. Statewide Employment Impacts of Agriculture, Forestry, and Related Industries in Alabama



Total Employment Impact for Agriculture and Forestry Industries = 314,897 jobs

Total Employment Impact for Related Industries = 265,398 jobs

Total Employment Impact for Agriculture, Forestry, and Related Industries = 580,295 jobs

Agricultural, forestry, and related industries generate an additional 9 jobs for each job in production agriculture, forestry, and fisheries.

Source: Federal government data as reported in IMPLAN (MIG, Inc. 2010). Estimates include regional multiplier effects.



Table 3. Statewide Employment Impact* of Sectors in Agriculture, Forestry, and Related Industries**

Crop, Livestock, Forestry & Fisheries Production***	Direct Employment	Employment Impact
Poultry and egg production	11,477	25,917
Commercial logging	7,039	10,296
Support activities for agriculture and forestry	6,019	8,655
Cattle ranching and farming	6,270	7,656
Greenhouse, nursery, and floriculture production	3,721	6,988
Catfish	5,341	5,829
Grain farming	4,525	5,786
Soybeans	2,958	4,297
Animal production, except cattle, catfish, goat, and poultry and eggs	3,398	3,708
Cotton farming	1,342	2,795
All other crop farming	1,184	2,588
Commercial fishing	1,718	2,117
Peanuts	936	2,046
Goat	1,541	1,681
Forestry nurseries, nontimber forest products, and timber tract production	444	844
Vegetable and melon farming	496	667
Dairy cattle and milk production	437	482
Tree nut farming	238	316
Fruit farming	246	306
Total for Crop, Livestock, Forestry, & Fisheries Production	59,330	92,974

*Employment Impact = Direct Employment + Indirect Effects + Induced Effects

**The direct employment and employment impacts are in number of full-time and part-time jobs.

***The direct employment and employment impacts of peanuts, catfish, and goat production were estimated using IMPLAN multipliers.



Table 3 Continued

Food & Kindred Products Manufacturing	Direct Employment	Employment Impact
Poultry processing	22,562	60,320
Animal (except poultry) slaughtering, rendering, and processing	1,847	11,263
Seafood product preparation and packaging	1,379	4,616
Soft drink and ice manufacturing	1,761	4,371
Bread and bakery product manufacturing	1,851	4,354
Snack food manufacturing	797	4,353
Dog and cat food manufacturing	580	4,306
Fats and oils refining and blending	485	2,558
Soybean and other oilseed processing	112	2,426
Coffee and tea manufacturing	392	2,049
Other animal food manufacturing	657	1,496
Ice cream and frozen dessert manufacturing	463	1,385
Tobacco product manufacturing	143	1,222
Seasoning and dressing manufacturing	362	1,121
Fluid milk and butter manufacturing	424	1,104
All other food manufacturing	192	849
Cookie, cracker, and pasta manufacturing	200	730
Wet corn milling	39	666
Frozen food manufacturing	230	589
Flour milling and malt manufacturing	35	385
Cheese manufacturing	52	280
Breweries	39	220
Confectionery manufacturing from purchased chocolate	59	140
Nonchocolate confectionery manufacturing	30	105
Sugar cane mills and refining	14	79
Flavoring syrup and concentrate manufacturing	1	32
Fruit and vegetable canning, pickling, and drying	4	17
Wineries	3	5
Total for Food & Kindred Products Manufacturing	34,713	111,044



Table 3 Continued

	Direct Employment	Employment Impact
Forest Products Manufacturing		
Paper mills	5,015	37,809
Paperboard mills	3,301	28,100
Sawmills and wood preservation	4,956	14,653
Paperboard container manufacturing	1,990	5,662
Wood windows and doors and millwork manufacturing	2,149	5,399
Pulp mills	472	4,991
Veneer and plywood manufacturing	1,371	3,766
Coated and laminated paper, packaging paper, and plastics film manufacturing	460	1,974
All other paper bag and coated and treated paper manufacturing	621	1,651
Reconstituted wood product manufacturing	454	1,619
Wood container and pallet manufacturing	1,035	1,447
Engineered wood member and truss manufacturing	498	1,223
All other miscellaneous wood product manufacturing	462	1,074
All other converted paper product manufacturing	296	969
Stationery product manufacturing	194	544
Total for Forest Products Manufacturing	23,274	110,880
Total for the Agricultural and Forestry Industries	117,317	314,897



Table 3 Continued

Other Related Industries		
	Direct Employment	Employment Impact
Food & Kindred Products Distribution		
Food and beverage services	151,212	153,202
Retail stores, food and beverage	33,389	33,390
Wholesale trade, food & kindred products	16,581	25,414
Retail lawn and garden centers	3,313	3,862
Total for Food & Kindred Products Distribution	204,495	215,868
Agricultural Inputs & Services	Direct Employment	Employment Impact
Landscape services	17,363	18,240
Pesticide and other agricultural chemical manufacturing	788	10,407
Pest control services	6,241	6,556
Veterinary services	5,982	6,066
Fertilizer manufacturing	435	4,350
Farm machinery and equipment manufacturing	938	3,699
Lawn and garden equipment manufacturing	41	145
Mining and quarrying nonmetallic minerals (e.g., phosphate, lime)	21	66
Total for Agricultural Inputs & Services	31,809	49,530
Total for Agriculture, Forestry, and Related Industries	353,621	580,295

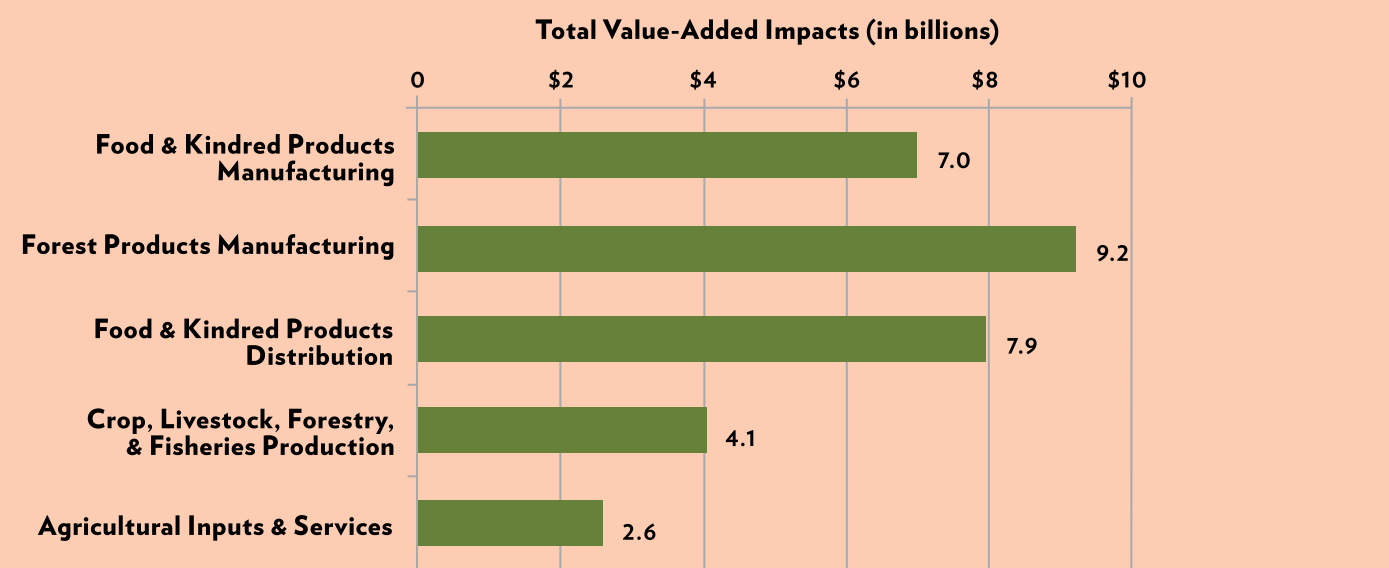




Total Value-Added Impacts

The estimated total value-added impact of the agricultural, forestry, and related industries in 2010 was \$30.8 billion, with the agricultural and forestry industries accounting for approximately 65.7 percent of the total (Figure 9).

Figure 9. Statewide Value-Added Impacts of Agriculture, Forestry, and Related Industries in Alabama



Total Value-Added Impact for the Agricultural and Forestry Industries = \$20.2 billion

Total Value-Added Impact for Related Industries = \$10.6 billion

Total Value-Added Impact for the Agriculture, Forestry, and Related Industries = \$30.8 billion

Source: Federal government data as reported in IMPLAN (MIG, Inc. 2010). Estimates include regional multiplier effects.

Table 4. Statewide Value-Added Impact* of Sectors in Agriculture, Forestry, and Related Industries**

Crop, Livestock, Forestry, & Fisheries Production***	Direct Value-Added (\$Mn)	Value-Added Impact (\$Mn)
Poultry and egg production	587.0	1,575.4
Commercial logging	383.8	598.4
Greenhouse, nursery, and floriculture production	152.8	363.3
Support activities for agriculture and forestry	190.2	361.1
Soybeans	54.0	141.1
Cattle ranching and farming	65.7	132.0
All other crop farming	38.7	131.3
Forestry nurseries, nontimber forest products, and timber tract production	107.7	131.0
Cotton farming	29.3	123.3
Grain farming	27.3	112.8
Peanuts	30.6	103.8
Catfish	52.9	84.2
Animal production, except cattle, catfish, goat, and poultry and eggs	33.7	53.6
Commercial fishing	18.9	44.3
Vegetable and melon farming	24.7	35.6
Goat	15.3	24.3
Dairy cattle and milk production	11.5	14.3
Fruit farming	10.3	14.1
Tree nut farming	5.6	10.8
Total for Crop, Livestock, Forestry, & Fisheries Production	1,840.0	4,054.6

***Value Added Impact = Direct Value Added + Indirect Effects + Induced Effects**

**The direct value-added and value added impact are in million dollars.

***The value-added impacts of peanuts, catfish, and goat production were estimated using IMPLAN multipliers.





Table 4 Continued

Food & Kindred Products Manufacturing	Direct Value-Added (\$Mn)	Value-Added Impact (\$Mn)
Poultry processing	908.8	3,351.0
Animal (except poultry) slaughtering, rendering, and processing	93.4	454.3
Dog and cat food manufacturing	167.4	422.3
Snack food manufacturing	149.6	391.9
Soft drink and ice manufacturing	194.9	375.7
Bread and bakery product manufacturing	116.5	279.7
Tobacco product manufacturing	171.7	243.5
Seafood product preparation and packaging	49.1	219.2
Fats and oils refining and blending	77.9	206.7
Coffee and tea manufacturing	42.5	156.2
Other animal food manufacturing	94.3	153.5
Soybean and other oilseed processing	22.2	151.1
Ice cream and frozen dessert manufacturing	39.6	102.4
Fluid milk and butter manufacturing	45.6	87.8
Seasoning and dressing manufacturing	25.5	78.1
All other food manufacturing	20.2	62.2
Cookie, cracker, and pasta manufacturing	21.4	58.0
Wet corn milling	10.0	55.2
Frozen food manufacturing	13.8	38.3
Flour milling and malt manufacturing	6.1	32.0
Breweries	9.5	21.7
Cheese manufacturing	3.8	17.8
Confectionery manufacturing from purchased chocolate	1.9	7.7
Nonchocolate confectionery manufacturing	2.2	7.4
Sugar cane mills and refining	1.0	5.6
Flavoring syrup and concentrate manufacturing	1.8	3.9
Fruit and vegetable canning, pickling, and drying	0.4	1.3
Wineries	0.1	0.3
Total for Food & Kindred Products Manufacturing	2,291.2	6,984.7



Table 4 Continued

Forest Products Manufacturing	Direct Value-Added (\$Mn)	Value-Added Impact (\$Mn)
Paper mills	1,298.5	3,554.0
Paperboard mills	811.1	2,505.8
Sawmills and wood preservation	274.1	910.8
Paperboard container manufacturing	159.8	425.5
Pulp mills	113.1	414.9
Wood windows and doors and millwork manufacturing	107.4	323.1
Veneer and plywood manufacturing	79.5	238.0
Coated and laminated paper, packaging paper and plastics film manufacturing	83.2	188.6
Reconstituted wood product manufacturing	72.5	148.4
All other paper bag and coated and treated paper manufacturing	66.4	138.8
All other miscellaneous wood product manufacturing	40.5	80.7
Engineered wood member and truss manufacturing	27.2	75.0
All other converted paper product manufacturing	27.9	74.8
Wood container and pallet manufacturing	45.7	73.4
Stationery product manufacturing	14.3	39.3
Total for Forest Products Manufacturing	3,221.2	9,191.1
Total for the Agricultural and Forestry Industries	7,352.4	20,230.4





Table 4 Continued

Other Related Industries

	Direct Value-Added	Value-Added Impact
Food & Kindred Products Distribution		
Food and beverage services	3,839.6	4,010.3
Wholesale trade, food & kindred products	1,939.6	2,504.8
Retail stores, food and beverage	1,227.6	1,229.1
Retail lawn and garden centers	168.5	204.4
Total for Food & Kindred Products Distribution	7,175.3	7,948.6
Agricultural Inputs & Services		
Pesticide and other agricultural chemical manufacturing	409.3	1,077.7
Landscape services	467.0	522.6
Fertilizer manufacturing	55.6	332.9
Farm machinery and equipment manufacturing	106.6	295.6
Pest control services	167.9	187.8
Veterinary services	156.8	163.2
Lawn and garden equipment manufacturing	3.8	10.9
Mining and quarrying nonmetallic minerals (e.g., phosphate, lime)	2.4	5.4
Total for Agricultural Inputs & Services	1,369.4	2,596.1
Total for Agriculture, Forestry, and Related Industries	15,897.1	30,775.1



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Appendix

Nature-based recreation in Alabama provides significant economic impacts to the state of Alabama; however, it is beyond the scope of this report. Nature-based recreation includes activities such as hunting, fishing, bird watching, camping, hiking, canoeing, mountain biking, horseback riding, and ATV trail riding. Alabama residents and visitors travel within the state, stay in hotels and lodges, eat at restaurants, purchase recreation equipment, hire guides and take tours, and pay access and license fees that all contribute to and multiply within the state economy. The U.S. Fish and Wildlife Service gathers data on participation and economic impacts of hunting, fishing, and wildlife viewing across America with data developed for each state. The survey began in 1955 and is conducted approximately every 5 years. The most recent report with data available is from 2006. From this report, three economic assessments were developed: hunting, sportfishing, and wildlife watching. The economic values for these three activities are reported below. The values below should be considered conservative as the total benefit of nature-based recreation to Alabama would need to include estimates of the impacts for all nature-based recreation activities.

	Total Sales	Output Impact	Value-Added Impact	Employment Impact
Hunting	\$846,607,925	\$1,388,634,035	\$426,934,839	17,487
Sportfishing	\$878,457,126	\$1,436,445,192	\$406,102,677	14,675
Wildlife watching	\$450,004,000	\$763,019,969	\$261,145,268	10,157
Total	\$2,175,069,051	\$3,588,099,196	\$1,094,182,784	42,319



Glossary of Economic Impact Analysis Terms

Employment is a measure of the number of jobs involved, including full-time, part-time, and seasonal positions. It is not a measure of full-time equivalents (FTE).

IMPLAN is a computer-based input-output modeling system that enables users to create regional economic models and multipliers for any region consisting of one or more counties or states in the United States. The current version of the IMPLAN software, version 3, accounts for commodity production and consumption for 440 industry sectors, 10 household income levels, taxes to local/state and federal governments, capital investment, imports and exports, transfer payments, and business inventories. Regional data sets for individual counties or states are purchased separately.

Impact or total impact is the change in total regional economic activity (e.g., output, employment) associated with an industry, event, or policy in an existing regional economy, estimated based on regional economic multipliers.

Income is the money earned within the region from production and sales. Total income includes labor income such as wages, salaries, employee benefits, and business proprietor income, plus other property income.

Input-Output (I-O) model and Social Accounting Matrix (SAM) is a representation of the transactions between industry sectors within a region that captures what each sector purchases from every other sector to produce its output of goods or services. Using such a model, flows of economic activity associated with any change in spending may be traced backward through the supply chain.

Local refers to good and services that are sourced from within the region, which may be defined as a county, multicounty cluster, or state. Nonlocal refers to economic activity originating outside the region.

Multipliers capture the total effects, both direct and secondary, in a given region, generally as a ratio of the total change in economic activity in the region relative to the direct change. Multipliers are derived from an I-O model of the regional economy. Multipliers may be expressed as ratios of sales, income, or employment, or as ratios of total income or employment changes relative to direct sales. Multipliers express the degree of interdependency between sectors in a region's economy and vary considerably across regions and sectors.

Indirect effects multipliers represent the changes in sales, income, or employment within the region in backward-linked industries supplying goods and services to businesses (e.g., increased sales in input supply firms resulting from more nursery industry sales).

Induced effects multipliers represent the increased sales within the region from household spending of the income earned in the direct and supporting industries such as housing, utilities, and food.

Other property income represents income received from investments, such as corporate dividends, royalties, property rentals, or interest on loans.

Output is the dollar value of a good or service produced or sold and is equivalent to sales revenues plus changes in business inventories. For retail sectors, output is the gross margin on sales.

Region defines the geographic area for which impacts are estimated, usually an aggregation of several counties defined on the basis of worker commuting patterns.

Sales are gross receipts or income (at invoice values) received for commodities or services provided.

Sector is an individual industry or group of industries that produce similar products or services or have similar production processes. Sectors are classified according to the North American Industrial Classification System (NAICS).

Value Added is a broad measure of income, representing the sum of employee compensation, proprietor income, other property income, indirect business taxes, and capital consumption (depreciation). Value added is a commonly used measure of the contribution of an industry to regional economy because it avoids double counting of intermediate sales.

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Alabama Ag & Farm Credit Banks | Alabama Catfish Producers
Alabama Cattlemen's Association | Alabama Cotton Commission
Alabama Farmers Cooperative
Alabama Wheat and Feed Grain Producers
Alabama Peanut Producers
Alabama Soybean Producers | Dow AgroScience
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Due to the data limitation, the impacts of agricultural products such as catfish, goat, and peanut production were estimated using multiplier effects of animal production and other crop farming. More accurate assessment will need the multiplier effects for specific products.